MORNSUN®

AC/DC Converter · DC/DC Converter · Transceiver Module · Isolation Amplifier

IGBT Driver · LED Driver · EMC Auxiliary Device

Product Catalogue 2019

MORNSUN®

MORE THAN RELIABILITY

Headquarter in Guangzhou

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MORNSUN® MORNSUN, a national high-tech enterprise headquartered in China, has grown into a leading vertical industrial power supply manufacturer.

Keeping the spirit of being forerunner, MORNSUN specializes in magnetic isolation technology and product research and application, and manufactures high-quality products include AC/DC converter, DC/DC converter, adapter, isolation transmitter, IGBT driver and LED driver , etc. most of which got UL, CE, CSA, CB and DoE Level VI certification.

R&D Center in Guangzhou

As an IPR Demonstration Enterprises in Guangdong, MORNSUN is one of few power supply manufactures that has its own independent Intellectual Property Rights of integrated circuit, innovative transformer structure, assembly system and appearance design. Over the past 20 years, MORNSUN applied 400+ patents for inventions.

Guided by the service principle of "trust worthy", MORNSUN established its subsidiaries in America and Germany, expanded its distribution network in 40+ countries and operated sample inventory in Germany, North America, India, Japan and others to offer the best service to local clients in those locations.

As part of society, MORNSUN focuses on teamwork and persistent hard work, and it's deeply devoted to her role as a responsible corporate citizen around the world. Based on it, MORNSUN holds the core value of "creating value for her employees, clients, shareholders and developing our business to repay the society" and takes it as her mission to make contribution to the development of society and progress of the humankind by pursuing excellence unremittingly.

MORNSUN is marching a new silk road like a camel without any stop to realize new brilliant.


Manufacturing Center in Huaihua

Milestones

2018----Awarded "Best Employer of China" for 5 years in a row (2013-2018)

2017----Awarded "TOP 500 Manufacturing enterprise in Guangdong Province" for 2 years in a row(2016-2017)

2017----Awarded Sci-Tech Awards by CHINA POWER SUPPLY SOCIETY for 3 times in a row (2013-2017, biennial event)

2017----Awarded "TOP 10 Power Supply Product" for 6 years in a row (2012-2017)

2017----Awarded "Guangdong Outstanding Export Enterprise 2017"

2017----Awarded "Intellectual Property Mayor award in Guangzhou"

2017----Established MORNSUN Power GmbH in Germany

2017----Awarded"IPR Demonstration Enterprises in Guangdong 2017"

2017----Acquired"Guangdong Provincial Enterprise Technology Center"approval

2017----Member of the Product Safety Standards Working Group (under Ministry of Industry and Information Technology) and of drafting compulsory GB4943.1 standard and amending IEC62368-1 draft

2017----High frequency switching DC power source awarded "Well-Known Product" in Guangdong（2014、2017）

2016----Completed the certification of GB/T29490-2013 Enterprise IPR Management

2016----Awarded "Top 100 Innovative Enterprise in Guangdong"

2016----Awarded "To 20 Enterprise of Patent Creating in Development Zone" for 5 years in a row（2012-2016）

2016----Awarded"Guangdong Golden Award of Patent"

2015----Awarded "Guangdong Engineering Technology Research Center of Industrial Power Supply Module "

2015----Awarded "Well-Known Trademark"in Guangdong

2014----Purchased MORNSUN Guangzhou R&D center building

2013----Drafted Fixed voltage input and Unregulated output isolated DC-DC model power supply, standard number (pending): Energy 20130817

2012----Drafted Wide voltage input and regulated output isolated DC-DC model power supply, standard number NB/T 42039-2014, which goes into effect from Nov. 1 2014

2012----Ranked the top 18th of 100 most potential private companies by Forbes China

2012----Awarded "Most Satisfactory Employer of China 2012"under the Hi-Tech category

2011----Established MORNSUN Huaihua manufacturing center

2010----Moved to MORNSUN new headquarter building in Guangzhou Science City

2008----Established MORNSUN America, LLC in MA, USA

2003----Awarded "High-tech Enterprise"

2001----Implemented informational management system

1998.07----Established MORNSUN in Guangzhou, China

One-stop solutions of industrial power supplies

Professional Technology & International Standard

- 700+ patents and IPRs: power circuit topology, transformer structures, assembling technology and etc;
- Drafted the standard *NB/T 42039-2014* and *Energy 20130817*;
- International standard pin-out and SMD package with convenient design and automatic manufacturing process.

360° Professional Support

- Professional selection guide : 'Choose the product that works';
- Precise trading: Nearly 100% OTD and door-to-door delivery which reduce customers' cost and risks;
- 360° professional support: Fast response within 48hrs, routine visit, technical communication and discussion.

Reliability Ensured Throughout The Whole Manufacturing Process

- Seven platforms ensuring the reliability and controllability for the whole process from R&D, manufacturing to marketing;
- Seven platforms: Technology management platform,Material management platform, Failure analysis platform,Manufacturing platform,Process control platform,Personnel training platform,Service platform.

Notes:

NB/T 42093-2014: Wide voltage input and regulated output isolated DC-DC model power supply
Energy 20130817: Fixed voltage input and unregulated output isolated DC-DC model power supply

Automatic SMT clean room

Certifications

Key to the Reliability

Power supply is the heart of industrial equipment. What customers concern most is not the price, the function or the efficiency, but the reliability of the power supply. In other words, it must not break down especially in various extreme situations.

It is easy to guarantee the function of the power supply, but not for the reliability, particularly the reliability of the power supply under harsh conditions. The reliability can only be achieved by a perfect management system which consists of advanced research technology, high-quality raw material platform, advanced equipment, excellent manufacturing process management, specialized screening sequence on reliability and rich experience.

Meanwhile, the reliability of products depends on not only design and manufacturing but also customers' proper operation. Therefore, MORNSUN FAE team are ready to offer professional technical support to customers to enhance the reliability.

Therefore, improving the reliability of the products is not a simple task but a rather complex system.

To meet customers demand and expectation, MORNSUN spends much time and money to improve the power supply reliability. In 2007, MORNSUN established the power supply reliability system project and brought in 7 platforms to improve the reliability of MORNSUN products in the following 11 years, including Technology management platform,Material management platform,Failure analysis platform,Manufacturing platform,Process control platform,Personnel training platform,Service platform.. Thanks to these platforms, MORNSUN makes significant breakthroughs in all existing products and develops R3 DC-DC Converter with higher reliability and upgraded performance.

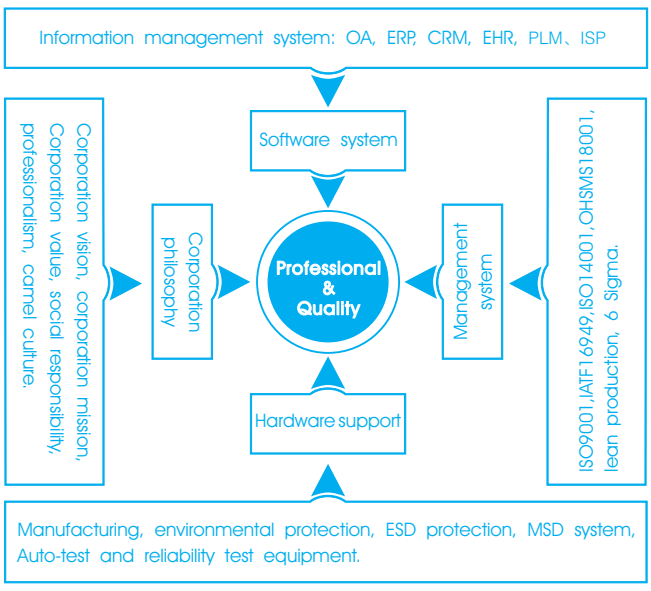
"No pain, no gain." The reliability can only be achieved by earnest, meticulous work, step by step, which is consistent with MORNSUN's Camel Culture. In conclusion, MORNSUN's meticulous and systemic work makes products reliable .

Automatic workshop

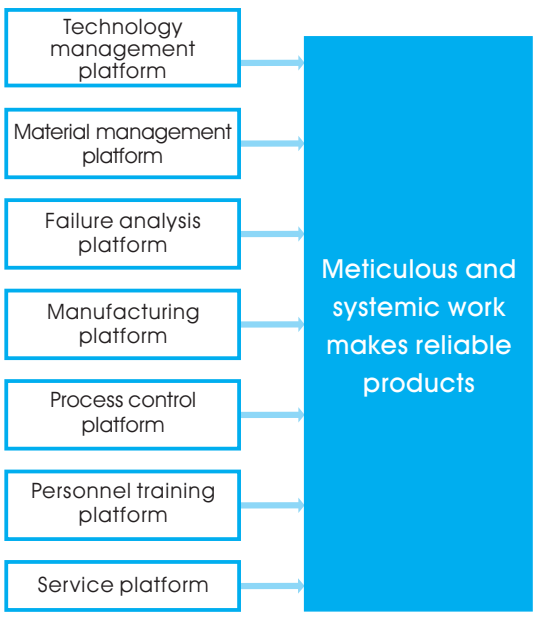
Systems

IATF16949 ISO9001 ISO14001 OHSAS18001

MORNSUN's TQA System Architecture



Reliability Assurance



Recommended Selection of AC/DC Converter for Application Environment

Causes and basis for classification

Cause:

AC/DC converter can be used in various applications which are complicated and volatile in practical application, such as commercial, industrial and military environment. Whereas many people do not take the requirement and impact of environment to product performance into consideration and misunderstand that AC/DC converter can be used in all environments; which may cause:

1. Redundant performance results in increased system cost which further weaken its market competitiveness.
2. Inadequate performance results in damage to system or even cause it unable to work normally

So it does matter that "Choose the product that works". To make the most optimal choice for performance, price and reliability, the assessment and classification of practical application environment is needed; which can avoid traps and over design.

Basis:

The characteristics of system operation, change range of environment temperature, requirement of industry standard for power supply in performance and certification.

Commercial Indoor Environment

- Operation environment: intermittent power supply mode, system runs on standby for most of the time
- Environment temperature: -10℃ to +40℃
- Performance requirement: EMI meets CLASS B
- Applications: household appliances, consumer electronics, office equipments



Suitable for smart home, household appliances

Series	Power	Input Voltage Range (VDC)	Output Voltage (VDC)	Certification	Page
LS01-15BxxSS(-F)	1W	85-305VAC/70-430VDC	5,9,12,15,24	RoHS cULus CE CB	32
LS03-15BxxSR2S(-F)	3W	85-305VAC/70-430VDC	3.3,5,9,12,15,24	RoHS cULus CE CB	32
LS05-15BxxSS(-F)	5W	85-264VAC/100-400VDC	3.3,5,9,12,15,24	RoHS cULus CE CB	32
LO03-10B	3W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	RoHS	46
LO05-12B	5W	165-264VAC/230-370VDC	3.3,5,9,12,15,24	RoHS	46
LO15-10B	15W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	RoHS CE (pending)	46
LO30-10B	30W	85-264VAC/100-370VDC	3.3,5,9,12,15,24,48	RoHS CE (pending)	46
LO45-10B	45W	85-264VAC/100-370VDC	3.3,5,9,12,15,24,48	RoHS CE (pending)	46
LO65-10B	65W	85-264VAC/100-370VDC	3.3,5,9,12,15,24,48	RoHS CE (pending)	46

Industrial Indoor Environment

- Operation environment: system runs without interruption
- Environment temperature: -25 to +55℃
- Performance requirement: EMI meets CLASS B
- Application: intelligent building, building monitoring



Suitable for intelligent building, smart agriculture

Series	Power	Input Voltage Range (VDC)	Output Voltage (VDC)	Certification	Page
LDE03-20B	3W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	RoHS cULus CE CB	36
LDE05-20B	5W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	RoHS cULus CE CB	36
LDE06-20B	6W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	RoHS cULus CE CB	36

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Recommended Selection of AC/DC Converter for Application Environment

Suitable for intelligent building, smart agriculture

Series	Power	Input Voltage Range (VDC)	Output Voltage (VDC)	Certification	Page
LDE10-20B	10W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	RoHS	36
LDE15-20B	15W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	RoHS	36
LDE20-20B	20W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	RoHS	36
LD10-13B	10W	85-305VAC/122-430VDC	3.3,5,9,12,15,24	RoHS	38
LD10-26B	10W	90-528VAC/100-745VDC	3.3,5,9,12,15,24	RoHS	35
LD20-26B	20W	90-528VAC/100-745VDC	3.3,5,9,12,15,24	RoHS	35
LD01-10B	1W	85-305VAC/120-430VDC	3.3,5,9,12,15,24	RoHS	38
LDE02-23B	2W	85-305VAC/120-430VDC	3.3,5,9,12,15,24	RoHS	38
LD03-16B	3W	90-528VAC/100-745VDC	3.3,5,9,12,15,24	RoHS	35
LD05-23B	5W	85-305VAC/100-430VDC	3.3,5,9,12,15,24	RoHS	38
LS05-26BxxSS(-F)	5W	90-528VAC/100-745VDC	3.3,5,9,12,15,24	RoHS	33

Series	Power	Input Voltage Range	Output Available (Vo1/Vo2/Vo3)	Output Available (Vo4/Vo5)	Output Available (Vo6/Vo7)	Certification	Page
LO10-10J	10W	85-264VAC/120-370VDC	Triple outputs available (3.3V-24V)	Positive and negative voltage available (±5V to ±24V)	Positive and negative voltage available (±5V to ±70V)	RoHS	48

Special Industrial Indoor Environment

- Operation environment: closed to or direct connect /contact with human body
- Environment temperature: -25 to +70℃
- Performance requirement: EMI meets CLASS B, typical application or certification requirements
- Application: medical

Suitable for medical equipment

Series	Power	Input Voltage Range (VDC)	Output Voltage (VDC)	Certification	Page
LD05-20BxxMU	5W	85-264VAC/100-370VDC	5,12,15,24	RoHS	45
LH15-20BxxMU	15W	85-264VAC/100-370VDC	5,12,15,18,24	RoHS	45
LH25-20BxxMU	25W	85-264VAC/100-370VDC	5,12,15,18,24	RoHS	45
LD08-20BY4-US	7.6W	85-264VAC/100-370VDC	3.8	RoHS	45

Industrial Outdoor Environment

- Operation environment: system runs without interruption
- Environment temperature: -40 to +70℃
- Performance requirement: EMS meets level 3
- Application: intelligent transportation, communication, video surveillance, charging station, agriculture and animal husbandry

Suitable for intelligent transportation, video surveillance, charging station

Series	Power	Input Voltage Range (VDC)	Output Voltage (Vo1)	Output Voltage (Vo2)	Certification	Page
LS03-16BxxSS(-F)	3W	90-528VAC/100-745VDC	3.3,5,9,12,15,24	/	RoHS	33
LO10-24B	10W	30-280VAC/30-400VDC	5,12,13	/	RoHS	48

• This catalog is for reference only, please visit our website for detailed datasheets: www.mornsun-power.com

Recommended Selection of AC/DC Converter for Application Environment

Industrial Outdoor Environment

Suitable for intelligent transportation, video surveillance, charging station

Series	Power	Input Voltage Range (VDC)	Output Voltage (Vo1)	Output Voltage (Vo2)	Certification	Page
LO10-26D0512-04L	10W	57-528VAC/80-745VDC	5.1	12	RoHS	49
LO15-26D1212-03/LO15-26D1305-03	15W	57-528VAC/80-745VDC	12,13.5	5,12	RoHS	49
LO20-10C0512-01	18.7W	165- 264VAC/230- 370VDC	5	±12	RoHS	49
LO30-10C0512-12	31.2W	85-264VAC/100-370VDC	5	±12	RoHS	49
LH10/15/25-10B/DxxER2	10W,15W,25W	85-264VAC/100-370VDC	5,12,15,24	5,12,24	RoHS cULus CE CB	50
LI120-10B	120W	85-264VAC/120-370VDC	12,24,48	/	RoHS cULus CE CB	44
LI240-10B	240W	85-264VAC/120-370VDC	24,48	/	RoHS cULus CE CB	44
LM30-00J0512-03E	30W	85-264VAC/100-370VDC	5	±12,24	RoHS	44
LHE05-20B	5W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	/	RoHS cULus CE CB	40
LHE05-20A	5W	85-264VAC/100-370VDC	+5,+12,+15	-5,-12,-15	RoHS	40
LHE05-20C	5W	85-264VAC/100-370VDC	5	±5,±12,±15	RoHS	40
LHE05-20D	5W	85-264VAC/100-370VDC	5	5,12,15,24	RoHS	40
LHE10-20B	10W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	/	RoHS cULus CE CB	40
LHE10-20A	10W	85-264VAC/100-370VDC	+5,+12,+15	-5,-12,-15	RoHS	40
LHE10-20C	10W	85-264VAC/100-370VDC	5	±12,±15	RoHS	40
LHE10-20D	10W	85-264VAC/100-370VDC	5	5,12,15,24	RoHS	40
LHE15-20B	15W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	/	RoHS cULus CE CB	40
LHE15-20A	15W	85-264VAC/100-370VDC	+5,+12,+15	-5,-12,-15	RoHS	40
LHE15-20C	15W	85-264VAC/100-370VDC	5	±5,±12,±15	RoHS	40
LHE15-20D	15W	85-264VAC/100-370VDC	5	5,12,24	RoHS	40
LHE20-20B	20W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	/	RoHS cULus CE CB	40
LHE20-20A	20W	85-264VAC/100-370VDC	+12,+15	-12,-15	RoHS	40
LHE20-20C	20W	85-264VAC/100-370VDC	5	±12,±15	RoHS	40
LHE20-20D	20W	85-264VAC/100-370VDC	5	12,15,24	RoHS	40
LHE25-20B	25W	85-264VAC/100-370VDC	3.3,5,9,12,15,24,48	/	RoHS cULus CE CB	40
LHE40-20B	40W	85-264VAC/100-370VDC	3.3,5,12,15,24,48	/	RoHS cULus CE CB (pending)	43
LH40-10A	40W	85-264VAC/100-370VDC	+5,+12,+15	-5,-12,-15	RoHS cULus CE	43
LH40-10D	40W	85-264VAC/100-370VDC	5	12,24	RoHS cULus CE	43
LHE60-20B	60W	85-264VAC/100-370VDC	5,12,15,24,48	/	RoHS cULus CE CB (pending)	43

Suitable for communication and security

Series	Power	Input Voltage Range (VDC)	Output Voltage (Vo1)	Output Voltage (Vo2)	Certification	Page
LHE05-20B	5W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	/	RoHS cULus CE CB	40
LHE05-20A	5W	85-264VAC/100-370VDC	+5,+12,+15	-5,-12,-15	RoHS	40
LHE05-20C	5W	85-264VAC/100-370VDC	5	±5,±12,±15	RoHS	40
LHE05-20D	5W	85-264VAC/100-370VDC	5	5,12,15,24	RoHS	40
LHE10-20B	10W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	/	RoHS cULus CE CB	40
LHE10-20A	10W	85-264VAC/100-370VDC	+5,+12,+15	-5,-12,-15	RoHS	40
LHE10-20C	10W	85-264VAC/100-370VDC	5	±12,±15	RoHS	40
LHE10-20D	10W	85-264VAC/100-370VDC	5	5,12,15,24	RoHS	40
LHE15-20B	15W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	/	RoHS cULus CE CB	40

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Recommended Selection of AC/DC Converter for Application Environment

Suitable for communication and security

Series	Power	Input Voltage Range (VDC)	Output Voltage (Vo1)	Output Voltage (Vo2)	Certification	Page
LHE15-20A	15W	85-264VAC/100-370VDC	+5,+12,+15	-5,-12,-15	RoHS	40
LHE15-20C	15W	85-264VAC/100-370VDC	5	±5,±12,±15	RoHS	40
LHE15-20D	15W	85-264VAC/100-370VDC	5	5,12,24	RoHS	40
LHE20-20B	20W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	/	RoHS cULus CE CB	40
LHE20-20A	20W	85-264VAC/100-370VDC	+12,+15	-12,-15	RoHS	40
LHE20-20C	20W	85-264VAC/100-370VDC	5	±12,±15	RoHS	40
LHE20-20D	20W	85-264VAC/100-370VDC	5	12,15,24	RoHS	40
LHE25-20B	25W	85-264VAC/100-370VDC	3.3,5,9,12,15,24,48	/	RoHS cULus CE CB	40
LHE40-20B	40W	85-264VAC/100-370VDC	3.3,5,12,15,24,48	/	RoHS cULus CE CB(pending)	43
LH40-10A	40W	85-264VAC/100-370VDC	+5,+12,+15	-5,-12,-15	RoHS cULus CE	43
LH40-10D	40W	85-264VAC/100-370VDC	5	12,24	RoHS cULus CE	43
LHE60-20B	60W	85-264VAC/100-370VDC	5,12,15,24,48	/	RoHS cULus CE CB(pending)	43

Suitable for agriculture and animal husbandry

Series	Power	Input Voltage Range (VDC)	Output Voltage (Vo1)	Output Voltage (Vo2)	Certification	Page
LD10-13B	10W	85-305VAC/122-430VDC	3.3,5,9,12,15,24	/	RoHS	38
LH05-13B	5W	85-305VAC/100-430VDC	3.3,5,9,12,15,24	/	RoHS cULus CE CB	39
LH10-13B	10W	85-305VAC/100-430VDC	3.3,5,9,12,15,24	/	RoHS cULus CE CB	39
LH15-13B	15W	85-305VAC/100-430VDC	3.3,5,9,12,15,24,48	/	RoHS cULus CE CB	39
LH20-13B	20W	85-305VAC/100-430VDC	3.3,5,9,12,15,24	/	RoHS cULus CE CB	39
LH25-13B	25W	85-305VAC/100-430VDC	3.3,5,9,12,15,24,48	/	RoHS cULus CE CB	39
LHE40-20B	40W	85-264VAC/100-370VDC	3.3,5,12,15,24,48	/	RoHS cULus CE CB(pending)	43
LH40-10A	40W	85-264VAC/100-370VDC	+5,+12,+15	-5,-12,-15	RoHS cULus CE	43
LH40-10D	40W	85-264VAC/100-370VDC	5	12,24	RoHS cULus CE	43
LHE60-20B	60W	85-264VAC/100-370VDC	5,12,15,24,48	/	RoHS cULus CE CB(pending)	43

Special Industrial Outdoor Environment(Harsh Environment)

- Operation environment: large fluctuation in input voltage, system runs without interruption, suitable for outdoor applications with high/low temperature, high humidity, high pollution or strong noise interference
- Environment temperature: -40 to +85℃
- Performance requirement: EMS meets level 4, wide and high input voltage
- Application: roadside equipment, electricity, environment monitoring, communication base



Suitable for roadside equipment

Series	Power	Input Voltage Range (VDC)	Output Voltage(VDC) (Vo1)	Output Voltage(VDC) (Vo2)	Certification	Page
LHE05-20B	5W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	/	RoHS cULus CE CB	40
LHE05-20A	5W	85-264VAC/100-370VDC	+5,+12,+15	-5,-12,-15	RoHS	40
LHE05-20C	5W	85-264VAC/100-370VDC	5	±5,±12,±15	RoHS	40
LHE05-20D	5W	85-264VAC/100-370VDC	5	5,12,15,24	RoHS	40

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Recommended Selection of AC/DC Converter for Application Environment

Suitable for roadside equipment

Series	Power	Input Voltage Range (VDC)	Output Voltage(VDC) (Vo1)	Output Voltage(VDC) (Vo2)	Certification	Page
LHE10-20B	10W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	/	RoHS	40
LHE10-20A	10W	85-264VAC/100-370VDC	+5,+12,+15	-5,-12,-15	RoHS	40
LHE10-20C	10W	85-264VAC/100-370VDC	5	±12,±15	RoHS	40
LHE10-20D	10W	85-264VAC/100-370VDC	5	5,12,15,24	RoHS	40
LHE15-20B	15W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	/	RoHS	40
LHE15-20A	15W	85-264VAC/100-370VDC	+5,+12,+15	-5,-12,-15	RoHS	40
LHE15-20C	15W	85-264VAC/100-370VDC	5	±5,±12,±15	RoHS	40
LHE15-20D	15W	85-264VAC/100-370VDC	5	5,12,15	RoHS	40
LHE20-20B	20W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	/	RoHS	40
LHE20-20A	20W	85-264VAC/100-370VDC	+12,+15	-12,-15	RoHS	40
LHE20-20C	20W	85-264VAC/100-370VDC	5	±12,±15	RoHS	40
LHE20-20D	20W	85-264VAC/100-370VDC	5	12,15,24	RoHS	40
LHE25-20B	25W	85-264VAC/100-370VDC	3.3,5,9,12,15,24,48	/	RoHS	40

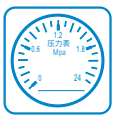
Suitable for environment monitoring, communication base

Series	Power	Input Voltage Range (VDC)	Output Voltage(VDC) (Vo1)	Output Voltage(VDC) (Vo2)	Certification	Page
LHE05-20B	5W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	/	RoHS	40
LHE05-20A	5W	85-264VAC/100-370VDC	+5,+12,+15	-5,-12,-15	RoHS	40
LHE05-20C	5W	85-264VAC/100-370VDC	5	±5,±12,±15	RoHS	40
LHE05-20D	5W	85-264VAC/100-370VDC	5	5,12,15,24	RoHS	40
LHE10-20B	10W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	/	RoHS	40
LHE10-20A	10W	85-264VAC/100-370VDC	+5,+12,+15	-5,-12,-15	RoHS	40
LHE10-20C	10W	85-264VAC/100-370VDC	5	±12,±15	RoHS	40
LHE10-20D	10W	85-264VAC/100-370VDC	5	5,12,15,24	RoHS	40
LHE15-20B	15W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	/	RoHS	40
LHE15-20A	15W	85-264VAC/100-370VDC	+5,+12,+15	-5,-12,-15	RoHS	40
LHE15-20C	15W	85-264VAC/100-370VDC	5	±5,±12,±15	RoHS	40
LHE15-20D	15W	85-264VAC/100-370VDC	5	5,12,24	RoHS	40
LHE20-20B	20W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	/	RoHS	40
LHE20-20A	20W	85-264VAC/100-370VDC	+12,+15	-12,-15	RoHS	40
LHE20-20C	20W	85-264VAC/100-370VDC	5	±12,±15	RoHS	40
LHE20-20D	20W	85-264VAC/100-370VDC	5	12,15,24	RoHS	40
LHE25-20B	25W	85-264VAC/100-370VDC	3.3,5,9,12,15,24,48	/	RoHS	40

Special Industrial Outdoor Environment(Plateau)

- Operation environment: large fluctuation in input voltage, suitable for high-altitude applications (up to 2000 meters)
- Environment temperature: -40 to +70℃
- Performance requirement: EMS meets level 4, wide and high input voltage range, good heat dissipation and high reliability
- Application: electricity, environment monitoring





Suitable for electricity

100-1500VDC Ultra-wide Input Voltage DC/DC Converter

Series	Power	Input Voltage Range (VDC)	Output Voltage (VDC)	Certification	Page
PV05/10/15-27BxxR2	5W,10W,15W	100-1000	5,9,12,15,24	RoHS CE	52
PV10-27C	10W	200-1200	5/5/24	RoHS	52
PV15-29BxxL	10W,15W	200-1500	5,12,15,24	RoHS	53
PV15-29B	10W,15W	200-1500	5,12,15,24	RoHS CE	53
PV15-29C	15W	200-1500	5/5/5,5/5/24	RoHS	53
PV40-27B	40W	200-1200	12,15,48	RoHS	53
PV40-29B	40W	200-1500	12,15,24	RoHS CE	53
PV45-29D	45W	150-1500	12V/15V/24V dual outputs(customization is acceptable)	RoHS	55
PV75-36D	31W	250-3300	15,400	RoHS	55
PV120-27B	120W	200-1100	12,15,24,48	RoHS	56
PV200-27B	200W	200-1000	12,15,24,26,48	RoHS CE	56
PV200-29B	200W	300-1500	24.48	RoHS CE	57

Recommended Product Line for Applications

Industrial Control

High/low voltage VFD & Inverter & UPS & ESS

Series	Nominal Input Voltage(VDC)	Input Voltage Range(VDC)	Positive Output/Negative Output (VDC)	Output Current (mA)	Efficiency	Isolation	Certification	Page
QA01	15	14.5-15.5	+15/-8.7	+80/-40	80%	3000VAC	RoHS cULus CB CE	114
QA01-17	15	14.5-15.5	+17/-8.7	+80/-40	77%	3000VAC	RoHS cULus CB CE	114
QA02	12	11.6-12.4	+15/-8.7	+80/-40	80%	3000VAC	RoHS cULus CB CE	114
QA03	24	23.3-24.7	+15/-8.7	+80/-40	80%	3000VAC	RoHS cULus CB CE	114
QA04	12	9-15	+15/-8	+100/-80	80%	3000VAC	RoHS cULus CB CE	114
QA01C	15	13.5-16.5	+20/-4	+100/-100	83%	3500VAC	RoHS cULus CB CE	114
QA1201C-20	12	10.8-13.2	+20/-4	+100/-100	80%	3500VAC	RoHS	114
QA2401C-20	24	21.6-26.4	+20/-4	+100/-100	83%	3500VAC	RoHS	114
QA15115R2	15	13.5-16.5	+15/-2.5	+100/-100	80%	3500VAC	RoHS	114
QA01C-18	15	13.5-16.5	+18/-3	+100/-100	83%	3500VAC	RoHS	114
QA121C2	12	10.8-13.2	+15/-3.5	-111/-111	78%	3500VAC	RoHS	114
QA151M	15	14.4-15.9	+15/-5	+100/-100	80%	3500VAC	RoHS	114
QA051C	5	4.5-5.5	+20/-5	+80/-40	75%	3000VAC	RoHS	114
QA151C3	15	13.5-16.5	+15/-4	+100/-100	77%	3000VDC	RoHS	114
QAW01	12	9-18	+15/-9	+200/-200	85%	3500VAC	RoHS	115
QAW02	24	18-36	+15/-9	+200/-200	85%	3000VDC	RoHS	115
QA152D	15	13.5-16.5	+15/-9	+200/-200	83%	4000VAC	RoHS CE	115
QA156D-24	15	13.5-16.5	+24/0	+150/-	80%	12000VDC	RoHS CE	115
QAU242D2G	24	9-36	+24/+24	+150/+150	85%	4200VAC	RoHS	115
QA121	12	11.4-12.6	+15/-8	+120/-120	81%	3000VAC	RoHS	114
QA151	15	14.25-15.75	+15/-8	+120/-120	81%	3000VAC	RoHS	114
QA241	24	22.8-25.2	+15/-8	+120/-120	81%	3000VAC	RoHS	114
CQAW01	12	7-18	+15/-9	+200/-200	81%	3000VAC	RoHS	116

Series	Input Voltage (VDC)	Input Voltage Range(VDC)	Output High-level Voltage VOH(VDC)	Output Low-level Voltage VOL(VDC)	Max. Driving Current (A)	Max.Frequency (KHz)	Isolation	Certification	Page
QP12W08S-37	15	14.5-15.5	15	-9	±8	20	3750VAC	RoHS CE	116

Series	Positive input Voltage (VDC)	Negative input Voltage (VDC)	Output High-level Voltage VOH (VDC)	Output Low-level Voltage VOL (VDC)	Max. Driving Current (A)	Max.Frequency (KHz)	Isolation	Certification	Page
QC962-8A	15	-10	14	-9	±8	40	3750VAC	RoHS	117

Robot

Series	Power	Input Voltage Range (VDC)	Output Voltage (VDC)	Certification	Page
URB-LD-20WR3	20W	9-36,18-75	3.3,5,9,12,15,24	RoHS cULus CE CB	88
URB-LD-30WR3	30W	9-36,18-75	3.3,5,9,12,15,24	RoHS cULus CE CB	90
VRB-LD-50W	50W	18-36,36-75	3.3,5,12,15,24	RoHS CE	90
URF-QB-100WR3	100W	9-36,18-75	5,12,15,24,28,48	RoHS	91
URF-QB-200WR3	200W	18-75	5,12,15,24,48	RoHS	91

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Recommended Product Line for Applications

DCS & PLC & SCADA

Series	Power	Input Voltage Range	Output Voltage (VDC)	Certification	Page
LHE-20B	5W,10W,15W,20W,25W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	RoHS cULus CE CB	40
LH-13B	5W,10W,15W,20W,25W	85-305VAC/100-430VDC	3.3,5,9,12,15,24	RoHS cULus CE CB	39
LHE40-20B	40W	85-264VAC/100-370VDC	3.3,5,12,15,24,48	RHS cULus CE CB (pending)	43
LHE60-20B	60W	85-264VAC/100-370VDC	5,12,15,24,48	RoHS cULus CE CB (pending)	43

Series	Power	Input Voltage Range(VDC)	Output Voltage (VDC)	Certification	Page
WRA_S-1WR2/3WR2	1W,3W	4.5-9,9-18,18-36,36-75	±5,±9,±12,±15,±24	RoHS CE	74,76
WRB_S-1WR2/3WR2	1W,3W	4.5-9,9-18,18-36,36-75	3.3,5,6,9,12,15,24	RoHS CE	74,76

Series	Function	Power Supply	Data Rate	Certification	Page
TD331/531S485H	SMD single high-rate RS485 isolated transceiver module	3.15-3.45,4.75-5.25VDC	150Kbps	RoHS CE (pending)	101
TD331/531S485H-A	SMD single RS485 isolated transceiver module(automatic switching)	3.15-3.45,4.75-5.25VDC	150Kbps	RoHS CE (pending)	101
TD331/531S485H-E	SMD single high-rate RS485 isolated transceiver module(enhanced)	3.15-3.45,4.75-5.25VDC	500Kbps	RoHS CE (pending)	101
TD331/531SCANH	SMD single high-rate CAN isolated transceiver module	3.15-3.45,4.75-5.25VDC	40K-1Mbps	RoHS CE (pending)	101
TD331/TD531SCANFD	SMD single CANFD isolated transceiver module	3.15-3.45,4.75-5.25VDC	40K-5Mbps	RoHS CE (pending)	101
TD331/TD531S232H	SMD single high-rate RS232 isolated transceiver module	3.15-3.45,4.75-5.25VDC	0-235Kbps	RoHS CE(pending)	101
TD321/521D485	Cost-effective single RS485 isolated transceiver module	3.15-3.45,4.75-5.25VDC	19.2Kbps	RoHS CE	102
TD321/521D485H	Single high-rate RS485 isolated transceiver module	3.15-3.45,4.75-5.25VDC	200Kbps	RoHS CE	102
TD1211D485H	Single high-rate RS485 isolated transceiver module(with distribution)	11.4-12.6	115200bps	RoHS	102
TD2411D485H	Single high-rate RS485 isolated transceiver module(with distribution)	22.8-25.2	115200bps	RoHS	102
TD321/521D485H-A	Single RS485 isolated transceiver module(automatic switching)	3.15-3.45,4.75-5.25VDC	500Kbps	RoHS CE	102
TD321/521D485H-E	Single high-rate RS485 isolated transceiver module(enhanced)	3.15-3.45,4.75-5.25VDC	500Kbps	RoHS CE	102
TD322/522D485H-A	Dual channel RS485 isolated transceiver module(automatic switching)	3.15-3.45,4.75-5.25VDC	120Kbps	RoHS CE	102
TD321/521S485	Cost-effective SMD single RS485 isolated transceiver module	3.15-3.45,4.75-5.25VDC	19.2Kbps	RoHS CE	102
TD321/521S485H	SMD single high-rate RS485 isolated transceiver module	3.15-3.45,4.75-5.25VDC	200Kbps	RoHS CE	102
TD321/521S485H-A	SMD single RS485 isolated transceiver module(automatic switching)	3.15-3.45,4.75-5.25VDC	500Kbps	RoHS CE	102
TD321/521S485H-E	SMD single high-rate RS485 isolated transceiver module(enhanced)	3.15-3.45,4.75-5.25VDC	500Kbps	RoHS CE	102
TD301/TD501M485	Single high-rate compact size RS485 isolated transceiver module	3.15-3.45,4.75-5.25VDC	500Kbps	RoHS CE (pending)	102
TDH301/501D485H	Single high-rate high isolation RS485 isolated transceiver module	3.17-3.45,4.75-5.25VDC	115200bps	RoHS CE	102
TD321/521DCAN	Single universal CAN isolated transceiver module	3.15-3.45,4.75-5.25VDC	5K-1Mbps	RoHS CE cULus	104
TD321/521DCANH	Single high-rate CAN isolated transceiver module	3.15-3.45,4.75-5.25VDC	40K-1Mbps	RoHS CE	104
TD321/521SCAN	SMD single universal CAN isolated transceiver module	3.15-3.45,4.75-5.25VDC	5K-1Mbps	RoHS CE	104
TD321/521SCANH	SMD single high-rate CAN isolated transceiver module	3.15-3.45,4.75-5.25VDC	40K-1Mbps	RoHS CE	104
TD322/522DCAN	Dual channel CAN isolated transceiver module	3.15-3.45,4.75-5.25VDC	40K-1Mbps	RoHS CE	104
TD301/501MCAN	Single high-rate compact size CAN isolated transceiver module	3.15-3.45,4.75-5.25VDC	40K-1Mbps	RoHS CE	104
TD301/501MCANFD	Single high-rate compact size CANFD isolated transceiver module	3.15-3.45,4.75-5.25VDC	40K-5Mbps	RoHS CE	104
TD301/501DCANHE	High surge protective CAN isolated transceiver module	3.15-3.45,4.75-5.25VDC	40K-1Mbps	RoHS CE	104
TDH501DCAN-ZC	Single high-rate high isolation CAN isolated transceiver module	4.5-5.5VDC	40K-1Mbps	RoHS	104
TD301/501D232H	Single high-rate RS232 isolated transceiver module	3.0-3.6,4.5-5.5VDC	0-115.2Kbps	RoHS cULus	107
TD302/502D232H	Dual channel high-rate RS232 isolated transceiver module	3.0-3.6,4.5-5.5VDC	0-115.2Kbps	RoHS	107
TLAxx-03K485	Integrated isolated 485 AC/DC power supply	85-305VAC/100-430VDC	500Kbps	RoHS CE	106
TLAxx-03KCAN	Integrated isolated CAN AC/DC power supply	85-305VAC/100-430VDC	5-1000Kbps	RoHS CE	106

Recommended Product Line for Applications

DCS & PLC & SCADA

Series		Input Signal	Output Signal	Isolation	Certification	Page
TE_N	Active module	0-5V,0-10V,4-20mA	0-5V,0-10V	2000VAC	RoHS CE	108
TE_AN	Active module positive and negative signal	±5V,±10V	0-5V,0-10V	2000VAC	RoHS CE	108
TE_CN	Active module positive and negative signal	±5V,±10V	±5V,±10V	2000VAC	RoHS CE	108
TEM_AN	Active, mV-class, positive and negative signal	±75mV/±100mV	0-5V	2000VAC	RoHS CE	108
TEM_CN	Active, mV-class, positive and negative signal	±50mV/±100mV/±200mV	±5V/±10V	2000VAC	RoHS CE	108
TF_N	Active module	0-5V,0-10V	0/4-20mA,0-5V,0-10V	2000VAC	RoHS CE	109
TF_GN	Active module	0-5V	±10V	2000VAC	RoHS CE	109
TFW_N	Active high precision PWM signal	PWM signal 0-100%	0-20mA,0-10V	2000VAC	RoHS CE	109
T_P	Active module	0/4-20mA,0-5V,0-10V	0/4-20mA,0-5V,0-10V	2500VDC	RoHS	111
T_CP	Active high precision signal	±5V,±10V	±5V/±10V,±20mA	2500VDC	RoHS	111
TM_P	Active high precision signal (mV-class)	0-10/20/30/50/75/100mV	0/4-20mA,0-5V,0-10V	2500VDC	RoHS	110
TM_CP	Active high precision signal (mV-class)	±10/±20/±50/±75/±100mV/±200mV	±5V/±10V	2500VDC	RoHS	110
T1100N	Passive module	4-20mA	4-20mA	3000VDC	RoHS CE	112
T1100L	Passive module	4-20mA	4-20mA	3000VDC	RoHS CE	112
T1100L-F	Passive module(loop power supply)	4-20mA	4-20mA	3000VDC	RoHS CE	112
T_HL	Two-wire self-powered module with HART	0-2.5V	3.7-22mA	2000VAC	RoHS CE	112
T_L	Two-wire loop power supply	0-2.5V	3.7-22mA	2000VAC	RoHS CE	112
TRP_P	RTDs detection type isolated module	Pt100(0-500℃)	4-20mA	2000VAC	RoHS CE	113
TE_HN	Active high precision high isolated detection type signal	0-5V	0-5V	4000VAC	RoHS	113

Instrumentation

Series	Power	Input Voltage Range	Output Voltage (VDC)	Certification	Page
LS01-15BxxSS(-F)	1W	85-305VAC/70-430VDC	5,9,12,15,24	RoHS cULus CE CB	32
LS03-15BxxSR2S(-F)	3W	85-305VAC/70-430VDC	3.3,5,9,12,15,24	RoHS cULus CE CB	32
LS03-16BxxSS(-F)	3W	90-528VAC/100-745VDC	3.3,5,9,12,15,24	RoHS cULus CE CB	33
LD03-16B	3W	90-528VAC/100-745VDC	3.3,5,9,12,15,24	RoHS cULus CE CB	35
LS05-15BxxSS(-F)	5W	85-264VAC/100-400VDC	3.3,5,9,12,15,24	RoHS cULus CE CB	32
LS05-26BxxSS(-F)	5W	90-528VAC/100-745VDC	3.3,5,9,12,15,24	RoHS CE	33
B_LS-1WR2/B_LS-1WR3	1W	3.3,5,12,15,24VDC	3.3,5.9,12,15,24	RoHS cULus CE	62
A_XT-1WR2/A_XT-1WR3	1W	3.3,5,12,15,24VDC	±5,±9,±12,±15,±24	RoHS cULus CE	64
B_XT-1WR2/B_XT-1WR3	1W	3.3,5,12,15,24VDC	3.3,5,6,9,12,15,24	RoHS cULus CE	64
A_S-2WR2	2W	5,12,15,24VDC	±3.3,±5,±9,±12,±15	RoHS cULus CE	66
B_S-2WR2	2W	5,12,15,24VDC	3.3,5,9,12,15,24	RoHS cULus CE	66
TLAxx-03K485	3W	85-305VAC/100-430VDC	3.3,5	RoHS CE	106
TLAxx-03KCAN	3W	85-305VAC/100-430VDC	3.3,5	RoHS CE	106

Renewable Energy

TLS-CB & PV Inverter & Wind Energy Converter & UHV Power Transmission & SVG

Series	Power	Input Voltage Range (VDC)	Output Voltage (VDC)	Certification	Page
PV05/10/15-27BxxR2	5W,10W,15W	100-1000	5,9,12,15,24	RoHS CE	52
PV40-27B	40W	200-1200	12,15,24	RoHS	53

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Recommended Product Line for Applications

TLS-CB & PV Inverter & Wind Energy Converter & UHV Power Transmission & SVG

Series	Power	Input Voltage Range (VDC)	Output Voltage (VDC)	Certification	Page
PV45-29D	45W	150-1500	12,15,24 double outputs available	RoHS	55
PV15/40-29B	10W,15W,40W	200-1500	5,12,15,24	RoHS CE	53
PV15-29BxxL	10W,15W	200-1500	5,12,15,24	RoHS	53
PV120-27B	120W	200-1100	12,15,24,48	RoHS	56
PV200-27B	200W	200-1000	12,15,24,26,48	RoHS CE	56
PV200-29B	200W	300-1500	24,48	RoHS CE	57

Protective Relaying System

Series	Power	Input Voltage Range	Output Voltage (VDC)	Certification	Page
LM30-00J0512-03E	30W	85-264VAC/100-370VDC	5,±12,24	RoHS	44
G_S-2WR2	2W	5,12,15,24VDC	±5,±9,±12,±15	RoHS CE	60
H_S-2WR2	2W	5,12,15,24VDC	5,12,15	RoHS CE	60
LH10/15/25-10B/DxxER2	10W,15W,25W	85-264VAC/100-370VDC	5,12,15,24	RoHS CE CB	50
LO10-26D0512-04L	10.92W	57-528VAC/80-745VDC	5.1,12	RoHS	49

Intelligent Surveillance System

Series	Power	Input Voltage Range (VDC)	Output Voltage (VDC)	Certification	Page
E_XT-1WAR2/E_XT-1WR3	1W	3.3,5,12,15,24	±5,±9,±12,±15,±24	RoHS CE	64
F_XT-1WR2/1WR3/2WR2	1W, 2W	3.3,5,12,15,24	3.3,5,9,12,15,24	RoHS CE	64,67
E_S-1WR2/1WR3/2WR2	1W, 2W	3.3,5,9,12,15,24	±3,±5,±9,±12,±15,±24	RoHS CE	63,66
F_S-1WR2/1WR3/2WR2	1W, 2W	3.3,5,9,12,15,24	3.3,5,9,12,15,24	RoHS CE	63,66
WRE_S-1WR2/3WR2	1W,3W	4.5-9,9-18,18-36,36-75	±5,±9,±12,±15	RoHS CE	74,78
WRF_S-1WR2/3WR2	1W,3W	4.5-9,9-18,18-36,36-75	3.3,5,9,12,15,24	RoHS CE	74,78

Smart Home

Series	Power	Input Voltage Range	Output Voltage (VDC)	Certification	Page
LS01-15BxxSS(-F)	1W	85-305VAC/70-430VDC	5,9,12,15,24	RoHS CE CB	32
LS03-15BxxSR2S(-F)	3W	85-305VAC/70-430VDC	3.3,5,9,12,15,24	RoHS CE CB	32
LS03-16BxxSS(-F)	3W	90-528VAC/100-745VDC	3.3,5,9,12,15,24	RoHS CE CB	33
LS05-15BxxSS(-F)	5W	85-264VAC/100-400VDC	3.3,5,9,12,15,24	RoHS CE CB	32
LS05-26BxxSS(-F)	5W	90-528VAC/100-745VDC	3.3,5,9,12,15,24	RoHS CE	33
LD05-23B	5W	85-305VAC/100-430VDC	3.3,5,9,12,15,24	RoHS CE CB	38
LD03-16B	3W	90-528VAC/100-745VDC	3.3,5,9,12,15,24	RoHS CE CB	35
LO10-24B	10.92W	30-280VAC/30-400VDC	5,12,13	RoHS	48
LO10-26D0512-04L	10W	57-528VAC/80-745VDC	5.1,12	RoHS	49

Distribution Network Automation

Series	Power	Input Voltage Range (VDC)	Output Voltage (VDC)	Certification	Page
URF_LP-10WR3	10W	9-36,18-75	3.3,5,9,12,15,24	RoHS CE CB	84
URF_LP-20WR3	20W	9-36,18-75	3.3,5,9,12,15,24	RoHS CE CB	88

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Recommended Product Line for Applications

Transportation

OBU

Series	Power	Input Voltage Range (VDC)	Output Voltage (VDC)	Certification	Page
URB1D-YMD-6WR3	6W	40-160	5,12,15,24	RoHS CE	92
URB1D-LMD-10WR3/15WR3/20WR3	10W,15W,20W	40-160	3.3,5,12,15,24	RoHS	92
URF1D_QB-50W/75W/100W	50W,75W,100W	66-160	3.3,5,12,15,24	RoHS	93
URF1D_HB_150W	150W	50-160	12,15,24	RoHS	93

Railway Auxiliary Device

Series	Power	Input Voltage Range	Output Voltage (VDC)	Certification	Page
IF_S-1W/IF_S-1WR3	1W	5,12,15VDC	3.3,5,9,12,15	RoHS cULus CE	70
WRF_S-3WR2	3W	4.5-9,9-18,18-36,36-75VDC	3.3,5,9,12,15,24	RoHS CE	78
URF_LP-10WR3	10W	9-36,18-75VDC	3.3,5,9,12,15,24	RoHS cULus CE CB	84
URF_LP-20WR3	20W	9-36,18-75VDC	3.3,5,9,12,15,24	RoHS cULus CE CB	88
LHE_20B	5W,10W,15W,20W,25W	85-264VAC/100–370VDC	3.3,5,9,12,15,24	RoHS cULus CE CB	40

Electric Vehicle--Motor Drive

Series	Power	Input Voltage Range (VDC)	Output Voltage (VDC)	Output Current (mA)	Effi(%) (typ)	Isolation	Certification	Page
CWRF_S-3W	3W	7-18	15	200	82	4300VDC	RoHS	79
CF_XT-1WR3	1W	4.5-5.5	5	200	78	3500VDC	RoHS	57

Medical

Series	Power	Input Voltage Range	Output Voltage (VDC)	Certification	Page
G_S-1W/2WR2	1W,2W	5,12,15,24VDC	±5,±9,±12,±15	RoHS cULus CE CB	60
H_S-1W/2WR2	1W,2W	3.3,5,12,24VDC	3.3,5,12,15	RoHS cULus CE CB	60
URH_P-6WR3	6W	9-36,18-75VDC	5,6,9,12,15,24	RoHS CE	79
LH15-20BxxMU	15W	85-264VAC/100-370VDC	5,12,15,18,24	RoHS CE CB	45
LH25-20BxxMU	25W	85-264VAC/100-370VDC	5,12,15,18,24	RoHS CE CB	45
LD05-20BxxMU	5W	85-264VAC/100-370VDC	5,12,15,24	RoHS cULus CE	45

Lighting

Series	Input Voltage Range	Output Voltage (VDC)	Output Current (mA)	Certification	Page
KC24H-1000	5.5-48	3.3-36	0-1000	RoHS	118
KC24H-1200	5.5-48	3.3-36	0-1200	RoHS	118
KC24RT	5.5-48	3.3-36	0-300,0-350,0-500,0-600,0-700	RoHS	118
KC24H-R	5.5-46	3.3-36	0-300,0-350,0-500,0-600,0-700	RoHS	118
KC24W	5.5-48	3.3-36	0-300,0-350,0-500,0-600,0-700	RoHS	118

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Recommended Product Line for Applications

Communication

Series	Power	Input Voltage Range (VDC)	Output Voltage (VDC)	Certification	Page
URA_YMD-6WR3	6W	9-36,18-75	±5,±12,±15,±24	RoHS	82
URB_YMD-6WR3	6W	9-36,18-75	3.3,5,9,12,15,24	RoHS	82
URF_P-6WR3	6W	9-36,18-75	3.3,5,9,12,15,24	RoHS	82
URA_YMD-10WR3	10W	9-36,18-75	±5,±9,±12,±15,±24	RoHS	84
VRB_LD-15WR3	15W	18-36,36-75	3.3,5,12,15,24	RoHS	88
URA_LD-20WR3	20W	9-36,18-75	±5,±9,±12,±15	RoHS	88
URF_LP-20WR3	20W	9-36,18-75	3.3,5,9,12,15,24	RoHS	88
URB_LD-30WR3	30W	9-36,18-75	3.3,5,9,12,15,24	RoHS	90
VRB_LD-50W	50W	18-36,36-75	3.3,5,12,15,24	RoHS	90

IOT(Internet of Things)

Series	Power/Output Current	Input Voltage Range	Output Voltage (VDC)	Certification	Page
LS01-15BxxSS(-F)	1W	85-305VAC/70-430VDC	5,9,12,15,24	RoHS	32
LS03-15BxxSR2S(-F)	3W	85-305VAC/70-430VDC	3.3,5,9,12,15,24	RoHS	32
LS05-15BxxSS(-F)	5W	85-264VAC/100-400VDC	3.3,5,9,12,15,24	RoHS	32
LDE02-23B	2W	85-305VAC/120-430VDC	3.3,5,9,12,15,24	RoHS (pending)	38
LDE03-20B	3W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	RoHS	36
LDE03-20B-W	3W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	RoHS	36
LDE05-20B	5W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	RoHS	36
LDE05-20B-W	5W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	RoHS	36
LDE06-20B	6W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	RoHS	36
LDE10-20B	10W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	RoHS	36
B_XT-1WR2/B_XT-1WR3	1W	3.3,5,12,15,24VDC	3.3,5,6,9,12,15,24	RoHS	64
K78(L)-500R3	500/-300/-150mA	4.75-36VDC	3.3,5,-5,9,-12,12,-15,15	RoHS	70
K78(L)-1000R3(L)	1000/-500/-300mA	6-36VDC	3.3,5,-5,9,-12,12,-15,15	RoHS	70
K78U-500(L)	500/300mA	9-72VDC	3.3,5,12	RoHS	70
K78-2000R3	2000mA	6-36VDC	3.3,5,9,12,15	RoHS	70
K78xxM-1000R3	1000/-500/-300mA	6-36VDC	3.3,5,9,12,15,-5,-12,-15	RoHS	70
K78T-500R3	500mA	4.75-36VDC	1.5,1.8,2.5,3.3,5,6.5,9,12,15	RoHS	70
K78T-1000R3	1000/800mA	4.75-36VDC	1.5,1.8,2.5,3.3,5,6.5,9,12	RoHS	70

Series	Function	Input Voltage Range (VDC)	Data Rate	Certification	Page
TD321/521DCANH	Single high-rate CAN isolated transceiver module	3.15-3.45,4.75-5.25	40K-1Mbps	RoHS	104
TD331/531SCANH	SMD single high-rate CAN isolated transceiver module	3.15-3.45,4.75-5.25	40K-1Mbps	RoHS (pending)	101
TD331/531S485H	SMD single high-rate RS485 isolated transceiver module	3.15-3.45,4.75-5.25	150Kbps	RoHS (pending)	101
TD331/531S485H-A	SMD single RS485 isolated transceiver module(automatic switching)	3.15-3.45,4.75-5.25	150Kbps	RoHS (pending)	101
TD331/531S485H-E	SMD single high-rate RS485 isolated transceiver module(enhanced)	3.15-3.45,4.75-5.25	500Kbps	RoHS (pending)	101
TD321/521D485H	Single high-rate RS485 isolated transceiver module	3.15-3.45,4.75-5.25	40K-1Mbps	RoHS	102
TD321/521D485H-A	Single RS485 isolated transceiver module(automatic switching)	3.15-3.45,4.75-5.25	200Kbps	RoHS	102
TD321/521D485H-E	Single high-rate RS485 isolated transceiver module(enhanced)	3.15-3.45,4.75-5.25	500Kbps	RoHS	102

Recommended Product Line for Applications

IOT(Internet of Things)

Series	Function	Input Voltage Range (VDC)	Data Rate	Certification	Page
TD321/521S485H	SMD single high-rate RS485 isolated transceiver module	3.15-3.45,4.75-5.25	200Kbps	RoHS CE	102
TD321/521S485H-A	SMD single RS485 isolated transceiver module(automatic switching)	3.15-3.45,4.75-5.25	500Kbps	RoHS CE	102
TD321/521S485H-E	SMD single high-rate RS485 isolated transceiver module(enhanced)	3.15-3.45,4.75-5.25	500Kbps	RoHS CE	102

Charging Station

Series	Power/Function	Input Voltage Range/ Input Voltage	Output Voltage/ Data Rate	Certification	Page
LS03/05-15BxxSS(-F)	3W,5W	85-264VAC/100-400VDC	3.3,5,9,12,15,24VDC	RoHS c UL us CB	32
LO20-10C0512-01	18.7W	165- 264VAC/230- 370VDC	5,±12VDC	RoHS	49
LO30-10C0512-12	31.2W	85-264VAC/100-370VDC	5,±12VDC	RoHS	49
LH05/10/15/20/25-10A/BXXX	5W,10W,15W,20W,25W	85-264VAC/100-370VDC	3.3,5,9,12,15,24,48 ±5,±12,±15,±24	RoHS c UL us CE CB	40
LM30-00J0512-03E	30W	85-264VAC/100-370VDC	5,±12,24VDC	RoHS	44
A_S-1WR2/A_S-1WR3	1W	3.3,5,9,12,15,24VDC	±3.3,±5,±9,±12, ±15,±24VDC	RoHS c UL us CE	62
F_S-1WR2/F_S-1WR3	1W	3.3,5,9,12,15,24VDC	3.3,5,9,12,15,24VDC	RoHS c UL us CE	63
WRB_S-3WR2	3W	4.5-9,9-18,18-36VDC	3.3,5,9,12,15,24VDC	RoHS CE	76
URB_YMD-6WR3	6W	9-36,18-75VDC	3.3,5,9,12,15,24VDC	RoHS c UL us CE CB	82
TD321/521D485H	Single high-rate RS485 isolated transceiver module	3.15-3.45,4.75-5.25VDC	200Kbps	RoHS CE	102
TD321/521S485H	SMD single high-rate RS485 isolated transceiver module	3.15-3.45,4.75-5.25VDC	200Kbps	RoHS CE	102
TD331/531S485H	SMD single high-rate RS485 isolated transceiver module	3.15-3.45,4.75-5.25VDC	150Kbps	RoHS CE (pending)	101
TD331/531S485H-A	SMD single RS485 isolated transceiver module(automatic switching)	3.15-3.45,4.75-5.25VDC	150Kbps	RoHS CE (pending)	101
TD331/531S485H-E	SMD single high-rate RS485 isolated transceiver module(enhanced)	3.15-3.45,4.75-5.25VDC	500Kbps	RoHS CE (pending)	101
TD321/521S485H-A	SMD single RS485 isolated transceiver module(automatic switching)	3.15-3.45,4.75-5.25VDC	500Kbps	RoHS CE	102
TD321/521S485H-E	SMD single high-rate RS485 isolated transceiver module(enhanced)	3.15-3.45,4.75-5.25VDC	500Kbps	RoHS CE	102
TD321/521DCANH	single high-rate CAN isolated transceiver module	3.3,5.5VDC	40K-1Mbps	RoHS CE	104
TD321/521SCANH	SMD single high-rate CAN isolated transceiver module	3.3,5VDC	40K-1Mbps	RoHS CE	104
TD331/531SCANH	SMD single high-rate CAN isolated transceiver module	3.15-3.45,4.75-5.25VDC	40K-1Mbps	RoHS CE (pending)	101
TD301/501D232H	Single high-rate RS232 isolated transceiver module	3.0-3.6,4.5-5.5VDC	0-115.2Kbps	RoHS	107

1-5W DIY Type LS Series

Series	Power	Input Voltage Range	Output Voltage (VDC)	Certification	Application Environment	Page
LS01-15BxxSS(-F)	1W	85-305VAC/70-430VDC	5,9,12,15,24	RoHS	Commercial Indoor Environment	32
LS03-15BxxSR2S(-F)	3W	85-305VAC/70-430VDC	3.3,5,9,12,15,24	RoHS	Commercial Indoor Environment	32
LS03-16BxxSS(-F)	3W	90-528VAC/100-745VDC	3.3,5,9,12,15,24	RoHS	Industrial Outdoor Environment	33
LS05-15BxxSS(-F)	5W	85-264VAC/100-400VDC	3.3,5,9,12,15,24	RoHS	Commercial Indoor Environment	32
LS05-26BxxSS(-F)	5W	90-528VAC/100-745VDC	3.3,5,9,12,15,24	RoHS	Industrial Indoor Environment	33

57-528VAC Ultra-wide Input Voltage AC/DC Core Board Scheme LSC Series

Series	Power	Input Voltage Range	Output Voltage (VDC)	Certification	Application Environment	Page
LSC15-26C0512-04	14.6W	57-528VAC/80-745VDC	5,±12	RoHS	universal	34
LSC15-26D1212-03	15W	57-528VAC/80-745VDC	12,12	RoHS	universal	34
LSC15-26D0512-04	15W	57-528VAC/80-745VDC	5,12	RoHS	universal	34
LSC15-26D0524-02	15W	57-528VAC/80-745VDC	5,24	RoHS	universal	34

A New Generation of 3-20W ultra-compact AC/DC Converter LDE series

Series	Power	Input Voltage Range	Output Voltage (VDC)	Certification	Application Environment	Page
LDE02-23B	2W	85-305VAC/120-430VDC	3.3,5,9,12,15,24	RoHS (pending)	Industrial Indoor Environment	38
LDE03-20B	3W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	RoHS	Industrial Indoor Environment	36
LDE03-20B-W	3W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	RoHS	Industrial Indoor Environment	36
LDE05-20B	5W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	RoHS	Industrial Indoor Environment	36
LDE05-20B-W	5W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	RoHS	Industrial Indoor Environment	36
LDE06-20B	6W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	RoHS	Industrial Indoor Environment	36
LDE10-20B	10W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	RoHS	Industrial Indoor Environment	36
LDE15-20B	15W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	RoHS	Industrial Indoor Environment	36
LDE20-20B	20W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	RoHS	Industrial Indoor Environment	36

1-20W Compact LD Series

Series	Power	Input Voltage Range	Output Voltage (VDC)	Certification	Application Environment	Page
LD01-10B	1W	85-305VAC/120-430VDC	3.3,5,9,12,15,24	RoHS	Industrial Indoor Environment	38
LD05-23B	5W	85-305VAC/100-430VDC	3.3,5,9,12,15,24	RoHS	Industrial Indoor Environment	38
LD10-13B	10W	85-305VAC/122-430VDC	3.3,5,9,12,15,24	RoHS	Industrial Indoor Environment	38
LD03-16B	3W	90-528VAC/100-745VDC	3.3,5,9,12,15,24	RoHS	Industrial Indoor Environment	35
LD10-26B	10W	90-528VAC/100-745VDC	3.3,5,9,12,15,24	RoHS	Industrial Indoor Environment	35
LD20-26B	20W	90-528VAC/100-745VDC	3.3,5,9,12,15,24	RoHS	Industrial Indoor Environment	35

A New Generation of 5-25W standard packaged AC/DC Converter LHE series

Series	Power	Input Voltage Range	Output Voltage (VDC)	Output Voltage (VDC)	Certification	Application Environment	Page
LHE05-20B	5W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	/	RoHS	Industrial Outdoor Harsh Environment	40
LHE05-20A	5W	85-264VAC/100-370VDC	+5,+12,+15	-5,-12,-15	RoHS	Industrial Outdoor Harsh Environment	40
LHE05-20C	5W	85-264VAC/100-370VDC	5	±5,±12,±15	RoHS	Industrial Outdoor Harsh Environment	40
LHE05-20D	5W	85-264VAC/100-370VDC	5	5,12,15,24	RoHS	Industrial Outdoor Harsh Environment	40
LHE10-20B	10W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	/	RoHS	Industrial Outdoor Harsh Environment	40
LHE10-20A	10W	85-264VAC/100-370VDC	+5,+12,+15	-5,-12,-15	RoHS	Industrial Outdoor Harsh Environment	40
LHE10-20C	10W	85-264VAC/100-370VDC	5	±12,±15	RoHS	Industrial Outdoor Harsh Environment	40
LHE10-20D	10W	85-264VAC/100-370VDC	5	5,12,15,24	RoHS	Industrial Outdoor Harsh Environment	40

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AC/DC Converter Selection Guide

A New Generation Of 5-25w Standard Packaged AC/DC Converter LHE Series

Series	Power	Input Voltage Range	Output Voltage(VDC) (Vo1)	Output Voltage(VDC) (Vo2)	Certification	Application Environment	Page
LHE15-20B	15W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	/	RoHS cULus CE CB	Industrial Outdoor Harsh Environment	40
LHE15-20A	15W	85-264VAC/100-370VDC	+5,+12,+15	−5,-12,-15	RoHS	Industrial Outdoor Harsh Environment	40
LHE15-20C	15W	85-264VAC/100-370VDC	5	±5,±12,±15	RoHS	Industrial Outdoor Harsh Environment	40
LHE15-20D	15W	85-264VAC/100-370VDC	5	5,12,24	RoHS	Industrial Outdoor Harsh Environment	40
LHE20-20B	20W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	/	RoHS cULus CE CB	Industrial Outdoor Harsh Environment	40
LHE20-20A	20W	85-264VAC/100-370VDC	+12,+15	-12,-15	RoHS	Industrial Outdoor Harsh Environment	40
LHE20-20C	20W	85-264VAC/100-370VDC	5	±12,±15	RoHS	Industrial Outdoor Harsh Environment	40
LHE20-20D	20W	85-264VAC/100-370VDC	5	12,15,24	RoHS	Industrial Outdoor Harsh Environment	40
LHE25-20B	25W	85-264VAC/100-370VDC	3.3,5,9,12,15,24,48	/	RoHS cULus CE CB	Industrial Outdoor Harsh Environment	40

40-60W Standard Package LH Series

Series	Power	Input Voltage Range	Output Voltage (Vo1)VDC	Output Voltage (Vo2)VDC	Certification	Application Environment	Page
LHE40-20B	40W	85-264VAC/100-370VDC	3.3,5,12,24,48	/	RoHS cULus CE CB (pending)	Industrial Outdoor Environment	43
LH40-10A	40W	85-264VAC/100-370VDC	+5,+12,+15	-5,-12,-15	RoHS cULus CE	Industrial Outdoor Environment	43
LH40-10D	40W	85-264VAC/100-370VDC	5	12,24	RoHS cULus CE	Industrial Outdoor Environment	43
LHE60-20B	60W	85-264VAC/100-370VDC	5,12,15,24,48	/	RoHS cULus CE CB (pending)	Industrial Outdoor Environment	43

5-25W 85-305VAC Wide Input Voltage LH-13B Series

Series	Power	Input Voltage Range	Output Voltage (VDC)	Certification	Application Environment	Page
LH05-13B	5W	85-305VAC/100-430VDC	3.3,5,9,12,15,24	RoHS cULus CE CB	Industrial Outdoor Environment	39
LH10-13B	10W	85-305VAC/100-430VDC	3.3,5,9,12,15,24	RoHS cULus CE CB	Industrial Outdoor Environment	39
LH15-13B	15W	85-305VAC/100-430VDC	3.3,5,9,12,15,24,48	RoHS cULus CE CB	Industrial Outdoor Environment	39
LH20-13B	20W	85-305VAC/100-430VDC	3.3,5,9,12,15,24	RoHS cULus CE CB	Industrial Outdoor Environment	39
LH25-13B	25W	85-305VAC/100-430VDC	3.3,5,9,12,15,24,48	RoHS cULus CE CB	Industrial Outdoor Environment	39

3-65W Cost-effective Open Frame AC/DC Converter LO Series

Series	Power	Input Voltage Range	Output Voltage (VDC)	Certification	Application Environment	Page
LO03-10B	3W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	RoHS	Commercial Indoor Environment	46
LO05-12B	5W	165-264VAC/230-370VDC	3.3,5,9,12,15,24	RoHS	Commercial Indoor Environment	46
LO15-10B	15W	85-264VAC/100-370VDC	3.3,5,9,12,15,24	RoHS CE (pending)	Commercial Indoor Environment	46
LO30-10B	30W	85-264VAC/100-370VDC	3.3,5,9,12,15,24,48	RoHS CE (pending)	Commercial Indoor Environment	46
LO45-10B	45W	85-264VAC/100-370VDC	3.3,5,9,12,15,24,48	RoHS CE (pending)	Commercial Indoor Environment	46
LO65-10B	65W	85-264VAC/100-370VDC	5,9,12,15,24,48	RoHS CE (pending)	Commercial Indoor Environment	46

120-240W DIN35 Package LI Series

Series	Power	Input Voltage Range	Output Voltage (VDC)	Output Current (mA)	Certification	Application Environment	Page
LI120-10B	120W	85-264VAC/120-370VDC	12,24,48	10000,5000,2500	RoHS cULus CE CB	Industrial Outdoor Environment	44
LI240-10B	240W	85-264VAC/120-370VDC	24,48	10000,5000	RoHS cULus CE CB	Industrial Outdoor Environment	44

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5-25W AC/DC Converter Specialized for Medical

Series	Power	Input Voltage Range	Output Voltage (Vo1)	Certification	Page
LD05-20BxxMU	5W	85-264VAC/100-370VDC	5,12,15,24	RoHS	45
LD08-20BY4-US	7.6W	85-264VAC/100-370VDC	3.8	RoHS	45
LH15-20BxxMU	15W	85-264VAC/100-370VDC	5,12,15,18,24	RoHS	45
LH25-20BxxMU	25W	85-264VAC/100-370VDC	5,12,15,18,24	RoHS	45

10-30W AC/DC Converter Specialized for Electric Power

Series	Power	Input Voltage Range	Output Voltage (VDC)	EMI	Certification	Page
LO10-24B	10W	30-280VAC/30-400VDC	5,12,13	Class B	RoHS	48
LO10-26D0512-04L	10.92W	57-528VAC/80-745VDC	5.1/12	Class B	RoHS	49
LO15-26D1212-03	15W	57-528VAC/80-745VDC	12/12	Class B	RoHS	49
LO15-26D1305-03	15W	57-528VAC/80-745VDC	5,13.5	Class A	RoHS	49
LH10-10BxxER2	10W	85-264VAC/100-370VDC	5,12,24	Class A/Class B	RoHS	50
LHE10-20DxxER2	10W	85-264VAC/100-370VDC	5/12,5/24	Class A/Class B	RoHS	50
LH15-10BxxER2	15W	85-264VAC/100-370VDC	5,12,24	Class A/Class B	RoHS	50
LH15-10DxxER2	15W	85-264VAC/100-370VDC	5/12,5/24	Class A/Class B	RoHS	50
LH25-10BxxER2	25W	85-264VAC/100-370VDC	5,12,15,24	Class A/Class B	RoHS	50
LM30-00J0512-03E	30W	85-264VAC/100-370VDC	5/±12/24	Class B/Class B	RoHS	44
LO20-10C0512-01	18.7W	165-264VAC/230-370VDC	5,±12	Class A	RoHS	49
LO30-10C0512-12	31.2W	85-264VAC/100-370VDC	5,±12	Class A	RoHS	49

10W LO Series Specialized for Flow-meter (Customization is acceptable)

Series	Power	Input Voltage Range	Output Available (Vo1/Vo2/Vo3)	Output Available (Vo4/Vo5)	Output Available (Vo6/Vo7)	Certification	Page
LO10-10J	10W	85-264VAC/120-370VDC	Triple outputs available (3.3V-24V)	Positive and negative voltage available (±5V to ±24V)	Positive and negative voltage available (±5V to ±70V)	RoHS	48

DC/DC Converter Selection Guide

Fixed Input Voltage, Isolated & Unregulated Output DC/DC Converter

Series	Power	Input Voltage (VDC)	Output Voltage (VDC)	Certification	Applications	Page
B_S-W2R2	0.25W	3.3,5,12,15,24	3.3,5,9,12	RoHS cULus CE CB	universal	62
B_XT-W2R2	0.25W	3.3,5,12,24	3.3,5,9,12,15	RoHS CE	universal	64
F_XT-W2R2/F_XT-W2R3	0.25W	5,12	5	RoHS CE	universal	64
CF0505XT-1WR3	1W	5	5	RoHS	universal	57
B05_LD-1WR2/R3	1W	5	5,50,60	RoHS	universal	58
G_S-1WR2	1W	5,12,15,24	±5,±9,±12,±15	RoHS cULus CE CB	medical	60
H_S-1WR2	1W	3.3,5,12,15,24	3.3,5,12,15	RoHS cULus CE CB	medical	60
B_RN-1WR2	1W	5	5	RoHS	universal	61
B_RT-1WR2	1W	5	5	RoHS	universal	61
A_S-1WR2/A_S-1WR3	1W	3.3,5,9,12,15,24	±3.3,±5,±9,±12,±15	RoHS cULus CE	universal	62
B_S-1WR2/B_S-1WR3	1W	3.3,5,12,15,24	3.3,5,9,12,15,24	RoHS cULus CE	universal	62
B_LS-1WR2/B_LS-1WR3	1W	3.3,5,12,15,24	3.3,5,9,12,15,24	RoHS cULus CE	universal	62
E_S-1WR2/E_S-1WR3	1W	3.3,5,9,12,15,24	±3,±5,±9,±12,±15,±24	RoHS cULus CE CB	universal	63
F_S-1WR2/F_S-1WR3	1W	3.3,5,9,12,15,24	3.3,5,9,12,15,24	RoHS cULus CE CB	universal	63
A_XT-1WR2/A_XT-1WR3	1W	3.3,5,12,15,24	±5,±9,±12,±15,±24	RoHS cULus CE CB	universal	64
B_XT-1WR2/B_XT-1WR3	1W	3.3,5,12,15,24	3.3,5,6,9,12,15,24	RoHS cULus CE	universal	64
E_XT-1WAR2/E_XT-1WR3	1W	3.3,5,12,15,24	±5,±9,±12,±15,±24	RoHS CE CB	universal	64
F_XT-1WR2/F_XT-1WR3	1W	3.3,5,12,15,24	3.3,5,9,12,15,24	RoHS cULus CE	universal	64
A_D-1WR2	1W	5,12,15,24	±5,±9,±12,±15,±24	RoHS	universal	65
B_D-1WR2	1W	3.3,5,12,15,24	3.3,5,9,12,15,24	RoHS cULus CE	universal	65
E_D-1WR2/E_D-1WR3	1W	5,12,24	±5,±9,±12,±15	RoHS CE	universal	65
F_D-1WR2	1W	3.3,5,12,15,24	3.3,5,12,15	RoHS cULus CE	universal	65
F_N-1WR3	1W	5	3.3,5,9,12,15,24	RoHS cULus CE	universal	65
G_S-2WR2	2W	5,12,15,24	±5,±9,±12,±15	RoHS cULus CE	medical	60
H_S-2WR2	2W	5,12,15,24	5,12,15	RoHS cULus CE	medical	60
A_S-2WR2	2W	5,12,15,24	±3.3,±5,±9,±12,±15	RoHS cULus CE	universal	66
B_S-2WR2	2W	5,12,15,24	3.3,5,9,12,15,24	RoHS cULus CE	universal	66
E_S-2WR2	2W	5,12,15,24	±3.3,±5,±9,±12,±15,±24	RoHS cULus CE CB	universal	66
F_S-2WR2	2W	5,12,15,24	3.3,5,9,12,15,24	RoHS cULus CE CB	universal	66
B_XT-2WR2	2W	5,12,15,24	3.3,5,9,12,15,24	RoHS CE	universal	67
F_XT-2WR2	2W	5,12,15,24	5,9,12,15,24	RoHS CE	universal	67
A_D-2WR2	2W	5,12,15,24	±5,±9,±12,±15	RoHS cULus CE CB	universal	68
B_D-2WR2	2W	3.3,5,9,12,24	3.3,5,9,12,15,24	RoHS cULus CE CB	universal	68
E_D-2WR2	2W	5,12,15,24	±5,±9,±12,±15,±24	RoHS cULus CE CB	universal	68
F_D-2WR2	2W	5,12,15,24	5,9,12,15,24	RoHS cULus CE CB	universal	68
B_S-3WR2	3W	5,12	5,9,12	RoHS	universal	66
F_S-3WR2	3W	5,12,15	5,9,12,15	RoHS	universal	66

HK Series Specialized for Intelligent Instrument

Series	Input Voltage (VDC)	Input Current (mA)	Output Voltage (VDC)	Output Current (mA)	Certification	Page
HK5S_B	5	4–20	3.3,5	2,3.2	RoHS	58
HK8S_B	7.5	4–20	3,3.3,5	3.5,5	RoHS	58
HK_S	5/7-8	3.5–20	3.3	2,2.5,3.5	RoHS	58

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Fixed Input Voltage, Isolated & Regulated Output DC/DC Converter

Series	Power	Input Voltage (VDC)	Output Voltage (VDC)	Certification	Applications	Page
IB_LS-1W/IB_LS-1WR3	1W	5,12,15,24	3.3,5,9,12,15,24	RoHS c UL us CE CB	universal	69
IB_XT-1WR2	1W	5,12,24	3.3,5,12,15	RoHS	universal	69
IF_XT-1WR2/IF_XT-1WR3	1W	5,12,24	3.3,5,9,12,15	RoHS	universal	69
IF_S-1W/IF_S-1WR3	1W	5,12,24	3.3,5,9,12,15,24	RoHS c UL us CE	universal	69
IE_KS-1WR3	1W	5	±5,±9,±12,±15	RoHS	universal	69
IB_S-2W	2W	5,12,15,24	5,12,15	RoHS	universal	69
IF_S-2W	2W	5,12,24	5	RoHS	universal	69
IB_S-W75R3	0.75W	5	3.3,5,9,12,15	RoHS c UL us CE (pending)	universal	69
IB_XT-W75R3	0.75W	5	3.3,5,9,12,15	RoHS c UL us CE (pending)	universal	69

2:1Wide Input Voltage, Isolated & Regulated Output DC/DC Converter

Series	Power	Input Voltage Range (VDC)	Output Voltage (VDC)	Certification	Applications	Page
WRA_S-1WR2	1W	4.5-9,9-18,18-36,36-75	±5,±9,±12,±15	RoHS CE	universal	74
WRB_S-1WR2	1W	4.5-9,9-18,18-36,36-75	3.3,5,9,12,15,24	RoHS CE	universal	74
WRE_S-1WR2	1W	4.5-9,9-18,18-36,36-75	±5,±12,±15	RoHS CE	universal	74
WRF_S-1WR2	1W	4.5-9,9-18,18-36,36-75	3.3,5,9,12,15,24	RoHS CE	universal	74
WRA_S-3WR2	3W	4.5-9,9-18,18-36,36-75	±5,±9,±12,±15,±24	RoHS CE	universal	76
WRB_S-3WR2	3W	4.5-9,9-18,18-36,36-75	3.3,5,6,9,12,15,24	RoHS CE	universal	76
WRA_ZP-3WR2	3W	4.5-9,9-18,18-36,36-75	±5,±9,±12,±15,±24	RoHS CE	universal	76
WRB_ZP-3WR2	3W	4.5-9,9-18,18-36,36-75	3.3,5,9,12,15,24	RoHS CE	universal	76
WRE_S-3WR2	3W	4.5-9,9-18,18-36,36-75	±5,±9,±12,±15	RoHS CE	universal	78
WRF_S-3WR2	3W	4.5-9,9-18,18-36,36-75	3.3,5,9,12,15,24	RoHS CE	universal	78
WRE_P-3WR2	3W	4.5-9,9-18,18-36,36-75	±3.3,±5,±9,±12,±15	RoHS CE	universal	78
WRF_P-3WR2	3W	4.5-9,9-18,18-36,36-75	3.3,5,12,15,24	RoHS CE	universal	78
VRA_YMD-6WR3	6W	9-18,18-36	±5,±12,±15	RoHS c UL us CE CB	universal	80
VRB_YMD-6WR3	6W	9-18,18-36,36-75	3.3,5,9,12,15,24	RoHS CE	universal	80
VRA_ZP-6WR3	6W	4.5-9,9-18,18-36,36-75	±5,±12,±15,±24	RoHS CE	universal	80
VRB_ZP-6WR3	6W	4.5-9,9-18,18-36,36-75	3.3,5,12,15,24	RoHS CE	universal	80
VRB_S-6WR3	6W	9-18,18-36	3.3,5,9,12,15,24	RoHS CE	universal	80
VRB_J(M)D/T-6W	6W	9-18,18-36	3.3,5,12,15	RoHS	universal	81
VRA_YMD-10WR3	10W	4.5-9	±5,±12,±15,±24	RoHS	universal	84
VRB_YMD-10WR3	10W	9-18,18-36,36-75	3.3,5,12,15,24	RoHS CE	universal	84
VRA_ZP-10WR3	10W	9-18,18-36,36-75	±5,±12,±15	RoHS	universal	84
VRB_ZP-10WR3	10W	9-18,18-36,36-75	3.3,5,12,15,24	RoHS	universal	84
VRB_S-10WR3	10W	9-18,18-36	3.3,5,9,12,15,24	RoHS CE	universal	84
VRB_LD-15WR3	15W	18-36,36-75	3.3,5,12,15,24	RoHS c UL us CE CB	universal	88
VRB_YMD-15WR3	15W	9-18,18-36,36-75	3.3,5,12,15,24	RoHS	universal	89
VRA_LD-20WR3	20W	18-36,36-75	±5,±9,±12,±15,±24	RoHS CE	universal	88
VRB_LD-20WR3	20W	9-18,18-36,36-75	3.3,5,9,12,15,24,110	RoHS CE	universal	88
VRB_YMD-20WR3	20W	9-18,18-36,36-75	3.3,5,12,15,24	RoHS	universal	89
VRB_LD-30WR3	30W	18-36,36-75	3.3,5,9,12,15,24	RoHS CE	universal	90
VRB_LD-40WHR3	40W	18-36,36-75	12,15,24	RoHS CE	universal	90
VRB_LD-50W	50W	18-36,36-75	3.3,5,12,15,24	RoHS CE	universal	90

DC/DC Converter Selection Guide

5-200W Ultra-wide Input Voltage DC/DC Converter

Series	Power	Input Voltage Range (VDC)	Output Voltage (VDC)	Certification	Page
PV05/10/15-27BxxR2	5W,10W,15W	100-1000	5,9,12,15,24	RoHS CE	52
PV10-27C	10W	200-1200	5/5/24	RoHS	52
PV15-29BxxL	10W,15W	200-1500	5,12,15,24	RoHS	53
PV15-29B	10W,15W	200-1500	5,12,15,24	RoHS CE	53
PV15-29C	15W	200-1500	5/5/5,5/5/24	RoHS	53
PV40-27B	40W	200-1200	12,15,48	RoHS	53
PV40-29B	40W	200-1500	12,15,24	RoHS CE	53
PV45-29D	45W	150-1500	12V/15V/24V dual outputs (customization is acceptable)	RoHS	55
PV75-36D	31W	250-3300	15,400	RoHS	55
PV120-27B	120W	200-1100	12,15,24,48	RoHS	56
PV200-27B	200W	200-1000	12,15,24,26,48	RoHS CE	56
PV200-29B	200W	300-1500	24.48	RoHS CE	57

4:1Ultra-Wide Input Voltage, Isolated & Regulated Output DC/DC Converter

Series	Power	Input Voltage Range (VDC)	Output Voltage (VDC)	Certification	Applications	Page
PWB_ZP-3WR2	3W	9-36,18-75	3.3,5,9,12,15,24	RoHS CE	universal	77
URB_MT-3WR3	3W	9-36,18-75	3.3,5,9,12,15,24	RoHS CE	universal	77
URH_P-6WR3	6W	9-36,18-75	5,6,9,12,15,24	RoHS CE	medical	79
URA_YMD-6WR3	6W	9-36,18-75	±5,±12,±15,±24	RoHS CE CB	universal	82
URB_YMD-6WR3	6W	9-36,18-75	3.3,5,9,12,15,24	RoHS CE CB	universal	82
URA_ZP-6WR3	6W	9-36,18-75	±5,±9,±12,±15,±24	RoHS CE CB	universal	82
URB_ZP-6WR3	6W	9-36,18-75	3.3,5,9,12,15,24	RoHS CE CB	universal	82
URE_P-6WR3	6W	9-36	±5,±12,±15	RoHS CE CB	universal	82
URF_P-6WR3	6W	9-36,18-75	3.3,5,9,12,15,24	RoHS CE CB	universal	82
URB_S-6WR3	6W	9-36	3.3,5,9,12,15,24	RoHS CE	universal	82
URA_YMD-10WR3	10W	9-36,18-75	±5,±9,±12,±15,±24	RoHS CE CB	universal	84
URB_YMD-10WR3	10W	9-36,18-75	3.3,5,9,12,15,24	RoHS CE CB	universal	84
URE_LP-10WR3	10W	9-36,18-75	±5,±12,±15	RoHS CE CB	universal	84
URF_LP-10WR3	10W	9-36,18-75	3.3,5,9,12,15,24	RoHS CE CB	universal	84
URA_ZP-10WR3	10W	9-36,18-75	±5,±12,±15	RoHS	universal	84
URB_ZP-10WR3	10W	9-36,18-75	3.3,5,12,15,24	RoHS	universal	84
URB_S-10WR3	10W	9-36	3.3,5,9,12,15,24	RoHS CE (pending)	universal	84
URB_J(M)D/T-10W	10W	9-36	5,12,15	RoHS	universal	86
URB_J(M)D/T-15W	15W	9-36,18-75	3.3,5,12,15	RoHS	universal	87
URA_YMD-15WR3	15W	9-36,18-75	±5,±12,±15,±24	RoHS CE	universal	88
URB_YMD-15WR3	15W	9-36,18-75	3.3,5,12,15,24	RoHS CE	universal	88
URA_YMD-20WR3	20W	9-36,18-75	±5,±12,±15,±24	RoHS CE	universal	88
URB_YMD-20WR3	20W	9-36,18-75	3.3,5,12,15,24	RoHS CE	universal	88
URA_LD-20WR3	20W	9-36,18-75	±5,±9,±12,±15	RoHS CE CB	universal	88
URB_LD-20WR3	20W	9-36,18-75	3.3,5,9,12,15,24	RoHS CE CB	universal	88
URF_LP-20WR3	20W	9-36,18-75	3.3,5,9,12,15,24	RoHS CE CB	universal	88
URA_LD-30WR3	30W	9-36,18-75	±5,±12,±15,±24	RoHS CE	universal	90
URB_LD-30WR3	30W	9-36,18-75	3.3,5,9,12,15,24	RoHS CE CB	universal	90
URA1D_YMD-6WR3	6W	40-160	±5,±12,±15	RoHS CE	electric vehicle	92
URB1D_YMD-6WR3	6W	40-160	5,12,15,24	RoHS CE	electric vehicle	92
URB1D_LMD-10WR3	10W	40-160	3.3,5,12,15,24	RoHS	electric vehicle	92
URB1D_LMD-15WR3	15W	40-160	3.3,5,12,15,24	RoHS CE	electric vehicle	92
URB1D_LMD-20WR3	20W	40-160	3.3,5,12,15,24	RoHS CE	electric vehicle	92
URB1D_LD-20WR3	20W	40-160	3.3,5,12,15,24	RoHS	universal	92
URE1D_LD-20WR3	20W	40-160	±12,±15,±24	RoHS	universal	92
URF1D_LD-40WR3	40W	40-160	3.3,5,12,15,24,48	RoHS	universal	92

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DC/DC Converter/EMC Auxiliary Device Selection Guide

4:1 Ultra-wide Input Voltage, Isolated & Regulated Output DC/DC Converter

Series	Power	Input Voltage Range (VDC)	Output Voltage (VDC)	Certification	Applications	Page
UW2405D-20W	20W	6-50	5	RoHS	universal	75
UWD240512D-20W	20W	6-50	5,12	RoHS	electric vehicle	75
URF1D_QB-50W	50W	66-160	3.3,5,12,15,24	RoHS	electric vehicle	93
URF1D_QB-75W	75W	66-160	5,12,15,24	RoHS	electric vehicle	93
URF1D_QB-100W	100W	66-160	12,15,24	RoHS	electric vehicle	93
URF1D_HB-150W	150W	50-160	12,15,24	RoHS	electric vehicle	93
URF_QB-75WR3	75W	18-75	5,12,15,24,48	RoHS	universal	91
URF_QB-100WR3	100W	9-36,18-75	5,12,15,24,28,48	RoHS	universal	91
URF_QB-150WR3	150W	18-75	5,12,15,24,48	RoHS	universal	91
URF_QB-200WR3	200W	18-75	5,12,15,24,48	RoHS	universal	91
URD_S-3WR3	3W	18-75	5,12,24	RoHS	universal	94
URD_YMD-10WR3	10W	18-75	5,12,24	RoHS	universal	94
URD_LD-20WR3	20W	18-75	5,12,24	RoHS	universal	94
URD_D-30WR3	30W	18-75	5,24	RoHS	universal	94

Wide Input Voltage,Non-isolated & Regulated Output DC/DC Converter

Series	Output Current (mA)	Input Voltage Range (VDC)	Output Voltage (VDC)	Certification	Applications	Page
K78-500R3	500/-300/-150	4.75-36	3.3,5,9,12,15,-5,-12,-15	RoHS c UL us CE	universal	70
K78L-500R3	500/-300/-150	4.75-36	3.3,5,12,15,-5,-12,-15	RoHS c UL us CE	universal	70
K78-1000R3(L)	1000/-500/-300	6-36	3.3,5,9,12,15,-5,-12,-15	RoHS c UL us CE CB	universal	70
K78L-1000R3	1000/-500/-300	6-36	3.3,5,12,15,-5,-12,-15	RoHS c UL us CE CB	universal	70
K78xxM-1000R3	1000/-500/-300	6-36	3.3,5,9,12,15,-5,-12,-15	RoHS CE	universal	70
K78U-500(L)	500	9-72	3.3,5,12	RoHS	universal	70
K78-2000R3	2000	6-36	3.3,5,9,12,15	RoHS CE	universal	70
K78T-500R3	500	4.75-36	1.5,1.8,2.5,3.3,5,6.5,9,12,15	RoHS CE	universal	70
K78T-1000R3	1000/800	4.75-36	1.5,1.8,2.5,3.3,5,6.5,9,12	RoHS CE	universal	70
K12T-6A-P(A)	6000	8.3-14	0.75-5.5	RoHS	universal	73
K12T-10A/16A	10000/16000	8.3-14	0.75-5.5	RoHS	universal	73

Specialized for Super-capacitor and Lithium Battery-powered DC/DC Converter

Series	Input Voltage Range (VDC)	Output Voltage (VDC)	Constant Current (mA)	Effi(%) (typ)	Certification	Page
URF2428LP-700	9-36	0-28.5	700	86/88	RoHS	83
URB24A5YMD-1000	9-36	0-4.8	1000	76/78	RoHS	83

600VDC/1000VDC/2000VDC High Output Voltage ,Non-isolated & Regulated Output Series

Series	Nominal Input Voltage (VDC)	Max.Input Voltage (VDC)	Output Voltage (VDC)	Constant Current (mA)	Page
HO1-P601-2C	12	600	0-600	2	75
HO1-P102-20D	16	1000	0-1000	20	75
HO1-P202-20D	16	2000	0–2000	20	75

Isolation Transceiver Module/Signal Conditioning Module Selection Guide

EMC Auxiliary Device

Series	Function	Input Voltage Range	Max.Output Power/Current	Certification	Page
FC-LX1D	EMC Filter	85-305VAC	1.5A	RoHS	96
FC-LX1D2	EMC Filter	85-305VAC	1.5A	RoHS	96
FC-L01DV1	EMC Filter	85-305VAC	0.3A	RoHS	96
FC-AX3D	EMC Filter	10-36VDC	30W	RoHS	96
FC-B02D	EMC Filter	18-75VDC	30W	RoHS	96
FC-D03D	EMC Filter	18-36VDC	50W	RoHS	96
FC-E03D	EMC Filter	36-75VDC	75W	RoHS	96
FC-A01D	EMC Filter	9-36VDC	1A	RoHS	96
FC-B01D	EMC Filter	18-75VDC	1A	RoHS	96
FC-C01D	EMC Filter	40-160VDC	10W	RoHS	97
FC-CX1D	EMC Filter	40-160VDC	30W	RoHS	97
FC-C03D	EMC Filter	40-160VDC	50W	RoHS	97
FC-CX3D	EMC Filter	66-160VDC	100W	RoHS	97
FI-B03D	EMI Filter	0-80VDC	3A	RoHS	97
FS-A01D	Surge Suppresser	0-40VDC	0.6A	RoHS	98
FT-BX1D	EFT Suppresser	0-80VDC	1.5A	RoHS	98
FS-TD01D	485-AB Bus Surge Protection Module	0-5VDC	≤0.1	RoHS	99
FL2D	Common Mode Filter	/	0.5,1,3A	RoHS	99

Industrial Bus Isolation Transceiver Module

Series	Function	Power Supply	Data Rate	Certification	Page
TD331/531S485H	SMD single high-rate RS485 isolated transceiver module	3.15-3.45,4.75-5.25VDC	150Kbps	RoHS CE (pending)	101
TD331/531S485H-A	SMD single RS485 isolated transceiver module(automatic switching)	3.15-3.45,4.75-5.25VDC	150Kbps	RoHS CE (pending)	101
TD331/531S485H-E	SMD single high-rate RS485 isolated transceiver module(enhanced)	3.15-3.45,4.75-5.25VDC	500Kbps	RoHS CE (pending)	101
TD331/531SCANH	SMD single high-rate CAN isolated transceiver module	3.15-3.45,4.75-5.25VDC	40K-1Mbps	RoHS CE (pending)	101
TD331/TD531SCANFD	SMD single CANFD isolated transceiver module	3.15-3.45,4.75-5.25VDC	40K-5Mbps	RoHS CE (pending)	101
TD331/TD531S232H	SMD single high-rate RS232 isolated transceiver module	3.15-3.45,4.75-5.25VDC	0-235Kbps	RoHS CE(pending)	101
TD321/521D485	Cost-effective single RS485 isolated transceiver module	3.15-3.45,4.75-5.25VDC	19.2Kbps	RoHS CE	102
TD321/521D485H	Single high-rate RS485 isolated transceiver module	3.15-3.45,4.75-5.25VDC	200Kbps	RoHS CE	102
TD1211D485H	Single high-rate RS485 isolated transceiver module(with distribution)	11.4-12.6	115200bps	RoHS	102
TD2411D485H	Single high-rate RS485 isolated transceiver module(with distribution)	22.8-25.2	115200bps	RoHS	102
TD321/521D485H-A	Single RS485 isolated transceiver module(automatic switching)	3.15-3.45,4.75-5.25VDC	500Kbps	RoHS CE	102
TD321/521D485H-E	Single high-rate RS485 isolated transceiver module(enhanced)	3.15-3.45,4.75-5.25VDC	500Kbps	RoHS CE	102
TD322/522D485H-A	Dual channel RS485 isolated transceiver module(automatic switching)	3.15-3.45,4.75-5.25VDC	120Kbps	RoHS CE	102
TD321/521S485	Cost-effective SMD single RS485 isolated transceiver module	3.15-3.45,4.75-5.25VDC	19.2Kbps	RoHS CE	102
TD321/521S485H	SMD single high-rate RS485 isolated transceiver module	3.15-3.45,4.75-5.25VDC	200Kbps	RoHS CE	102
TD321/521S485H-A	SMD single RS485 isolated transceiver module(automatic switching)	3.15-3.45,4.75-5.25VDC	500Kbps	RoHS CE	102
TD321/521S485H-E	SMD single high-rate RS485 isolated transceiver module(enhanced)	3.15-3.45,4.75-5.25VDC	500Kbps	RoHS CE	102
TD301/TD501M485	Single high-rate compact size RS485 isolated transceiver module	3.15-3.45,4.75-5.25VDC	500Kbps	RoHS CE (pending)	102
TDH301/501D485H	Single high-rate high isolation RS485 isolated transceiver module	3.17-3.45,4.75-5.25VDC	115200bps	RoHS CE	102
TD321/521DCAN	Single universal CAN isolated transceiver module	3.15-3.45,4.75-5.25VDC	5K-1Mbps	RoHS CE cULus	104
TD321/521DCANH	Single high-rate CAN isolated transceiver module	3.15-3.45,4.75-5.25VDC	40K-1Mbps	RoHS CE	104
TD321/521SCAN	SMD single universal CAN isolated transceiver module	3.15-3.45,4.75-5.25VDC	5K-1Mbps	RoHS CE	104
TD321/521SCANH	SMD single high-rate CAN isolated transceiver module	3.15-3.45,4.75-5.25VDC	40K-1Mbps	RoHS CE	104
TD322/522DCAN	Dual channel CAN isolated transceiver module	3.15-3.45,4.75-5.25VDC	40K-1Mbps	RoHS CE	104
TD301/501MCAN	Single high-rate compact size CAN isolated transceiver module	3.15-3.45,4.75-5.25VDC	40K-1Mbps	RoHS CE	104
TD301/501MCANFD	Single high-rate compact size CANFD isolated transceiver module	3.15-3.45,4.75-5.25VDC	40K-5Mbps	RoHS CE	104
TD301/501DCANHE	High surge protective CAN isolated transceiver module	3.15-3.45,4.75-5.25VDC	40K-1Mbps	RoHS CE	104
TDH501DCAN-ZC	Single high-rate high isolation CAN isolated transceiver module	4.5-5.5VDC	40K-1Mbps	RoHS	104
TD301/501D232H	Single high-rate RS232 isolated transceiver module	3.0-3.6,4.5-5.5VDC	0-115.2Kbps	RoHS cULus	107
TD302/502D232H	Dual channel high-rate RS232 isolated transceiver module	3.0-3.6,4.5-5.5VDC	0-115.2Kbps	RoHS	107
TLAxx-03K485	Integrated isolated 485 AC/DC power supply	85-305VAC/100-430VDC	500Kbps	RoHS CE	106
TLAxx-03KCAN	Integrated isolated CAN AC/DC power supply	85-305VAC/100-430VDC	5-1000Kbps	RoHS CE	106

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LED/IGBT Driver /Isolation Transmitter Selection Guide

Signal Conditioning Module

Series	Function	Input Signal	Output Signal	Isolation	Certification	Page
TE_N	Active module	0-5V,0-10V,4-20mA	0-5V,0-10V	2000VAC	RoHS CE	108
TE_AN	Active module positive and negative signal	±5V,±10V	0-5V,0-10V	2000VAC	RoHS CE	108
TE_CN	Active module positive and negative signal	±5V,±10V	±5V,±10V	2000VAC	RoHS CE	108
TEM_AN	Active, mV-class, positive and negative signal	±75mV/±100mV	0-5V	2000VAC	RoHS CE	108
TEM_CN	Active, mV-class, positive and negative signal	±50mV/±100mV/±200mV	±5V/±10V	2000VAC	RoHS CE	108
TF_N	Active module	0-5V,0-10V	0/4-20mA,0-5V,0-10V	2000VAC	RoHS CE	109
TF_GN	Active module	0-5V	±10V	2000VAC	RoHS CE	109
TFW_N	Active high precision PWM signal	PWM signal 0-100%	0-20mA,0-10V	2000VAC	RoHS CE	109
T_P	Active module	0/4-20mA,0-5V,0-10V	0/4-20mA,0-5V,0-10V	2500VDC	RoHS	111
T_CP	Active high precision signal	±5V,±10V	±5V/±10V,±20mA	2500VDC	RoHS	111
TM_P	Active high precision signal (mV-class)	0-10/20/30/50/75/100mV	0/4-20mA,0-5V,0-10V	2500VDC	RoHS	110
TM_CP	Active high precision signal (mV-class)	±10/±20/±50/±75/±100mV/±200mV	±5V/±10V	2500VDC	RoHS	110
T1100N	Passive module	4-20mA	4-20mA	3000VDC	RoHS CE	112
T1100L	Passive module	4-20mA	4-20mA	3000VDC	RoHS CE	112
T1100L-F	Passive module(loop power supply)	4-20mA	4-20mA	3000VDC	RoHS CE	112
T_HL	Two-wire self-powered module with HART	0-2.5V	3.7-22mA	2000VAC	RoHS CE	112
T_L	Two-wire loop power supply	0-2.5V	3.7-22mA	2000VAC	RoHS CE	112
TRP_P	RTDs detection type isolated module	Pt100(0-500℃)	4-20mA	2000VAC	RoHS CE	113
TE_HN	Active high precision high isolated detection type signal	0-5V	0-5V	4000VAC	RoHS	113

LED Driver

Series	Input Voltage Range(VDC)	Output Voltage(VDC)	Output Current(mA)	Certification	Page
KC24H-1000	5.5-48	3.3-36	1000	RoHS	118
KC24H-1200	5.5-48	3.3-36	1200	RoHS	118
KC24H-R	5.5-46	3.3-36	0-300,0-350,0-500,0-600,0-700	RoHS	118
KC24W	5.5-48	3.3-36	0-300,0-350,0-500,0-600,0-700	RoHS	118
KC24RT	5.5-48	3.3-36	0-300,0-350,0-500,0-600,0-700	RoHS	118

Hybrid Integrated IGBT Driver (Built-in Isolated DC/DC Converter)

Series	Power Supply (VDC)	Input Voltage Range(VDC)	Output High-level Voltage VOH(VDC)	Output Low-level Voltage VOL(VDC)	Max. Driving Current (A)	Max.Frequency (KHz)	Isolation	Certification	Page
QP12W08S-37	15	14.5-15.5	15	-9	±8	20	3750VAC	RoHS	116

Hybrid Integrated IGBT Driver

Series	Power Supply VCC(VDC)	Power Supply VEE(VDC)	Gate Voltage (VDC)	Max. Driving Current (A)	Max.Frequency (KHz)	Isolation	Certification	Page
QC962-8A	15	-10	+15/-9	±8	40	3750VAC	RoHS	117

Signal Isolator / Isolation Barrier

Series	Function	Input Signal	Output Signal	Feature	Page
TAxx0W	Analog signal	4-20mA,0-10V	0/4-20mA,0-10V	DIN-Rail power supply	119
TAx05W	DC current input analog signal	4-20mA	4-20mA,1-5V,0-10V	DIN-Rail power supply	119
TAx06W	Passive Barrier	4-20mA	4-20mA	/	120
TRxx0PW	Programmable RTD	Pt100,Cu50,Cu100	0/4-20mA,0/1-5V,0/2-10V	DIN-Rail power supply	120
TR1x0PWE	Programmable RTD	Pt100,Cu50,Cu100	0/4-20mA,0/1-5V,0/2-10V	DIN-Rail power supply	121
TCxx0PW	Programmable thermocouple	R,S,K,J,T,B,E thermocouple,mV signal	0/4-20mA,0/1-5V,0/2-10V	DIN-Rail power supply	121

IGBT Driver Selection Guide

DC/DC Converter for IGBT Driver

Series	Nominal Input Voltage(VDC)	Input Voltage Range (VDC)	Positive Output (VDC)	Negative Output (VDC)	Output Current (mA)	Efficiency	Isolation	Certification	Page
QA01	15	14.5-15.5	+15	-8.7	+80/-40	80%	3000VAC	RoHS	114
QA01-17	15	14.5-15.5	+17	-8.7	+80/-40	77%	3000VAC	RoHS	114
QA02	12	11.6-12.4	+15	-8.7	+80/-40	80%	3000VAC	RoHS	114
QA03	24	23.3-24.7	+15	-8.7	+80/-40	80%	3000VAC	RoHS	114
QA04	12	9-15	+15	-8	+100/-80	80%	3000VAC	RoHS	114
QA01C	15	13.5-16.5	+20	-4	+100/-100	83%	3500VAC	RoHS	114
QA1201C-20	12	10.8-13.2	+20	−4	+100/-100	80%	3500VAC	RoHS	114
QA2401C-20	24	21.6-26.4	+20	-4	+100/-100	83%	3500VAC	RoHS	114
QA15115R2	15	13.5-16.5	+15	-2.5	+100/-100	80%	3500VAC	RoHS	114
QA01C-18	15	13.5-16.5	+18	-3	+100/-100	83%	3500VAC	RoHS	114
QA121C2	12	10.8-13.2	+15	-3.5	-111/-111	78%	3500VAC	RoHS	114
QA151M	15	14.4-15.9	+15	-5	+100/-100	80%	3500VAC	RoHS	114
QA051C	5	4.5-5.5	+20	-5	+80/-40	75%	3000VAC	RoHS	114
QA151C3	15	13.5-16.5	+15	-4	+100/-100	77%	3000VDC	RoHS	114
QAW01	12	9-18	+15	-9	+200/-200	85%	3500VAC	RoHS	115
QAW02	24	18-36	+15	-9	+200/-200	85%	3000VDC	RoHS	115
QA152D	15	13.5-16.5	+15	-9	+200/-200	83%	4000VAC	RoHS	115
QA156D-24	15	13.5-16.5	+24	/	+150/-	80%	12000VDC	RoHS	115
QAU242D2G	24	9-36	+24	+24	+150/+150	85%	4200VAC	RoHS	115
QA121	12	11.4-12.6	+15	-8	+120/-120	81%	3000VAC	RoHS	114
QA151	15	14.25-15.75	+15	-8	+120/-120	81%	3000VAC	RoHS	114
QA241	24	22.8-25.2	+15	-8	+120/-120	81%	3000VAC	RoHS	114
CQAW01	12	7-18	+15	-9	+200/-200	81%	3000VAC	RoHS	116

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DC/DC Converter Pin-Out

GND	Input GND
+Vo	+Output
0V	Output GND
-Vo	-Output
DC(-Vin)	-Input
DC(+Vin)	+Input
Vadj	Voltage Adjustable
CTRL	ON/OFF Control Function
ON/OFF	ON/OFF Control, UVLO & Starting Time Delay Function
CS	With External Capacitance(Reduce Ripple)
Trim	Output Voltage Adjustable
-Sense	Voltage Output Remote Compensation(Output GND)
+Sense	Voltage Output Remote Compensation(Output+)
NC	No Electrical Connection
No Pin	No Pin

AC/DC Converter Pin-Out

AC(N)	Neutral Wire
AC(L)	Live Wire
-Vo	-Output
+Vo	+Output
Trim	Output Voltage Adjustable
COM	Common
⏚	GND Protection
+V(CAP)	+External Capacitance
-V(CAP)	-External Capacitance
NC	No Electrical Connection
No Pin	No Pin

Isolation Transmitter Module Pin-Out

Pin+	Power Supply+
Pin-	Power Supply-
Pout+	Isolated Output+
Pout-	Isolated Output-
Pgnd	Isolated Output GND
Vo	Output
+Poss	+Isolated Power, Output
-Poss	-Isolated Power, Output
FB	Input Feedback
Ocom	Output Common
Icom	Input Common
Pin com/GND	Power Common
Iout	Current Output
Iin	Current Input
Sin+	Signal Input+
Sin-	Signal Input-
Sout+	Signal Output+
Sout-	Signal Output-
+Piss	+Isolated Power, Input
-Piss	-Isolated Power, Input
-IN	-Input
+IN	+Input
Pin	Power supply
Adj	Gain Adjustable
GR	Gain auxiliary regulation
SG	Gain regulation
ZR	Zero auxiliary regulation
SZ	Zero regulation

AC/DC Converter

1、These series are suitable for commercial indoor environment

1-5W DIY type LS series 32

3-65W cost-effective open frame AC/DC converter LO series 46

2、These series are suitable for industrial indoor environment

3-5W 90-528VAC ultra-wide input voltage AC/DC converter LS series 33

57-528VAC ultra-wide input voltage AC/DC core board scheme LSC series 34

3-20W 90-528VAC ultra-wide input voltage AC/DC converter LD series 35

New generation 3-20W compact size universal input voltage AC/DC converter LDE series 36-37

1-10W compact 85-305VAC wide input voltage LD series 38

10W seven outputs open frame LO series specialized for flow meter 48

3、These series are suitable for special industrial indoor environment

5W compact size LD05-MU series for medical 45

15-25W low power consumption AC/DC LH-MU series for medical 45

4、These series are suitable for industrial outdoor environment

5-25W 85-305VAC wide input voltage LH-13B series 39

40-60W standard package LHE series 43

120-240W DIN35 package LI series 44

30W four outputs metal mask LM series specialized for protective relaying system 44

10W open frame LO series specialized for electric power 48

10-15W dual outputs 528V input voltage open frame LO series specialized for electric power 49

20-30W three outputs open frame AC/DC converters specialized for AC charging station 49

10-25W LH-ER2 series specialized for electric power 50

5、These series are suitable for special industrial outdoor environment (harsh environment)

New generation 5-25W standard packaged AC/DC converter LHE series ... 40– 42

6、These series are suitable for special industrial outdoor environment (plateau)DC/DC converter

5-40W ultra-wide input voltage PV series 52-53

45W 150-1500VDC ultra-wide input voltage caged power supply specialized for SVG 55

Switching power supply with 250-3300VDC ultra-wide, ultra-high input voltage for renewable energy 55

120-200W new energy 200-1100VDC ultra-wide input voltage converter 56

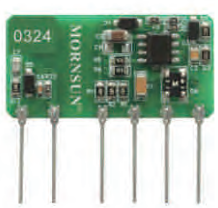
200W new energy 200-1500VDC ultra-wide input voltage converter 57

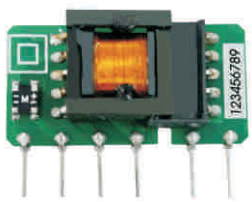
These series are suitable for commercial indoor environment

1-5W DIY type LS series

Features

- Suitable for various applications, especially for limited dimension application
- Input voltage range: 85-305VAC/70-430VDC;
  LS05: 85-264VAC/100-400VDC
- Operating temperature: -40℃ to +85℃ (LS05: -25℃ to +85℃)
- Isolation: 3000VAC(LS05:4000VAC)
- Efficiency up to 79%
- Output short-circuit and over-current protections
- IEC/UL/EN60950 approval





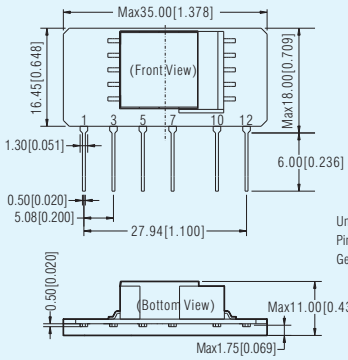
Product Program

Model Number	Power	Input Voltage Range	Output Voltage/ Current(Vo/Io)	Effi(%) (typ)	Certification
LS01-15B05SS(-F)	1W	85-305VAC 70-430VDC	5V/200mA	66	cULus CB CE RoHS
LS01-15B09SS(-F)		85-305VAC 70-430VDC	9V/111mA	67	
LS01-15B12SS(-F)		85-305VAC 70-430VDC	12V/83mA	70	
LS01-15B15SS(-F)		85-305VAC 70-430VDC	15V/67mA	69	
LS01-15B24SS(-F)		85-305VAC 70-430VDC	24V/42mA	68	
LS03-15B03SR2S(-F)	1.98W	85-305VAC 70-430VDC	3.3V/600mA	65	cULus CB CE RoHS
LS03-15B05SR2S(-F)	3W	85-305VAC 70-430VDC	5V/600mA	70	
LS03-15B09SR2S(-F)		85-305VAC 70-430VDC	9V/333mA	73	
LS03-15B12SR2S(-F)		85-305VAC 70-430VDC	12V/250mA	74	
LS03-15B15SR2S(-F)		85-305VAC 70-430VDC	15V/200mA	75	
LS03-15B24SR2S(-F)		85-305VAC 70-430VDC	24V/125mA	77	
LS05-15B03SS(-F)	3.3W	85-264VAC 100-400VDC	3.3V/1000mA	67	
LS05-15B05SS(-F)	5W	85-264VAC 100-400VDC	5V/1000mA	74	
LS05-15B09SS(-F)		85-264VAC 100-400VDC	9V/560mA	75	
LS05-15B12SS(-F)		85-264VAC 100-400VDC	12V/420mA	76	
LS05-15B15SS(-F)		85-264VAC 100-400VDC	15V/340mA	77	
LS05-15B24SS(-F)		85-264VAC 100-400VDC	24V/210mA	79	

Note: 1. External electrolytic capacitors are required. For more details please refer to typical application;
2. All series are available for 90° pin-out;
3. Detailed application please refer to datasheet;
4. If the application requires higher performance for EMC, our matching FC-L01DV1 is available;
5. LS05-15BxxSS-F series are without CE/UL approval.

Package Dimension

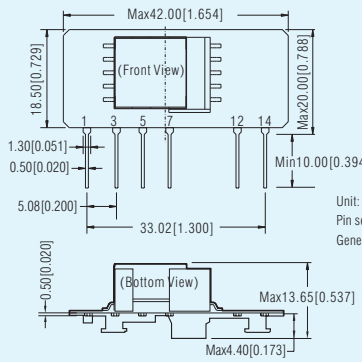
LS01&LS03: LxWxH: 35.00x18.00x11.00(mm)



Pin-Out	
Pin	Function
1	AC(N)
3	AC(L)
5	+V(CAP)
7	-V(CAP)
10	-Vo
12	+Vo

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

LS05: LxWxH: 42.00x20.00x13.65(mm)

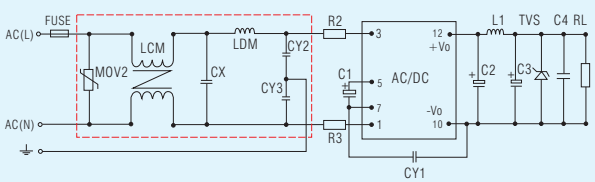


Pin-Out	
Pin	Function
1	AC(N)
3	AC(L)
5	+V(CAP)
7	-V(CAP)
12	-Vo
14	+Vo

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

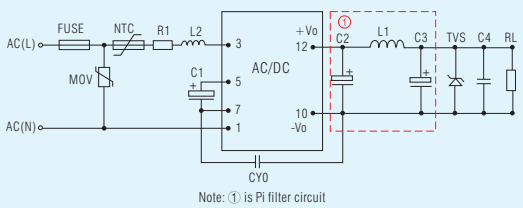
EMC Solution-recommended Circuit

e.g.: LS03-15BXXSR2S(-F), for others please refer to datasheet.



Typical Application Circuit

e.g.: LS03-15BXXSR2S(-F), for others please refer to datasheet.



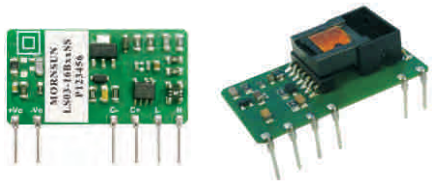
Note: ① is Pi filter circuit

These series are suitable for industrial indoor environment

3-5W 90-528VAC ultra-wide input voltage AC/DC converter LS series

Features

- Suitable for various applications, especially for limited dimension application
- Input voltage range: 90-528VAC/100-745VDC
- Operating temperature: -40℃to＋85℃
- Isolation: 4000VAC
- Output short-circuit and over-current protections
- FCC part15 standard,UL/IEC/EN60950 approval

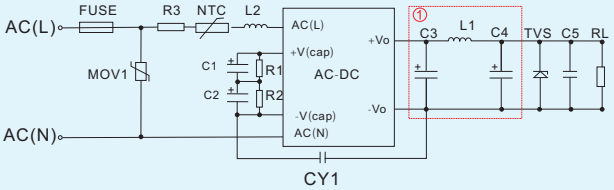


Product Program

Model Number	Power	Input Voltage Range	Output Voltage/ Current(Vo/Io)	Certification
LS03-16B03SS(-F)	1.65W	90-528VAC	3.3V/500mA	
LS03-16B05SS(-F)	2.5W	90-528VAC	5V/500mA	
LS03-16B09SS(-F)	3W	90-528VAC	9V/333mA	
LS03-16B12SS(-F)		90-528VAC	12V/250mA	
LS03-16B15SS(-F)		90-528VAC	15V/200mA	
LS03-16B24SS(-F)		90-528VAC	24V/125mA	
LS05-26B03SS(-F)	2.805W	90-528VAC	3.3V/850mA	
LS05-26B05SS(-F)*	4.250W	90-528VAC	5V/850mA	
LS05-26B09SS(-F)*	5W	90-528VAC	9V/560mA	
LS05-26B12SS(-F)*		90-528VAC	12V/420mA	
LS05-26B15SS(-F)*		90-528VAC	15V/340mA	
LS05-26B24SS(-F)*		90-528VAC	24V/215mA	

Note: 1. External electrolytic capacitors are required to AC input modules for LS series;
2. LD series in DIP package meet the requirements of ±1KV surge level. If the application requires higher performance for surge, our recommended peripheral circuit is available;
3. LS series are available for 90° pin-out.
4. Products marked with " * " meet UL62368、EN62368、FCC part 15 standard

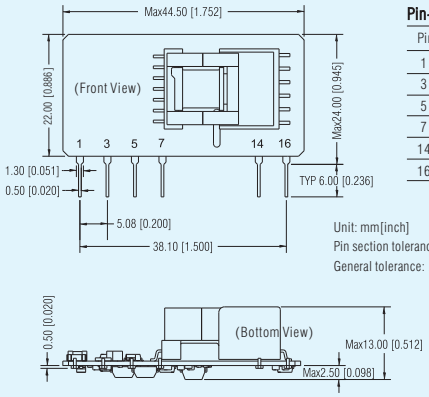
Typical Application Circuit



Note: ① is Pi filter circuit

Package Dimension

LS03-16BxxSS/LS05-26BxxSS Series:
LxWxH: 44.50x22.00x13.00(mm)



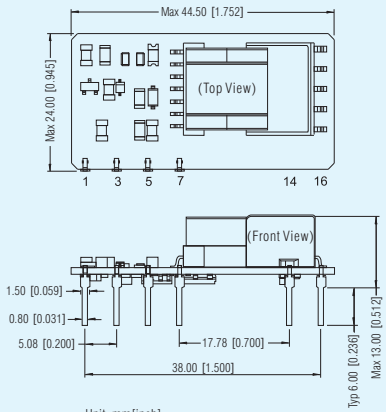
Pin-Out

Pin	Function
1	AC(N)
3	AC(L)
5	+V(cap)
7	-V(cap)
14	-Vo
16	+Vo

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

Note:
1. It is necessary to add C1、C2 and R1、R2 between pin 5 and pin 7;
2. It is necessary to add pi-type filter circuit to the output, such as the typical application of Figure 1.

LS03-16BxxSS(-F)/LS05-26BxxSS(-F) Series:
LxWxH: 44.50x24.00x13.00(mm)



Pin-Out

Pin	Function
1	AC(N)
3	AC(L)
5	+V(cap)
7	-V(cap)
14	-Vo
16	+Vo

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

Note:
1. It is necessary to add C1、C2 and R1、R2 between pin 5 and pin 7;
2. It is necessary to add pi-type filter circuit to the output, such as the typical application of Figure 1.

57-528VAC ultra-wide input voltage AC/DC core board scheme LSC series

RoHS

Core Board Features

- Integrate 2 MOSFET inside, withstand voltage up to 1300V
- Integrate dedicated high-voltage start controller
- Controllable cost, flexibly select peripheral devices
- Flexible design, meet multiple output requirements
- Quality assurance, provide core control scheme, to improve product stability

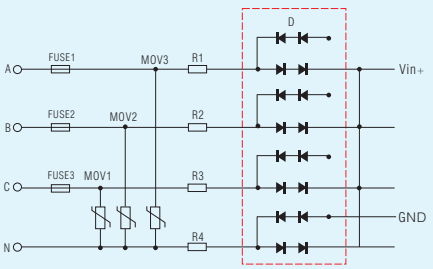
Scheme Product Features

- Ultra wide input voltage range ： 57 - 528VAC/80 - 745VDC
- Circuit can be powered by three-phase four-wire, or any two wires of them
- CE /RE ： CISPR32/EN55032 CLASS B
- EFT, Surge ： ±4KV Perf. Criteria B
- Output short circuit, over-current, over-voltage protection
- High efficiency, High reliability
- Low ripple & noise, Low standby power consumption

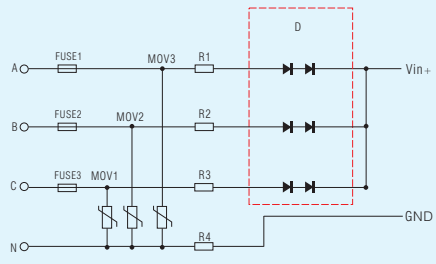
Product Program

Model Number	Power	Input Voltage Range	Output Voltage/ Current(Vo1/Io1)	Output Voltage/ Current(Vo2/Io2)	Output Voltage/ Current(Vo3/Io3)	Effi(%) (typ)	Certification
LSC15-26C0512-04	14.6W	57-528VAC 80-745VDC	5V/1A	12V/0.4A	12V/0.4A	78	RoHS
LSC15-26D1212-03	15W	57-528VAC 80-745VDC	12V/0.95A	12V/0.3A	--	78	
LSC15-26D0512-04		57-528VAC 80-745VDC	5V/1.8A	12V/0.4A	--	78	
LSC15-26D0524-02		57-528VAC 80-745VDC	5V/1.8A	24V/0.25A	--	78	

EMC Solution-recommended Circuit



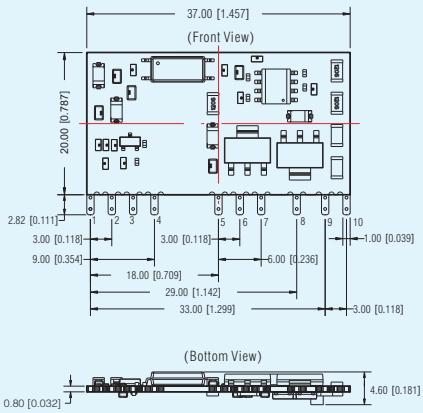
Recommended circuit for applications which require 4.4KV differential-mode inrush standard (full-wave rectification)



Recommended circuit for applications which require 4.4KV differential-mode inrush standard (half-wave rectification)

Package Dimension

LSC15-26C/Dxx Series: LxWxH: 37.00x20.00x11.00(mm)



Pin-Out

Pin	Function
1	Vo-
2	V1
3	V2
4	Traim
5	FA
6	GND
7	VDD1
8	Vd
9	HV
10	Vgs

Note:
Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]
the layout of the device is for reference only,please refer to the actual product

These series are suitable for industrial indoor environment

3-20W 90-528VAC ultra-wide input voltage AC/DC converter LD series

Features

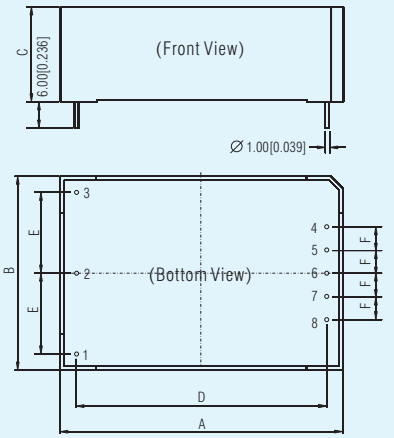
- Suitable for electric power, industrial control and intelligent building applications
- Input voltage range: 90-528VAC/100-745VDC
- Operating temperature: –40℃ to +70℃
- Isolation: 4000VAC(LD03:3000VAC)
- FCC part15 standard,UL/IEC/EN60950 approval(LD03-16Bxx), EN62368 approval(LD10-26Bxx,LD20-26Bxx)
- Output short-circuit, over-current and over-voltage protections

Product Program

Model Number	Power	Input Voltage Range	Output Voltage/ Current(Vo/Io)	Effi(%) (typ)	Certification
LD03-16B03	1.65W	90-528VAC	3.3V/500mA	63	cULus CE CB RoHS
LD03-16B05	2.5W	90-528VAC	5V/500mA	70	
LD03-16B09	3W	90-528VAC	9V/333mA	73	
LD03-16B12		90-528VAC	12V/250mA	76	
LD03-16B15		90-528VAC	15V/200mA	76	
LD03-16B24		90-528VAC	24V/125mA	76	
LD10-26B03	6.6W	90-528VAC	3.3V/2000mA	72	CE RoHS
LD10-26B05	10W	90-528VAC	5V/2000mA	76	
LD10-26B09		90-528VAC	9V/1100mA	78	
LD10-26B12		90-528VAC	12V/900mA	80	
LD10-26B15		90-528VAC	15V/700mA	80	
LD10-26B24		90-528VAC	24V/450mA	82	
LD20-26B03	11.88W	90-528VAC	3.3V/3600mA	74	
LD20-26B05	18W	90-528VAC	5V/3600mA	78	
LD20-26B09	20W	90-528VAC	9V/2230mA	79	
LD20-26B12		90-528VAC	12V/1660mA	82	
LD20-26B15		90-528VAC	15V/1330mA	83	
LD20-26B24		90-528VAC	24V/833mA	83	

Package Dimension

LD10/20 Series:



Outline & Dimensions

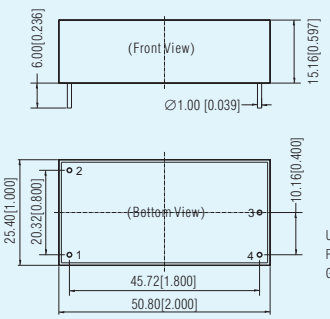
NO.	LD10	LD20
A	62.00	70.00
B	45.00	48.00
C	30.00	30.00
D	54.00	62.00
E	17.50	20.00
F	5.00	5.75
G	12.50	12.50

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

Pin-Out

Pin	LD10-26B	LD20-26B
1	NC	NC
2	AC(N)	AC(N)
3	AC(L)	AC(L)
4	+Vo	+Vo
5	No Pin	No Pin
6	No Pin	No Pin
7	No Pin	No Pin
8	–Vo	–Vo

LD03 Series: LxWxH: 50.80x25.40x15.16(mm)



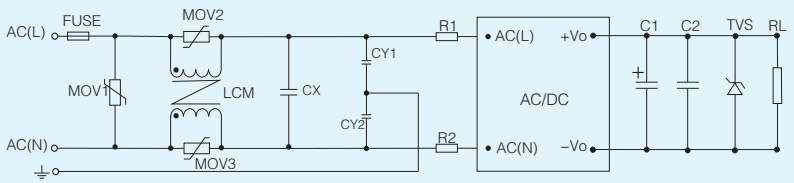
Pin-Out

Pin	Function
1	AC(N)
2	AC(L)
3	-Vo
4	+Vo

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

EMC Solution-recommended Circuit

Take LD03-16Bxx as an example, others please refer to datasheet.



• This catalog is used to introduce our latest products, for more information, please contact our sales department

These series are suitable for industrial indoor environment

New generation 3-20W compact size universal input voltage AC/DC converter LDE series

Features

- Compact size, suitable for limited dimension application
- Input voltage range: 85-264VAC/100-370VDC
- Operating temperature: –40℃ to +70℃
- Isolation: 4000VAC
- Efficiency up to 83%
- high efficiency, environment friendly
- Optional packages: PCB mounting, chassis mounting,DIN-Rail mounting
- Output short-circuit, over-current and over-voltage protections
- IEC/EN/UL62368, En60335(LDE10-20Bxx) approval

A2S Chassis Mounting

A4S DIN-Rail Mounting

Product Program

Model Number	Power	Input Voltage Range	Output Voltage/ Current(Vo/Io)	Effi(%) (typ)	Certification
LDE03-20B03	2.3W	85-264VAC	3.3V/700mA	66	
LDE03-20B05		85-264VAC	5V/600mA	74	
LDE03-20B09		85-264VAC	9V/330mA	75	
LDE03-20B12	3W	85-264VAC	12V/250mA	77	
LDE03-20B15		85-264VAC	15V/200mA	77	
LDE03-20B24		85-264VAC	24V/125mA	78	
LDE03-20B03W		85-264VAC	3.3V/700mA	66	
LDE03-20B05W		85-264VAC	5V/600mA	74	
LDE03-20B09W	3W	85-264VAC	9V/330mA	75	
LDE03-20B12W		85-264VAC	12V/250mA	77	
LDE03-20B15W		85-264VAC	15V/200mA	77	
LDE03-20B24W		85-264VAC	24V/125mA	78	
LDE05-20B03	3.3W	85-264VAC	3.3V/1000mA	68	
LDE05-20B05		85-264VAC	5V/1000mA	75	
LDE05-20B09		85-264VAC	9V/560mA	77	
LDE05-20B12	5W	85-264VAC	12V/420mA	79	
LDE05-20B15		85-264VAC	15V/330mA	79	
LDE05-20B24		85-264VAC	24V/210mA	81	
LDE05-20B03W		85-264VAC	3.3V/1000mA	68	
LDE05-20B05W		85-264VAC	5V/1000mA	75	
LDE05-20B09W	5W	85-264VAC	9V/560mA	77	
LDE05-20B12W		85-264VAC	12V/420mA	79	
LDE05-20B15W		85-264VAC	15V/330mA	79	
LDE05-20B24W		85-264VAC	24V/210mA	81	
LDE06-20B03	4.1W	85-264VAC	3.3V/1250mA	70	
LDE06-20B05		85-264VAC	5V/1200mA	76	
LDE06-20B09		85-264VAC	9V/660mA	74	
LDE06-20B12	6W	85-264VAC	12V/500mA	77	
LDE06-20B15		85-264VAC	15V/400mA	77	
LDE06-20B24		85-264VAC	24V/250mA	80	
LDE10-20B03	6.6W	85-264VAC	3.3V/2000mA	71	
LDE10-20B05		85-264VAC	5V/2000mA	76	
LDE10-20B09		85-264VAC	9V/1100mA	80	
LDE10-20B12	10W	85-264VAC	12V/900mA	81	
LDE10-20B15		85-264VAC	15V/700mA	81	
LDE10-20B24		85-264VAC	24V/450mA	83	

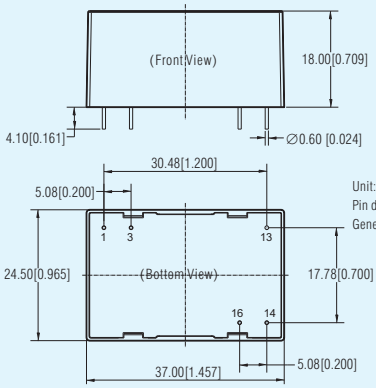
Product Program

Model Number	Power	Input Voltage Range	Output Voltage/ Current(Vo/Io)	Effi(%) (typ)	Certification
LDE15-20B03	8.9W	85-264VAC	3.3V/2700mA	72	
LDE15-20B05	13.5W	85-264VAC	5V/2700mA	76	
LDE15-20B09		85-264VAC	9V/1660mA	77	
LDE15-20B12	15W	85-264VAC	12V/1250mA	80	
LDE15-20B15		85-264VAC	15V/1000mA	81	
LDE15-20B24		85-264VAC	24V/625mA	81	
LDE20-20B03	11.8W	85-264VAC	3.3V/3600mA	74	
LDE20-20B05	18W	85-264VAC	5V/3600mA	78	
LDE20-20B09		85-264VAC	9V/2200mA	79	
LDE20-20B12		85-264VAC	12V/1660mA	82	
LDE20-20B15	20W	85-264VAC	15V/1330mA	83	
LDE20-20B24		85-264VAC	24V/833mA	83	

Note: 1.LDE series meet the requirements of lightning protection. If the application requires higher performance for lightning protection and EMI, our standard products LHE series(surge level three), LH-ER2(surge level four) and recommended peripheral circuit are available;
2.If the application requires higher performance for lightning protection, our matching EMC auxiliary devices are available. For example, LDE03/LDE05 with FC-LX1D reaches to ±2KV/4KV(level four), and LDE15/ LDE20 with FC-LX1D2 to ±4V/6KV;
3.Detailed application please refer to datasheet.

Package Dimension

LDE03/05 Series: LxWxH: 37.00x24.50x18.00(mm)



Pin-Out

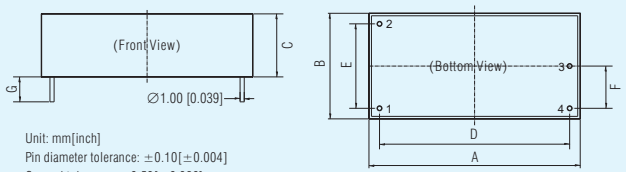
Pin	Function
1	AC(L)
3	AC(N)
13	NC
14	-Vo
16	+Vo

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

• This catalog is for reference only, please visit our website for detailed datasheets: www.mornsun-power.com

Package Dimension

LDE06/10/15/20 Series:



Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]
Note: A2S chassis mounting and A4S DIN-Rail mounting are available and please refer to datasheet for details.

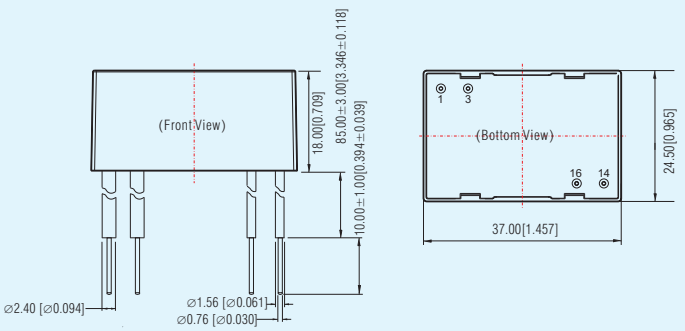
Outline & Dimensions

NO.	LDE06	LDE10	LDE15	LDE20
A	50.80	53.80	53.80	53.80
B	25.40	28.80	28.80	28.80
C	15.36	19.00	23.50	23.50
D	45.72	45.72	45.72	45.72
E	20.32	20.32	20.32	20.32
F	10.16	10.16	10.16	10.16
G	6.00	6.00	6.00	6.00

Pin-Out

NO.	LDE06	LDE10	LDE15	LDE20
1	AC(N)	AC(N)	AC(N)	AC(N)
2	AC(L)	AC(L)	AC(L)	AC(L)
3	-Vo	-Vo	-Vo	-Vo
4	+Vo	+Vo	+Vo	+Vo

LDE03/05–20BxxW Series: LxWxH: 37.00x24.50x18.00(mm)

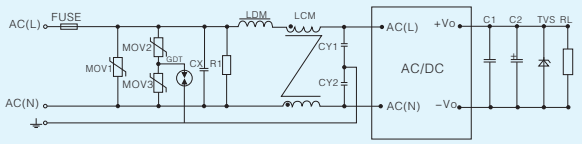


Pin-Out

Pin	Wire Type	Function
1 brown	UL-1015 AWG22	AC(L)
3 blue	UL-1015 AWG22	AC(N)
14 black	UL-1430 AWG22	-Vo
16 red	UL-1430 AWG22	+Vo

Unit: mm[inch]
Wire diameter tolerances: ±0.30[±0.012]
General tolerance: ±0.50[±0.020]

EMC Solution-recommended Circuit



Take LDE20-20Bxx as an example, others please refer to datasheet.

These series are suitable for industrial indoor environment

1-10W compact 85-305VAC wide input voltage LD series

Features

- Compact size, suitable for limited dimension application
- Input voltage range: 85-305VAC/100-430VDC
- Isolation: 3000VAC/4000VAC
- Efficiency up to 83%
- Low standby power consumption, high efficiency, environment friendly
- Optional packages: PCB mounting, chassis mounting,DIN-Rail mounting
- Output short-circuit, over-current and over-voltage protections
- IEC/UL/EN60950 approval

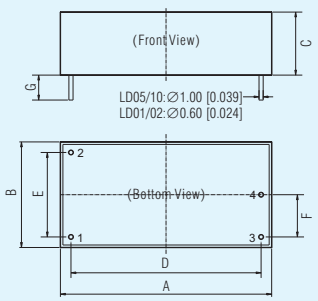
A2S Chassis Mounting

A4S DIN-Rail Mounting

Product Program

Model Number	Power	Input Voltage Range	Output Voltage/ Current(Vo/Io)	Effi(%) (typ)	Certification
LD01-10B03	1W	85-305VAC	3.3V/300mA	63	cULus CE RoHS
LD01-10B05		85-305VAC	5V/200mA	68	
LD01-10B09		85-305VAC	9V/111mA	72	
LD01-10B12		85-305VAC	12V/83mA	73	
LD01-10B15		85-305VAC	15V/67mA	74	
LD01-10B24		85-305VAC	24V/42mA	75	
LDE02-23B03	2W	85-305VAC	3.3V/600mA	65	cULus CB CE (Pending) RoHS
LDE02-23B05		85-305VAC	5V/400mA	70	
LDE02-23B09		85-305VAC	9V/222mA	72	
LDE02-23B12		85-305VAC	12V/167mA	76	
LDE02-23B15		85-305VAC	15V/133mA	76	
LDE02-23B24		85-305VAC	24V/83mA	78	
LD05-23B03	4.2W	85-305VAC	3.3V/1250mA	74	cULus CB CE RoHS
LD05-23B05	5W	85-305VAC	5V/1000mA	78	
LD05-23B09		85-305VAC	9V/550mA	78	
LD05-23B12		85-305VAC	12V/420mA	80	
LD05-23B15		85-305VAC	15V/333mA	82	
LD05-23B24	5.5W	85-305VAC	24V/230mA	83	
LD10-13B03	6.6W	85-305VAC	3.3V/2000mA	72	RoHS
LD10-13B05	10W	85-305VAC	5V/2000mA	76	
LD10-13B09		85-305VAC	9V/1100mA	78	
LD10-13B12		85-305VAC	12V/900mA	80	
LD10-13B15		85-305VAC	15V/700mA	80	
LD10-13B24		85-305VAC	24V/450mA	80	

Package Dimension



Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

Outline & Dimensions

NO.	LD01/LDE02	LD05	LD10
A	33.70	50.80	53.80
B	22.20	25.40	28.80
C	18.00	15.16	19.00
D	28.00	45.72	45.72
E	15.24	20.32	20.32
F	7.62	10.16	10.16
G	6.00	6.00	6.00

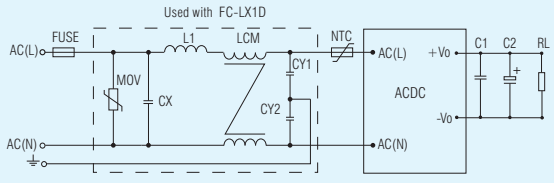
Pin-Out

	LD01/LDE02	LD05	LD10
1	AC(N)	AC(N)	AC(N)
2	AC(L)	AC(L)	AC(L)
3	-Vo	+Vo	+Vo
4	+Vo	-Vo	-Vo

Note: A2S chassis mounting and A4S DIN-Rail mounting are available and please refer to datasheet for details.

EMC Solution-recommended Circuit

Take LD05-23Bxx as an example, others please refer to datasheet.



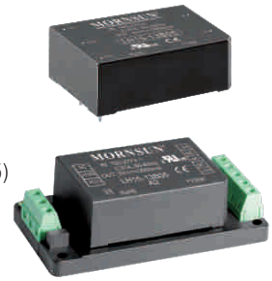
Note: 1.LD series meet the requirements of lightning protection. If the application requires higher performance for lightning protection and EMI, our standard products LH series(surge level three), LH-ER2(surge level four) and recommended peripheral circuit are available;
2.If the application requires higher performance for lightning protection, our matching EMC auxiliary devices are available. For example, LD05-23B with FC-LX1D reaches to ±2KV/4KV(level four);
3.Detailed application please refer to datasheet.

These series are suitable for industrial outdoor environment

5-25W 85-305VAC wide input voltage LH-13B series

Features

- Wide input voltage, suitable for unstable electric supply application
- Input voltage range: 85-305VAC/100-430VDC
- Operating temperature: -40℃ to +70℃
- Isolation: 3000VAC
- Efficiency up to 87%
- Optional packages: PCB mounting, chassis mounting,DIN-Rail mounting(TS35)
- EMI meets EN55022 CLASS B
- Output short-circuit, over-current and over-voltage protections
- IEC/UL/EN60950 approval



A2 Chassis Mounting

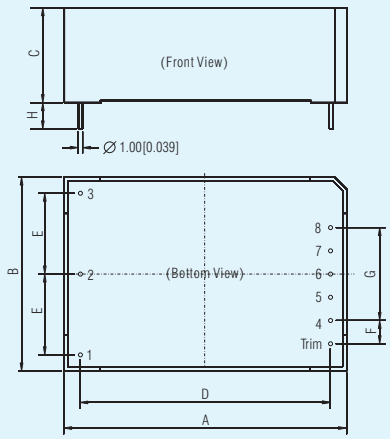
A4 DIN-Rail Mounting

Product Program

Model Number	Power	Input Voltage Range	Output Voltage/ Current(Vo/Io)	Effi(%) (230VAC,typ.)	Certification
LH05-13B03	4W	85-305VAC	3.3V/1250mA	72	
LH05-13B05		85-305VAC	5V/1000mA	77	
LH05-13B09		85-305VAC	9V/550mA	79	
LH05-13B12	5W	85-305VAC	12V/420mA	81	
LH05-13B15		85-305VAC	15V/330mA	82	
LH05-13B24		85-305VAC	24V/230mA	84	
LH10-13B03	6.6W	85-305VAC	3.3V/2000mA	70	
LH10-13B05		85-305VAC	5V/2000mA	76	
LH10-13B09		85-305VAC	9V/1100mA	78	
LH10-13B12	10W	85-305VAC	12V/900mA	80	
LH10-13B15		85-305VAC	15V/700mA	81	
LH10-13B24		85-305VAC	24V/450mA	82	
LH15-13B03	9.9W	85-305VAC	3.3V/3000mA	74	
LH15-13B05	14W	85-305VAC	5V/2800mA	78	
LH15-13B09		85-305VAC	9V/1600mA	79	
LH15-13B12		85-305VAC	12V/1250mA	82	
LH15-13B15	15W	85-305VAC	15V/1000mA	82	
LH15-13B24		85-305VAC	24V/625mA	84	
LH15-13B48		85-305VAC	48V/320mA	85	
LH20-13B03	11.55W	85-305VAC	3.3V/3500mA	75	
LH20-13B05	17.5W	85-305VAC	5V/3500mA	78	
LH20-13B09		85-305VAC	9V/2100mA	79	
LH20-13B12	20W	85-305VAC	12V/1600mA	83	
LH20-13B15		85-305VAC	15V/1300mA	84	
LH20-13B24		85-305VAC	24V/850mA	85	
LH25-13B03	13.5W	85-305VAC	3.3V/4100mA	75	
LH25-13B05	20.5W	85-305VAC	5V/4100mA	78	
LH25-13B09		85-305VAC	9V/2500mA	79	
LH25-13B12		85-305VAC	12V/2100mA	83	
LH25-13B15	25W	85-305VAC	15V/1600mA	84	
LH25-13B24		85-305VAC	24V/1100mA	85	
LH25-13B48		85-305VAC	48V/500mA	87	

Note: 1. LH(05-25)-13B series meet the requirements of surge level of ±1KV/2KV(level three). If the application requires higher performance for surge, our recommended peripheral circuit for ±2KV/4KV(level four) is available;
2. If the application requires higher performance for lightning protection, our matching EMC auxiliary devices are available. For example, LH(05-25)-13B series with FC-LX1D reaches to±2KV/4KV(level four);
3. Detailed application please refer to datasheet.

Package Dimension



Outline & Dimensions

NO.	LH05	LH10	LH15	LH20	LH25
A	55.00	55.00	62.00	70.00	70.00
B	45.00	45.00	45.00	48.00	48.00
C	21.00	21.00	22.50	23.50	23.50
D	40.50	47.00	54.00	62.00	62.00
E	12.50	17.50	17.50	20.00	20.00
F	-	-	-	5.75	5.75
G	16.00	20.00	20.00	23.00	23.00

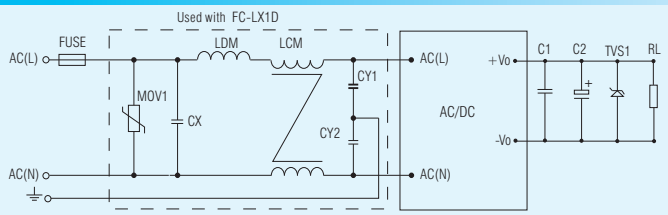
Pin-Out

Pin	LH-13B	Pin	LH-13B
1	⏚	6	No Pin
2	AC(N)	7	No Pin
3	AC(L)	8	+Vo
4	-Vo	Trim	Trim**
5	No Pin		

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
Pin length(H): ≥6.00[0.236]
General tolerance: ±0.50[±0.020]

Note: There is no pin "1" ⏚ on LH15-13B
Trim**: only for LH20/25-13B Series
A2 chassis mounting and A4 DIN-Rail mounting are available and please refer to datasheet for details.
Further developing is also available if needed.

EMC Solution-recommended Circuit



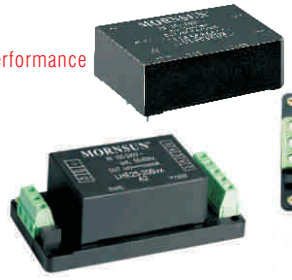
• This catalog is used to introduce our latest products, for more information, please contact our sales department

These series are suitable for special industrial outdoor environment (harsh environment)

New generation 5-25W standard package AC/DC converter LHE series

Features

- Standard package, suitable for industrial control application requiring high EMC performance
- Input voltage range: 85-264VAC/100-370VDC
- Operating temperature:-40℃ to +85℃
- Isolation: 4000VAC
- Efficiency up to 87%
- Low ripple & noise
- Optional packages: PCB mounting, chassis mounting,DIN-Rail mounting
- EMI meets CISPR32/EN55032 CLASS B
- Output short-circuit, over-current and over-voltage protections
- IEC/UL/EN62368 approval



A2 Chassis Mounting

A4 DIN-Rail Mounting

Product Program

Model Number	Power	Output Voltage/ Current(Vo1/Io1)	Output Voltage/ Current(Vo2/Io2)	Effi(%) (typ)	Certification
LHE05-20B03	4W	3.3V/1250mA		70	cULus CB CE RoHS
LHE05-20B05	5W	5V/1000mA		75	
LHE05-20B09		9V/550mA		77	
LHE05-20B12		12V/420mA		79	
LHE05-20B15		15V/330mA		80	
LHE05-20B24	5.5W	24V/230mA		82	RoHS
LHE05-20A05**	5W	+5V/500mA	−5V/500mA	73	
LHE05-20A12**		+12V/210mA	-12V/210mA	77	
LHE05-20A15**		+15V/160mA	-15V/160mA	77	
LHE05-20C0505-01		5V/800mA	±5V/100mA	70	
LHE05-20C0512-01	5.4W	5V/600mA	±12V/100mA	73	
LHE05-20C0515-01		5V/600mA	±15V/80mA	74	
LHE05-20D0505-01	5W	5V/900mA	5V/100mA	70	
LHE05-20D0512-01		5V/750mA	12V/100mA	72	
LHE05-20D0515-01		5V/700mA	15V/100mA	72	
LHE05-20D0524-01	5.4W	5V/600mA	24V/100mA	74	
LHE10-20B03	6.6W	3.3V/2000mA		70	cULus CB CE RoHS
LHE10-20B05	10W	5V/2000mA		76	
LHE10-20B09		9V/1100mA		78	
LHE10-20B12		12V/900mA		80	
LHE10-20B15		15V/700mA		81	
LHE10-20B24		24V/450mA		82	
LHE10-20A05**	10W	+5V/1000mA	−5V/1000mA	76	RoHS
LHE10-20A12**		+12V/450mA	-12V/450mA	80	
LHE10-20A15**		+15V/350mA	-15V/350mA	81	
LHE10-20C0512-02		5V/1000mA	±12V/200mA	75	
LHE10-20C0515-02		5V/900mA	±15V/200mA	75	
LHE10-20D0505-02		5V/1800mA	5V/200mA	75	
LHE10-20D0512-02		5V/1500mA	12V/200mA	78	
LHE10-20D0515-02		5V/1400mA	15V/200mA	79	
LHE10-20D0524-02		5V/1000mA	24V/200mA	80	
LHE15-20B03	9.9W	3.3V/3000mA		73	cULus CB CE RoHS
LHE15-20B05	14W	5V/2800mA		76	
LHE15-20B09	15W	9V/1600mA		78	
LHE15-20B12		12V/1250mA		80	
LHE15-20B15		15V/1000mA		80	
LHE15-20B24		24V/625mA		83	

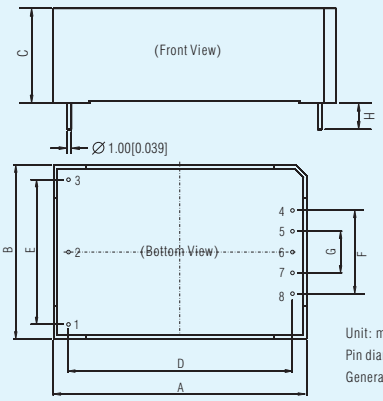
Product Program

Model Number	Power	Output Voltage/ Current(Vo1/Io1)	Output Voltage/ Current(Vo2/Io2)	Effi(%) (typ)	Certification
LHE15-20A05**	15W	+5V/1500mA	−5V/1500mA	76	RoHS
LHE15-20A12**		+12V/650mA	-12V/650mA	80	
LHE15-20A15**		+15V/500mA	-15V/500mA	81	
LHE15-20C0505-05		5V/2000mA	±5V/500mA	75	
LHE15-20C0512-02		5V/2000mA	±12V/200mA	77	
LHE15-20C0515-02		5V/1800mA	±15V/200mA	78	
LHE15-20D0505-08		5V/2000mA	5V/800mA	76	
LHE15-20D0512-04		5V/2000mA	12V/400mA	78	
LHE15-20D0524-02		5V/2000mA	24V/200mA	78	
LHE15-20D0524-04		5V/1000mA	24V/400mA	80	
LHE20-20B03	11.55W	3.3V/3500mA		73	cULus CB CE RoHS
LHE20-20B05	15.5W	5V/3100mA		77	
LHE20-20B09	20W	9V/2100mA		79	
LHE20-20B12		12V/1600mA		81	
LHE20-20B15		15V/1300mA		82	
LHE20-20B24		24V/850mA		84	
LHE20-20A12**	20W	+12V/830mA	−12V/830mA	82	RoHS
LHE20-20A15**		+15/650mA	-15/650mA	83	
LHE20-20C0512-04		5V/2000mA	±12V/400mA	78	
LHE20-20C0515-03		5V/2000mA	±15V/300mA	79	
LHE20-20D0512-06		5V/2500mA	12V/600mA	78	
LHE20-20D0515-05		5V/2500mA	15V/500mA	78	
LHE20-20D0524-03		5V/2500mA	24V/300mA	78	
LHE25-20B03	13.53W	3.3V/4100mA		74	cULus CB CE RoHS
LHE25-20B05	20.5W	5V/4100mA		79	
LHE25-20B09	25W	9V/2500mA		81	
LHE25-20B12		12V/2100mA		83	
LHE25-20B15		15V/1600mA		84	
LHE25-20B24		24V/1100mA		85	
LHE25-20B48		48V/500mA		87	

Note: 1. Standard LHE series meet the requirements of surge level of ±1KV/2KV(level three). If the application requires higher performance for surge, our LH-ER2 series for±2KV/4KV (level four) and recommended peripheral circuit for ±2KV/4KV(level four) are available;
2. If the application requires higher performance for surge, our matching EMC auxiliary devices are available. For example, standard LHE(05-25) series with FC-LX1D reaches to±2KV/4KV(level four);
3. Detailed application please refer to datasheet.
4. Products marked with "**"feature that Vo2 is the main circuit. Other products feature that Vo1 is the main circuit.

Package Dimension

LHE05/10/15/20 Series



Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

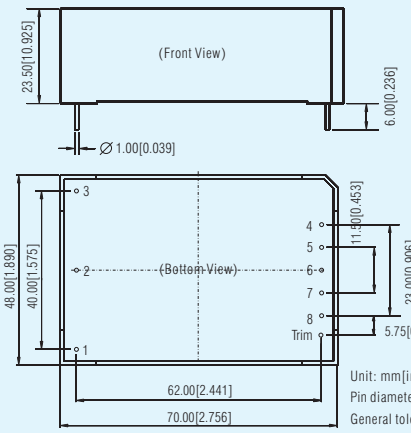
Pin-Out

Pin	LHE05–20B	LHE10–20B	LHE15–20B	LHE20–20B
1	⏚	⏚	No Pin	No Pin
2	AC(N)	AC(N)	AC(N)	AC(N)
3	AC(L)	AC(L)	AC(L)	AC(L)
4	+Vo	+Vo	+Vo	+Vo
5	No Pin	No Pin	No Pin	No Pin
6	No Pin	No Pin	No Pin	No Pin
7	No Pin	No Pin	No Pin	No Pin
8	-Vo	-Vo	-Vo	-Vo

Outline & Dimensions

NO	LHE05	LHE10	LHE15	LHE20
A	48.50	55.00	62.00	62.00
B	36.00	45.00	45.00	45.00
C	20.50	21.00	22.50	22.50
D	40.50	47.00	54.00	54.00
E	25.00	35.00	35.00	35.00
F	16.00	20.00	20.00	20.00
G		10.00	10.00	10.00
H	6.00	6.00	6.00	6.00

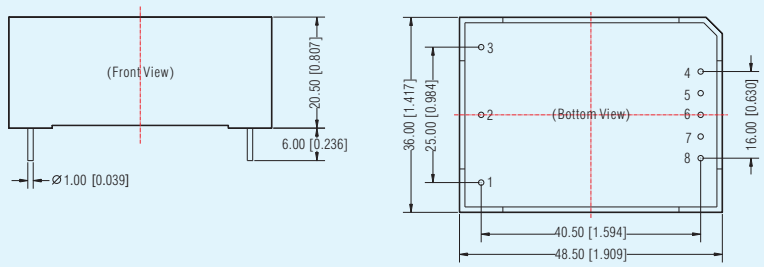
LHE25 Series: LxWxH: 70.00x48.50x23.50(mm)



Pin	Function
1	⏚
2	AC(N)
3	AC(L)
4	+Vo
5	No Pin
6	No Pin
7	No Pin
8	-Vo
Trim	Trim

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

LHE05-20A/C/Dxx Series: LxWxH: 48.50x36.00x20.50(mm)

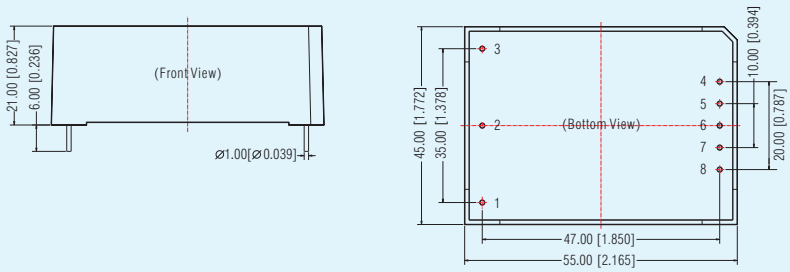


Pin-Out

Pin	LHE05-20A	LHE05-20C	LHE05-20D
1	⏚	⏚	⏚
2	AC(N)	AC(N)	AC(N)
3	AC(L)	AC(L)	AC(L)
4	+Vo	+Vo2	+Vo2
5	No Pin	COM	-Vo2
6	COM	-Vo2	No Pin
7	No Pin	+Vo1	+Vo1
8	-Vo	-Vo1	-Vo1

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

LHE10-20A/C/Dxx Series: LxWxH: 55.00x45.00x21.00(mm)



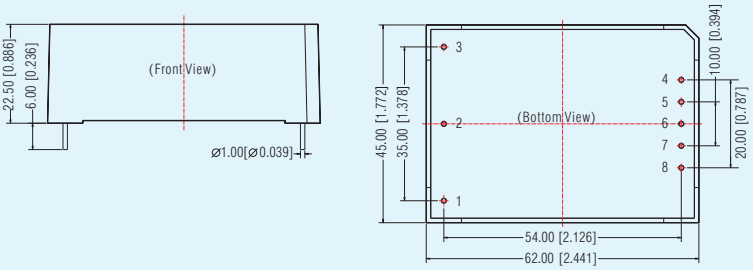
Pin-Out

Pin	LHE10-20A	LHE10-20C	LHE10-20D
1	⏚	⏚	⏚
2	AC(N)	AC(N)	AC(N)
3	AC(L)	AC(L)	AC(L)
4	+Vo	+Vo2	+Vo2
5	No Pin	COM	-Vo2
6	COM	-Vo2	No Pin
7	No Pin	+Vo1	+Vo1
8	-Vo	-Vo1	-Vo1

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

Package Dimension

LHE15-20A/C/Dxx Series: LxWxH: 62.00x45.00x22.50(mm)

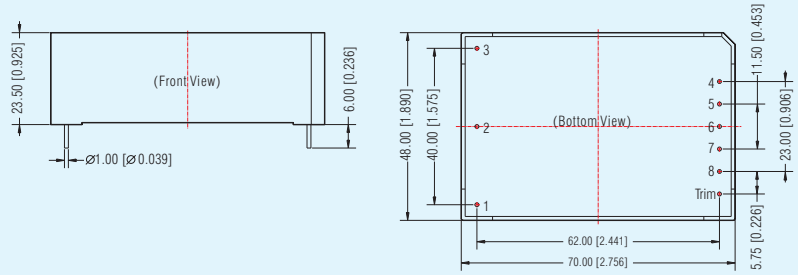


Pin-Out

Pin	LHE15-20A	LHE15-20C	LHE15-20D
1	⏚	⏚	⏚
2	AC(N)	AC(N)	AC(N)
3	AC(L)	AC(L)	AC(L)
4	+Vo	+Vo2	+Vo2
5	No Pin	COM	-Vo2
6	COM	-Vo2	No Pin
7	No Pin	+Vo1	+Vo1
8	-Vo	-Vo1	-Vo1

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

LHE20-20A/C/Dxx Series: LxWxH: 70.00x48.00x23.50(mm)

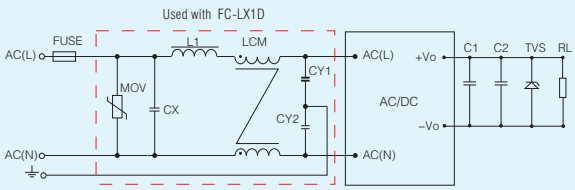


Pin-Out

Pin	LHE20-20A	LHE20-20C	LHE20-20D
1	⏚	⏚	⏚
2	AC(N)	AC(N)	AC(N)
3	AC(L)	AC(L)	AC(L)
4	+Vo	+Vo2	+Vo2
5	No Pin	COM	-Vo2
6	COM	-Vo2	No Pin
7	No Pin	+Vo1	+Vo1
8	-Vo	-Vo1	-Vo1
Trim	No Pin	No Pin	No Pin

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

EMC Solution-recommended Circuit

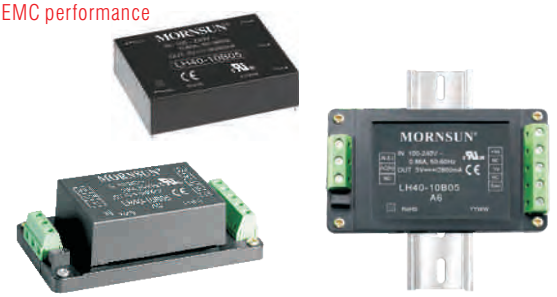


These series are suitable for industrial outdoor environment

40-60W standard package LHE series

Features

- Standard package, suitable for industrial control application requiring high EMC performance
- Input voltage range: LH40/LHE40: 85-264VAC/100-370VDC
  LH60-20Bxx: 90 - 264VAC/122 - 370VDC
- LH60-20Bxx-DT: 55 - 264VAC/77 - 370VDC
- Operating temperature: -40℃ to +70℃
- Efficiency up to 86%
- Optional packages: PCB mounting, chassis mounting, DIN-Rail mounting
- Output short-circuit, over-current and over-voltage protections
  IEC/EN/UL60950 approval



Product Program

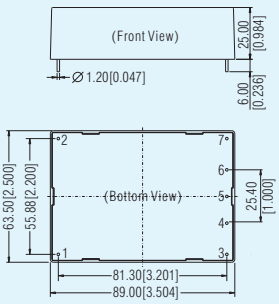
Model Number	Power	Output Voltage/ Current(Vo1/Io1)	Output Voltage/ Current(Vo2/Io2)	Isolation	Certification
LHE40-20B03	26.4W	3.3V/8000mA		4000VAC	(Pending) RoHS
LHE40-20B05	40W	5V/8000mA			
LHE40-20B12		12V/3330mA		4000VAC	(Pending) RoHS
LHE40-20B15		15V/2660mA			
LHE40-20B24		24V/1670mA			
LHE40-20B48		48V/830mA			
LH40-10D0512-13		5V/5000mA	12V/1250mA	3000VAC	RoHS
LH40-10D0524-06	40W	5V/5000mA	24V/625mA		
LH40-10A05		+5V/4000mA	-5V/4000mA		
LH40-10A12		+12V/1666m	-12V/1666m		
LH40-10A15		+15V/1333m	-15V/1333m		
LH40-10B09		9V/4444mA			

Product Program

Model Number	Power	Output Voltage/ Current(Vo1/Io1)	Max.Capcitive Load(μF)	Isolation	Certification
LHE60-20B05	50W	5V/10000mA	50000	4000VAC	(Pending) RoHS
LH60-20B05-DT			80000		(Pending) RoHS
LH60-20B09	60W	9V/6600mA	28000		RoHS
LH60-20B09-DT					
LHE60-20B12		12V/5000mA	10000		(Pending) RoHS
LH60-20B12-DT			14000		RoHS
LHE60-20B15		15V/4000mA	8000		(Pending) RoHS
LHE60-20B24		24V/2500mA	2700		
LH60-20B24-DT			4000		RoHS
LHE60-20B48		48V/1250mA	680		(Pending) RoHS

Note: 1. LH40 meets the requirements of surge level of ±1KV/2KV(level three). If the application requires higher performance for surge, our recommended peripheral circuit for ±2KV/4KV(level four) is available;
2. LH60 meets the requirements of surge level of ±2KV/4KV(level four). If the application requires higher performance for surge, our recommended peripheral circuit for ±4KV/6KV is available;
3. Detailed application please refer to datasheet.

40W Package Dimension LxWxH: 89.00x63.50x25.00(mm)



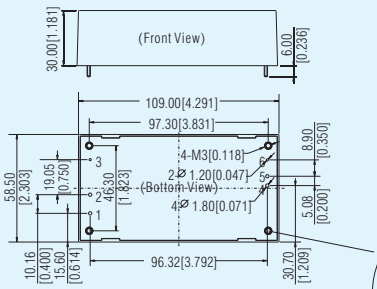
Pin-Out

Pin	LH40-10A	LHE40-10B	LH40-10D
1	AC(L)	AC(L)	AC(L)
2	AC(N)	AC(N)	AC(N)
3	+Vo	+Vo	+Vo2
4	No Pin	No Pin	+Vo1
5	COM	-Vo	-Vo2
6	No Pin	No Pin	-Vo1
7	-Vo	Trim	No Pin

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

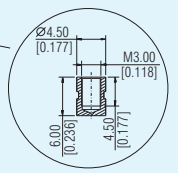
Note: A5 chassis mounting and A6 DIN-Rail mounting are available and please refer to datasheet for details.

60W Package Dimension LxWxH: 109.00x58.50x30.00(mm)



Pin-Out

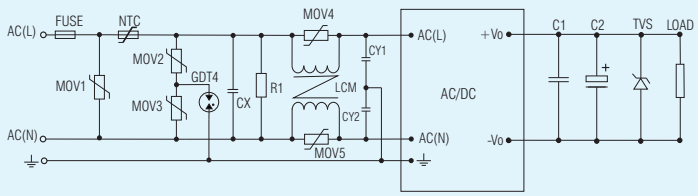
Pin	Function
1	AC(N)
2	AC(L)
3	⏚
4	Trim
5	-Vo
6	+Vo



Unit: mm[inch]
pin 1,2,4,5 `s diamater:1.80[0.071],pin3,6`s diamater:1.20[0.047]
pin diamater tolerance:± 0.10[±0.004]
pin height tolerance: ±1.50[±0.059]
General tolerance: ±0.50[±0.020]
This series of products need to be fixed screws in vibration condition.

EMC Solution-recommended Circuit

e.g.: LH60-20Bxx, for others please refer to datasheet.



- This catalog is used to introduce our latest products, for more information, please contact our sales department

These series are suitable for industrial outdoor environment

120-240W DIN35 package LI series

cULus CE CB RoHS

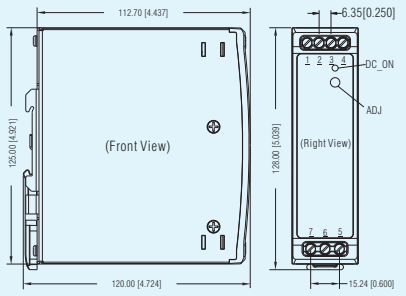
Features

- Great power DIN-Rail power supply, suitable for industrial control, instrumentation and railway applications
- Input voltage range: LI120:85-264VAC/100-370VDC
  LI240:85-264VAC/120-370VDC
  Operating temperature: -25℃ to +70℃
- Isolation: 3000VAC
- Active PFC
- Input under-voltage, output short-circuit, over-current, over-voltage and over-temperature protections
- IEC/EN/UL60950 approval

Product Program

Model Number	Power	Input Voltage Range	Output Voltage/ Current(Vo/Io)	Effi(%) (typ)	Certification
LI120-10B12	120W	85-264VAC	12V/10000mA	89	cULus CE CB RoHS
LI120-10B24		85-264VAC	24V/5000mA	92	cULus CE CB RoHS
LI120-10B48		85-264VAC	48V/2500mA	93	cULus CE CB RoHS
LI240-10B24	240W	85-264VAC	24V/10000mA	92	cULus CE CB RoHS
LI240-10B48		85-264VAC	48V/5000mA	93	cULus CE CB RoHS

LI120 Package Dimension LxWxH: 125.00x35.00x112.70(mm)



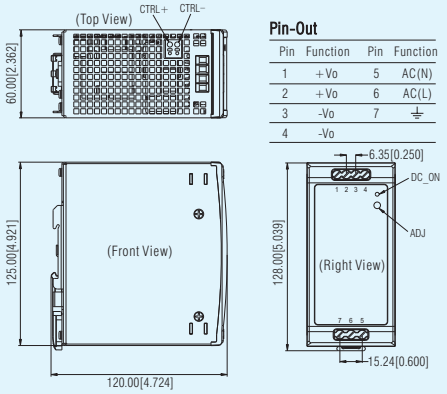
Pin-Out

Pin	Function
1	+Vo
2	+Vo
3	-Vo
4	-Vo
5	AC(L)
6	AC(N)
7	⏚

Unit: mm[inch]
General tolerance: ±1.00[±0.040]
Wire range: 26~10AWG
Installed on DIN-RAIL TS35

LI240 Package Dimension

LxWxH: 125.00x60.00x120.00(mm)



Pin-Out

Pin	Function	Pin	Function
1	+Vo	5	AC(N)
2	+Vo	6	AC(L)
3	-Vo	7	⏚
4	-Vo		

Unit: mm[inch]
General tolerance: ±1.00[±0.040]
Wire range: 26~10AWG
Installed on DIN-RAIL TS35

These series are suitable for industrial outdoor environment

30W four outputs metal mask LM series specialized for protective relaying system

RoHS

Features

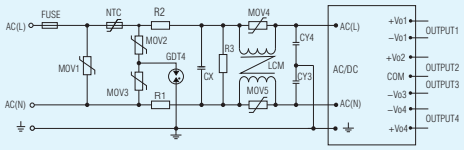
- EMC: EMI CLASS B; ±2KV/4KV surge (level 4)
- Input voltage range: 85-264VAC/100-370VDC
- Isolation: 2000VAC
- Low standby power consumption, high efficiency
- Low ripple & noise
- Multiplexed outputs, metal mask
- Output short-circuit, over-current and over-voltage protections

Product Program

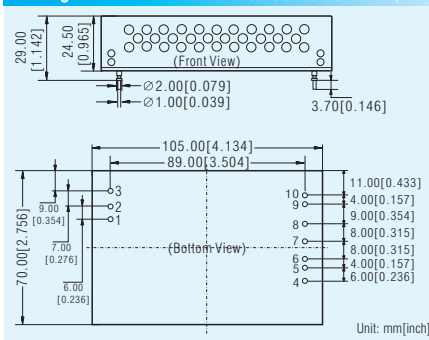
Model Number	Power	Input Voltage Range	Output Voltage (VDC)	Certification
LM30-00J0512-03E	30W	85-264VAC, 100-370VDC	5/±12/24	RoHS

Note: 1. LM series meet the requirements of ±2KV/4KV surge level(level four). If the application requires higher performance for surge, our recommended peripheral circuit for ±4KV/6KV is available;
2. If the application requires higher performance for lightning protection, our matching EMC auxiliary devices are available. For example, series with FC-L01D2 reaches to ±4KV/6KV;
3. Detailed application please refer to datasheet.

EMC Solution-recommended Circuit



Package Dimension LxWxH: 105.00x70.00x24.50(mm)



Pin-Out

Pin	Function
1	AC(L)
2	AC(N)
3	⏚
4	+Vo1
5	-Vo1
6	+Vo2
7	COM
8	-Vo3
9	-Vo4
10	+Vo4

Unit: mm[inch]
pin diamater tolerance: ± 0.10[±0.004]
pin pitch tolerance: ±0.25[±0.010]
General tolerance: ±1.00[±0.039]

These series are suitable for special industrial indoor environment

5W compact size LD05-MU series for medical

cULus CE RoHS

Features

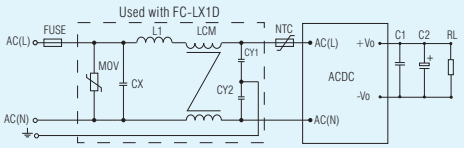
- EN60601-1, ANSI/AAMI ES60601-1 approval (2xMOPP)
- Input voltage range: 85-264VAC/100-370VDC
- Operating temperature: -25℃ to +70℃
- Isolation: 4000VAC
- Ripple & noise: 50mV(Typ.)
- Optional packages: PCB mounting
- Output short-circuit, over-current and over-voltage protections

Product Program

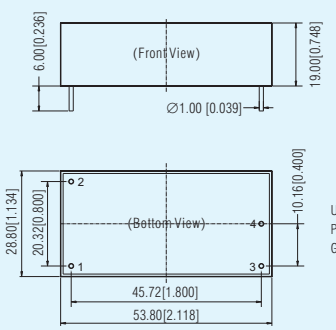
Model Number	Power	Input Voltage Range	Output Voltage/ Current(Vo/Io)	Effi(%) (typ)	Certification
LD05-20B05MU	5W	85-264VAC	5V/1000mA	76	cULus CE RoHS
LD05-20B12MU		85-264VAC	12V/420mA	80	
LD05-20B15MU		85-264VAC	15V/333mA	81	
LD05-20B24MU	5.5W	85-264VAC	24V/230mA	81	
LD08-20BY4-US	7.6W	85-264VAC	3.8V/2000mA	74	RoHS

Note: 1. LD05-20BxxMU series meet the requirements of ±1KV surge level. If the application requires ±2KV/4KV, our EMC solution-recommended circuit is available as follows;
2. If the application requires higher performance for lightning protection, our matching EMC auxiliary devices are available. For example, series with FC-LX1D reaches to ±2KV/4KV;
3. Detailed application please refer to datasheet.

EMC Solution-recommended Circuit



Package Dimension LxWxH: 53.80x28.80x19.00(mm)



Pin-Out

Pin	Function
1	AC(N)
2	AC(L)
3	+Vo
4	-Vo

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

Note: A2S chassis mounting and A4S DIN-Rail mounting are available and please refer to datasheet for details. Further developing is also available if needed.

These series are suitable for special industrial indoor environment

15-25W low power consumption AC/DC LH-MU series for medical

cULus CE CB RoHS

Features

- IEC60601-1, EN60601-1, ANSI/AAMI ES60601-1,CAN/CSA-C22.2 No. 60601-1 approval(2xMOPP)
- Input voltage range: 85-264VAC/100-370VDC
- Operating Temperature: -40℃ to +70℃
- Isolation: 4000VAC
- Operating elevation: 5000m
- Low standby power consumption: <0.1W
- Low leakage current: <100uA
- Output short-circuit, over-current and over-voltage protections
- Optional packages: PCB mounting, chassis mounting, DIN-Rail mounting (TS35)

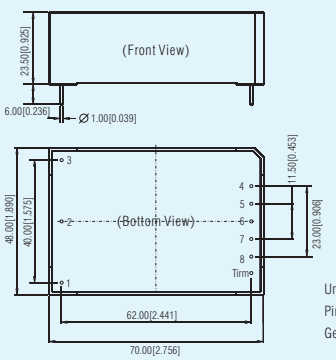
Product Program

Model Number	Power	Input Voltage Range	Output Voltage/ Current(Vo/Io)	Effi(%) (typ)	Certification
LH15-20B05MU	14W	85-264VAC	5V/2800mA	78	cULus CE CB RoHS
LH15-20B12MU	15W	85-264VAC	12V/1250mA	83	
LH15-20B15MU		85-264VAC	15V/1000mA	83	
LH15-20B18MU		85-264VAC	18V/833mA	84	
LH15-20B24MU		85-264VAC	24V/625mA	86	
LH25-20B05MU	20.5W	85-264VAC	5V/4100mA	82	cULus CE CB RoHS
LH25-20B12MU	25W	85-264VAC	12V/2100mA	88	
LH25-20B15MU		85-264VAC	15V/1600mA	88	
LH25-20B18MU		85-264VAC	18V/1400mA	88	
LH25-20B24MU		85-264VAC	24V/1100mA	89	

Note: LH-MU series meet the requirements of ±1KV/2KV surge level (level three). If the application requires higher performance, our EMC solution-recommended circuit is available.

Package Dimension

LH15-20BBxxMU Series: LxWxH: 70.00x48.00x23.50(mm)



Pin-Out

Pin	Function
1	No Pin
2	AC(N)
3	AC(L)
4	+Vo
5	No Pin
6	No Pin
7	No Pin
8	-Vo
Tirm	No Pin

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

Note: A2S chassis mounting and A4S DIN-Rail mounting are available and please refer to datasheet for details.

- This catalog is used to introduce our latest products, for more information, please contact our sales department

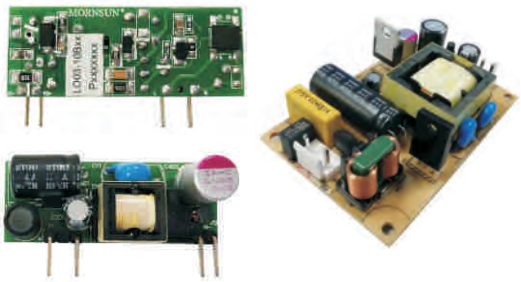
These series are suitable for commercial indoor environment

3-65W cost-effective open frame AC/DC converter LO series

CE RoHS

Features

- Input voltage range: 85-264VAC/100-370VDC
  LO05:165-264VAC/230-370VDC
- Operating temperature: –25℃ to +70℃
- Isolation: 3000VAC
- Regulated output, Low ripple & noise
- Output short circuit, overcurrent protection
- High efficiency, high reliability
- EMI meets CISPR32/EN55032 CLASS B
- 45-65W series meet IEC/EN/UL62368 standards
  15-30W series meet IEC/EN/UL62368,EN60335 standards
- 2 years warranty(LO30:3 years warranty)

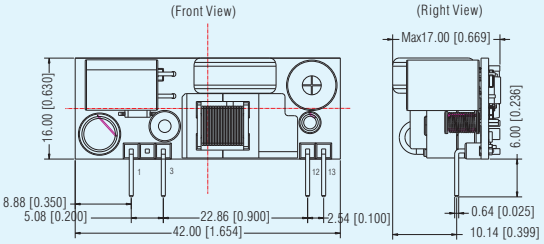


Product Program

Model Number	Power	Input Voltage Range	Output Voltage/ Current(Vo/Io)	Effi(%) (typ)	Certification
LO03-10B03	2.3W	85-264VAC	3.3V/700mA	64	RoHS
LO03-10B05	3W	85-264VAC	5V/600mA	72	
LO03-10B09		85-264VAC	9V/330mA	73	
LO03-10B12		85-264VAC	12V/250mA	75	
LO03-10B15		85-264VAC	15V/200mA	75	
LO03-10B24		85-264VAC	24V/125mA	76	
LO05-12B03	3.3W	165-264VAC	3.3V/1000mA	66	RoHS
LO05-12B05	5W	165-264VAC	5V/1000mA	73	
LO05-12B09		165-264VAC	9V/550mA	75	
LO05-12B12		165-264VAC	12V/420mA	77	
LO05-12B15		165-264VAC	15V/330mA	77	
LO05-12B24		165-264VAC	24V/210mA	79	
LO15-10B03	9W	85-264VAC	3.3V/3000mA	72	CE (Pending) RoHS
LO15-10B05	14W	85-264VAC	5V/2800mA	76	
LO15-10B09	15W	85-264VAC	9V/1600mA	78	
LO15-10B12		85-264VAC	12V/1250mA	81	
LO15-10B15		85-264VAC	15V/1000mA	81	
LO15-10B24		85-264VAC	24V/625mA	82	
LO30-10B03	13.5W	85-264VAC	3.3VDC/4100mA	73	CE (Pending) RoHS
LO30-10B05	20.5W	85-264VAC	5VDC/4100mA	78	
LO30-10B09	30W	85-264VAC	9VDC/3333mA	82	
LO30-10B12		85-264VAC	12VDC/2500mA	84	
LO30-10B15		85-264VAC	15VDC/2000mA	86	
LO30-10B24		85-264VAC	24VDC/1250mA	87	
LO30-10B48		85-264VAC	48VDC/625mA	88	
LO45-10B03	26. 4W	85-264VAC	3.3V/8000mA	76	CE (Pending) RoHS
LO45-10B05	40W	85-264VAC	5V/8000mA	82	
LO45-10B09		85-264VAC	9V/4444mA	84	
LO45-10B12	45W	85-264VAC	12V/3750mA	84	
LO45-10B15		85-264VAC	15V/3000mA	86	
LO45-10B24		85-264VAC	24V/1875mA	86	
LO45-10B48		85-264VAC	48V/940mA	87	
LO65-10B05	50W	85-264VAC	5V/10000mA	80	CE (Pending) RoHS
LO65-10B09	60W	85-264VAC	9V/6600mA	83	
LO65-10B12	65W	85-264VAC	12V/5420mA	85	
LO65-10B15		85-264VAC	15V/4340mA	85	
LO65-10B24		85-264VAC	24V/2710mA	87	
LO65-10B48		85-264VAC	48V/1360mA	87	

Package Dimension

LO03-10Bxx/LO05-12Bxx Series: LxWxH: 42.00x16.00x17.00(mm)

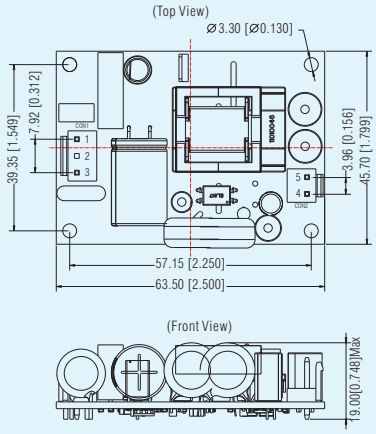


Pin-Out

Pin	Function	Pin	Function
1	AC(N)	12	+Vo
3	AC(L)	13	–Vo

Unit: mm[inch]
Connect pin size: □0.64[0.025]
Pin diameter tolerance: ± 0.10[± 0.004]
General tolerance: ± 0.50[± 0.020]

LO15-10Bxx Series: LxWxH: 63.50x45.70x19.00(mm)



Pin-Out

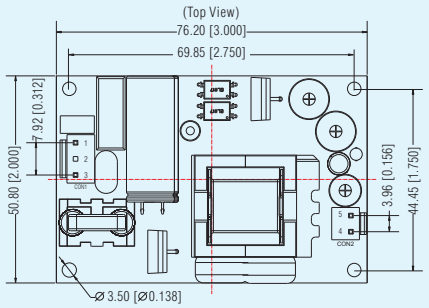
Pin	Function
1	AC(L)
2	No Pin
3	AC(N)
4	–Vo
5	+Vo

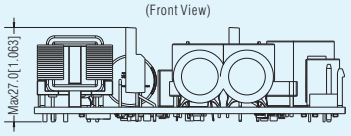
Unit: mm[inch]
General tolerance: ± 0.50[± 0.020]
In CON1 model: VH-3A, Recommend terminal: VH-3Y
Out CON2 model: VH-2A, Recommend terminal: VH-2Y
Mounting hole screwing torque: Max 0.4 N · m

• This catalog is for reference only, please visit our website for detailed datasheets: www.mornsun-power.com

Package Dimension

LO30-10Bxx Series: LxWxH: 76.20x50.80x27.00(mm)



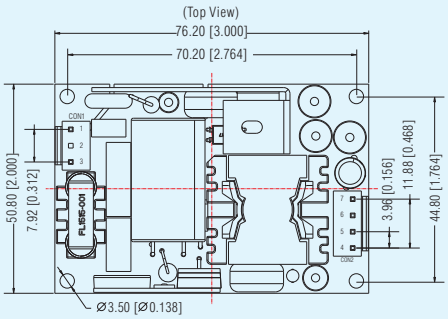


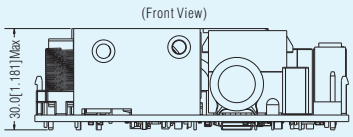
Pin-Out

Pin	Function
1	AC(L)
2	No Pin
3	AC(N)
4	−Vo
5	+Vo

Unit: mm[inch]
General tolerance: ± 0.50[± 0.020]
In CON1 model: VH-3A, Recommend terminal: VH-3Y
Out CON2 model: VH-2A, Recommend terminal: VH-2Y
Mounting hole screwing torque: Max 0.4 N • m

LO45-10Bxx/LO65-10Bxx Series: LxWxH: 76.20x50.80x30.00(mm)





Pin-Out

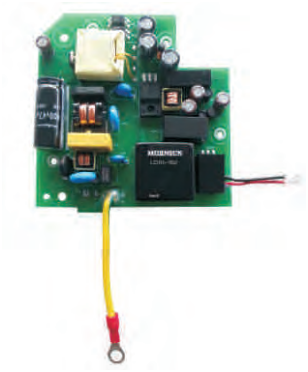
Pin	Function
1	AC(L)
2	No Pin
3	AC(N)
4	−Vo
5	−Vo
6	+Vo
7	+Vo

Unit: mm[inch]
General tolerance: ± 0.50[± 0.020]
In CON1 model: VH-3A, Recommend terminal: VH-3Y
Out CON2 model: VH-4A, Recommend terminal: VH-4Y
Mounting hole screwing torque: Max 0.4 N • m

These series are suitable for industrial indoor environment

10W seven outputs open frame LO series specialized for flow meter

RoHS



Features

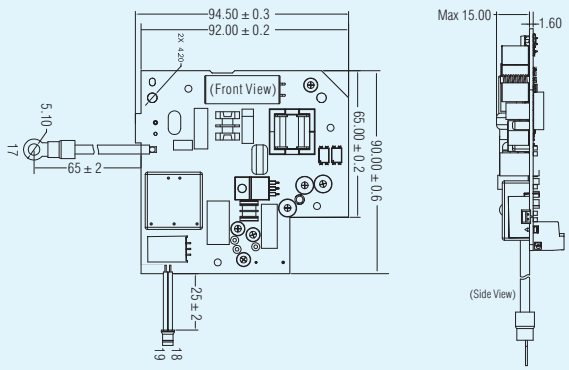
- Seven outputs specialized for flow meter application, various outputs customization acceptable
- Input voltage range: 85-264VAC, 50/60HZ
- Isolation: 3000VAC
- Low ripple & noise
- EMC: Conduction/Radiation: CLASS B, Burst/Surge: level 4
- Output short-circuit protection

Product Program

Model Number	Power	Input Voltage Range	Output Available (Vo1/Vo2/Vo3)	Output Available (Vo4/Vo5)	Output Available (Vo6/Vo7)
LO10-10J	10W	85-264VAC/ 120-370VDC	Triple outputs (3.3V-24V) available	Positive and negative voltage (±5V to ±24V) available	Positive and negative voltage (±5V to ±70V) available

Note: Seven or less outputs products customization is acceptable. For more information, please contact our sales department.

Package Dimension LxWxH: 94.50x90.00x15.00(mm)



Unit: mm[inch]
General tolerance: ±0.50[±0.020]

Pin-Out

Pin	Function	Pin	Function
1	+Vo3	2	-Vo3
3	No Pin	4	No Pin
5	+Vo2	6	-Vo2
7	+Vo6	8	COM
9	-Vo7	10	COM
11	+Vo4	12	COM
13	-Vo5	14	COM
15	NC	16	NC
17	GND	18	-Vo1
19	+Vo1	20	AC(L)
21	AC(N)		

These series are suitable for industrial outdoor environment

10W open frame LO series specialized for electric power

RoHS

Features

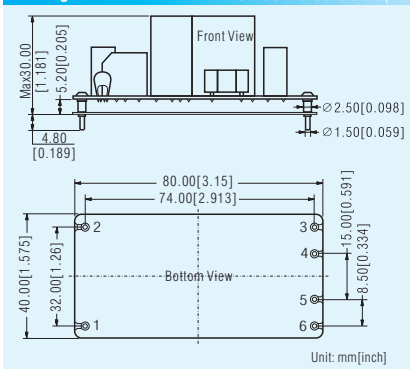
- Specialized for electric-meter application, EMI CLASS B with ±2KV surge
- Input voltage range: 30-280VAC/30-400VDC
- Isolation: 4000VAC
- High efficiency, high reliability
- Low ripple & noise, low standby power consumption
- Long-longevity, low-impedance electrolytic capacitors
- Output short-circuit and over-voltage protections
- Gild pin, customization acceptable

Product Program

Model Number	Power	Input Voltage Range	Output Voltage/ Current(Vo/Io)	Effi(%) (typ)	Certification
LO10-24B05K	6W	30-280VAC, 30-400VDC	5V/1200mA	71	RoHS
LO10-24B12K	6.6W	30-280VAC, 30-400VDC	12V/550mA	77	
LO10-24B13K	6.5W	30-280VAC, 30-400VDC	13V/500mA	77	

Note: 3.3-48V output customization is acceptable.

Package Dimension LxWxH: 80.00x40.00x30.00(mm)



Pin-Out

Pin	Function
1	AC(L)
2	AC(N)
3	NC
4	No Pin
5	OUT1-
6	OUT1+

Unit: mm[inch]
General tolerance: ±0.50[±0.020]
FR-4, 1.6mm thick double sided glass fiber PCB
0.40mm black MYLAR insulating sheet material

- This catalog is for reference only, please visit our website for detailed datasheets: www.mornsun-power.com

These series are suitable for industrial outdoor environment

10-15W dual outputs 528V input voltage open frame LO series specialized for electric power

RoHS

Features

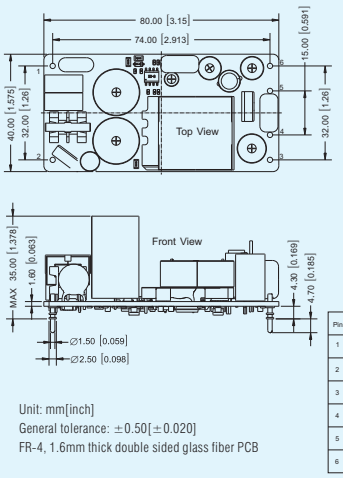
- four-wire system available
- Ultra-wide input voltage range: 57-528VAC/80-745VDC
- EMC: Burst/Surge: level 4
- Conduction/Radiation: CLASS B
- Output short-circuit, over-current and over-voltage protections
- Multiple outputs, customization acceptable

Product Program

Model Number	Power	Output Voltage/ Current (Vo1/Io1)	Output Voltage/ Current (Vo2/Io2)	Effi(%) (typ)	Certification
LO10-26D0512-04L	10.92W	5.1V/1.2A	12V/0.4A	78	RoHS
LO15-26D1212-03	13.2W	12V/0.8A	12V/0.3A	77	
LO15-26D1305-03	15W	13.5V/1.0A	5V/0.3A	78	

Note: 1. 05V/24A and 05V/15A outputs customization is acceptable.
2. If the application requires higher performance for EMC, our recommended peripheral circuit is available.

Package Dimension LxWxH: 80.00x40.00x35.00(mm)



Pin	Name	Function Define
1	AC(L)	AC voltage line wire(L wire) or DC voltage positive
2	AC(N)	AC voltage neutral wire(N wire) or DC voltage negative
3	+Vo2	The second output positive(+)
4	-Vo2	The second output negative(-)
5	-Vo1	The first output voltage negative(-)
6	+Vo1	The first output voltage positive (+)

Unit: mm[inch]
General tolerance: ±0.50[±0.020]
FR-4, 1.6mm thick double sided glass fiber PCB

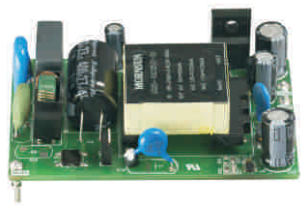
These series are suitable for industrial outdoor environment

20-30W three outputs open frame AC/DC converters specialized for AC charging station

RoHS

Features

- Input voltage range: LO20:165-264VAC/230-370VDC
  LO30:85-264VAC/100-370VDC
- Isolation: 3000VAC
- Three outputs, high accuracy
- Efficiency up to 78%
- Output short-circuit, over-current and over-voltage protections
- Safety Class: CLASS II
- Meet IEC 60950

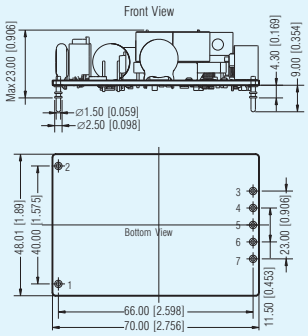


Product Program

Model Number	Power	Output Voltage /current (Vo1/Io1)	Output Voltage /Current (Vo2/Io2) (-Vo2/-Io2)	Effi(%) (typ)	Certification
LO20-10C0512-01	18.7W	5V/500mA	12V/1200mA -12V/150mA	78	RoHS
LO30-10C0512-12	31.2W	5V/3000mA	12V/1200mA -12V/150mA	78	RoHS

Package Dimension

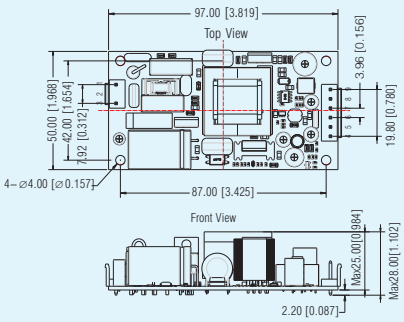
LO20-10C0512-01: LxWxH: 70.00x48.00x23.50(mm)



Unit: mm[inch]
General tolerance: ±0.50[±0.020]

Pin	Name	Function Define
1	AC(L)	AC voltage line wire(L wire) or DC voltage positive
2	AC(N)	AC voltage neutral wire(N wire) or DC voltage negative
3	-Vo1	The first output voltage negative(-)
4	+Vo1	The first output positive(+)
5	-Vo2	The second output negative(-)
6	COM	The second output common port
7	+Vo2	The second output voltage positive (+)

LO30-10C0512-12: LxWxH: 97.00x50.00x28.00(mm)



Pin-Out

Pin	Function
1	AC(L)
2	No Pin
3	AC(N)
4	GND
5	+5V
6	NC
7	-12V
8	COM
9	+12V

Note:
Unit :mm[inch]
General tolerances: ± 1.00[± 0.039]
The layout of the device is for reference only, please refer to the actual product

These series are suitable for industrial outdoor environment

10-25W LH-ER2 series specialized for electric power

Features

- Specialized for electric power application, excellent EMS performance with ±2KV/±4KV surge(level four)
- Input voltage range: 85-264VAC/100-370VDC
- Isolation: 3000VAC/4000VAV(LHE10)
- Efficiency up to 85%
- Safety Class: CLASS I
- Optional packages: PCB mounting, chassis mounting, DIN-Rail mounting
- Output short-circuit and over-current protections

A2 Chassis Mounting

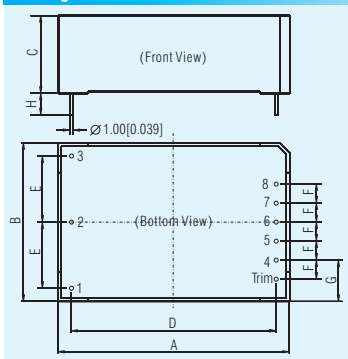
A4 DIN-Rail Mounting

Product Program

Model Number	Power	Output Voltage/ Current(Vo1/Io1)	Output Voltage/ Current(Vo2/Io2)	Effi(%) (typ)	Certification
LH10-10B05ER2	10W	5V/2000mA		74	RoHS
LH10-10B12ER2		12V/900mA		79	
LH10-10B24ER2		24V/450mA		81	
LH10-10D0505-02ER2		5V/1800mA	5V/200mA	75	
LHE10-20D0512-02ER2		5V/1500mA	12V/200mA	77	
LHE10-20D0524-02ER2		5V/1000mA	24V/200mA	77	
LH15-10B05ER2	15W	5V/2800mA		76	RoHS
LH15-10B12ER2		12V/1250mA		80	
LH15-10B24ER2		24V/650mA		83	
LH15-10D0512-04ER2		5V/2000mA	12V/400mA	80	
LH15-10D0524-02ER2		5V/2000mA	24V/200mA	80	
LH25-10B05ER2	25W	5V/4100mA		79	RoHS
LH25-10B12ER2		12V/2100mA		83	cULus CB CE RoHS
LH25-10B15ER2		15V/1600mA		84	RoHS
LH25-10B24ER2		24V/1100mA		85	

Note: 1. LHxx-10BxxER2 and LHxx-10DxxER2 series meet the requirements of ±2KV/4KV surge level (level four). If application requires for ±4KV/6KV,our EMC solution-recommended circuit is available as follows;
2. If the application requires higher performance for lightning protection, our matching EMC auxiliary devices are available. For example, series with FC-L01D2 reaches to ±4KV/6KV;
3. Detailed application please refer to datasheet.

Package Dimension



Unit: mm[inch]
Pin length(H): ≥6.00[0.236]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

Note: Trim**: only for LH20/25-13B Series.
A2 chassis mounting and A4 DIN-Rail mounting are available and please refer to datasheet for details.

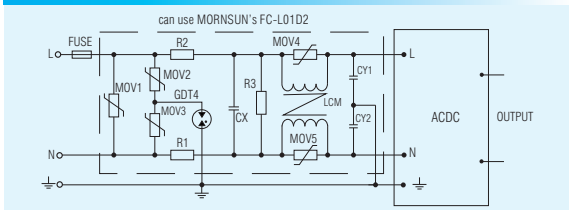
Pin-Out

Pin	LH-10B	LH-10D
1	⏚	⏚
2	AC(N)	AC(N)
3	AC(L)	AC(L)
4	-Vo	-Vo1
5	No Pin	+Vo1
6	No Pin	No Pin
7	No Pin	-Vo2
8	+Vo	+Vo2
Trim	Trim**	No Pin

Outline & Dimensions

NO.	LH10	LH15	LH25
A	62.00	62.00	70.00
B	45.00	45.00	48.00
C	30.00	30.00	30.00
D	54.00	54.00	62.00
E	17.50	17.50	20.00
F	5.00	5.00	5.75
G	12.50	12.50	12.50

EMC Solution-recommended Circuit



DC/DC Converter

1. 5-40W ultra-wide input voltage PV series.....52-53
2. 45W 150-1500VDC ultra-wide input voltage caged power supply specialized for SVG.....55
3. Switching power supply with 250-3300VDC ultra-wide,ultra-high input voltage for renewable energy.....55
4. 120-200W new energy 200-1100VDC ultra-wide input voltage converter.....56
5. 200W new energy 200-1500VDC ultra-wide input voltage converter.....57
6. 1W fixed input voltage, isolated & unregulated output series.....57
7. HK series specialized for intelligent instrument.....58
8. 1W fixed input voltage, isolated & unregulated output series specialized for BMS.....58
9. 1-2W fixed input voltage, isolated & unregulated output G/H_S series specialized for medical.....60
10. 1-2W fixed input voltage, 1500VDC isolated & unregulated output series.....61
11. 0.25-3W fixed input voltage, 1500VDC isolated & unregulated output series.....62-68
12. 0.75-2W fixed input voltage, isolated & regulated output series....69
13. 0.5-2A non-isolated switching regulator.....71-72
14. 6-16A wide input voltage ,non-isolated switching regulator.....73
15. 1-50W wide input voltage, isolated & regulated output series.....74-90
16. 20W ultra-wide input voltage,1500VDC isolated & regulated output series.....75
17. DC/DC converter specialized for super-capacitor and lithium battery-powered.....83
18. 75-200W 4:1 wide input voltage, 2250VDC isolated & regulated output series.....91
19. 6-40W 4:1 wide input voltage, 2250VDC isolated & regulated output series for railway.....92
20. 50-150W wide input voltage, 3000VDC isolated & regulated output series for railway.....93
21. 3-30W ultra-wide input,dual isolated&regulated dual output series.....94

5-15W 100-1000VDC ultra-wide input voltage isolated & regulated output series

CE RoHS

Features

- Ultra-wide input voltage, suitable for PV & HVC applications
- 10:1ultra-wide input voltage range: 100-1000VDC
- Operating temperature: -40℃ to +70℃
- Isolation: 4000VAC
- Efficiency up to 80%
- High reliability, 3 years warranty
- Input reverse voltage, output over-voltage and short-circuit protections
- EN62109 approval

A2C A4C

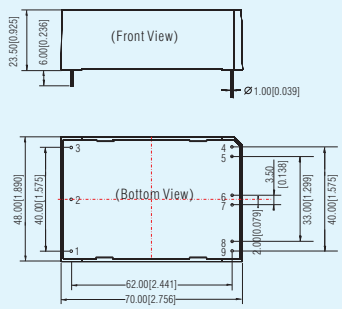
Product Program

Model Number	Power	Input Voltage Range(VDC)	Output Voltage/ Current(Vo1/Io1)	Output Voltage/ Current(Vo2/Io2)	Output Voltage/ Current(Vo3/Io3)	Effi(%) (typ)	Certification
PV05-27B05R2	5W	100-1000	5V/1000mA	/	/	72	CE RoHS
PV10-27B05R2	10W	100-1000	5V/2000mA	/	/	72	CE RoHS
PV10-27B09R2			9V/1110mA	/	/	76	
PV10-27B24R2			24V/420mA	/	/	80	
PV10-27C050524			5V/1000mA	5V/400mA	24V/100mA	72	RoHS
PV15-27B12R2	15W	100-1000	12V/1250mA	/	/	77	CE RoHS
PV15-27B15R2			15V/1000mA	/	/	78	
PV15-27B24R2			24V/625mA	/	/	80	

Note: Detailed application please refer to datasheet.

Package Dimension

PV10-27C Series : LxWxH: 70.00x48.00x23.50(mm)

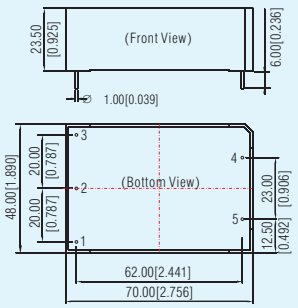


Pin-Out

Pin	Function
1	-Vin
2	No pin
3	+Vin
4	+Vo3
5	-Vo3
6	+Vo2
7	-Vo2
8	+Vo1
9	-Vo1

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

PV05/10/15-27BxxR2 Series : LxWxH: 70.00x48.00x23.50(mm)



Pin-Out

Pin	Function
1	NC
2	-Vin
3	+Vin
4	+Vo
5	-Vo

NC: No connection.

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

Note: A2 chassis mounting and A4 DIN-Rail mounting are available and please refer to datasheet for details.

40W 200-1200VDC ultra-wide input voltage isolated & regulated output series

RoHS

Features

- Ultra-wide input voltage, suitable for PV & HVC applications
- 6:1ultra-wide input voltage range: 200-1200VDC
- Operating temperature: -25℃ to +70℃
- Isolation: 4000VDC
- Efficiency up to 84%
- High efficiency, low ripple & noise
- Optional packages: chassis mounting, Din-Rail mounting
- Input under-voltage, reverse voltage, output over-voltage and short-circuit protections

A5 Chassis Mounting

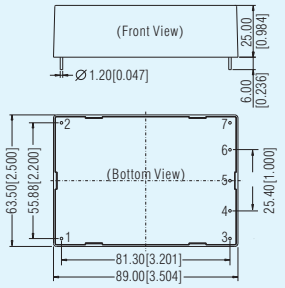
A6 DIN-Rail Mounting

Product Program

Model Number	Power	Input Voltage Range	Output Voltage/Current (Vo/Io)	Effi(%) (typ)	Certification
PV40-27B12	40W	200-1200VDC	12V/3330mA	83	RoHS
PV40-27B15			15V/2670mA	84	
PV40-27B24			24V/1670mA	84	

Note: Detailed application please refer to datasheet.

Package Dimension LxWxH: 89.00x63.50x25.00(mm)



Pin-Out

Pin	Function
1	-Vin
2	+Vin
3	+Vo
4	No pin
5	-Vo
6	No pin
7	NC

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

Note: A5 chassis mounting and A6 DIN-Rail mounting are available and please refer to datasheet for details.

15-40W 200-1500VDC ultra-wide input voltage isolated series

RoHS

Features

- Ultra-wide input voltage, suitable for PV & HVC applications
- 7.5:1ultra-wide input voltage range: 200-1500VDC
- Isolation: 4000VAC
- Efficiency up to 80%
- High reliability, 3 years warranty
- Input under-voltage, reverse input voltage, output over-current and short-circuit protections
- UL 1741/CSA-C22.2 No.107.1, EN62109 approval
- Compact size and cost-effective PV15-29BxxL series available

A10

A8

Product Program

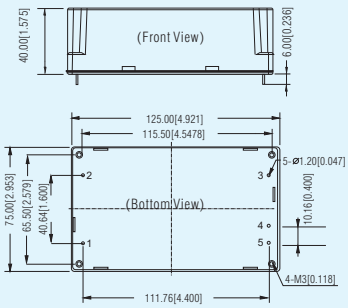
Model Number	Power	Input Voltage Range (VDC)	Output Voltage/ Current(Vo1/Io1)	Output Voltage/ Current(Vo2/Io2)	Output Voltage/ Current(Vo3/Io3)	Effi(%) (typ)	Certification
PV15-29B05	10W	200-1500	5V/2000mA	/	/	64	CE
PV15-29B12	15W	200-1500	12V/1250mA	/	/	71	RoHS
PV15-29B15			15V/1000mA	/	/	72	
PV15-29B24			24V/625mA	/	/	74	
PV15-29C050505			5V/1500mA	5V/800mA	5V/400mA	72	RoHS
PV15-29C050524			5V/1500mA	5V/600mA	24V/150mA	72	
PV40-29B12	40W	200-1500	12V/3330mA	/	/	76	CE RoHS
PV40-29B15			15V/2670mA	/	/	78	
PV40-29B24			24V/1670mA	/	/	80	
PV15-29B05L	10W	200-1500	5V/2000mA	/	/	70	RoHS
PV15-29B12L	15W	200-1500	12V/1250mA	/	/	76	
PV15-29B15L			15V/1000mA	/	/	77	
PV15-29B24L			24V/625mA	/	/	79	

Note: Series with suffix DIN-Rail A8 package offer built-in 1500VDC fuse and EMC circuit and withA10 are standard DIN-Rail package.

- This catalog is used to introduce our latest products, for more information, please contact our sales department

Package Dimension

PV15/40-29Bxx Series LxWxH: 125.00x75.00x40.00(mm)

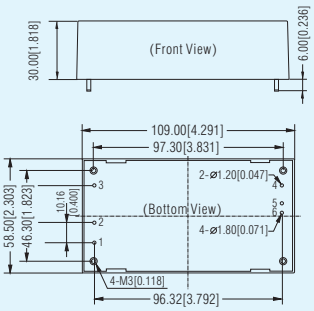


Pin-Out

Pin	Function
1	-Vin
2	+Vin
3	NC
4	-Vo
5	+Vo

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
pin height tolerance: ±1.50[±0.059]
General tolerance: ±0.50[±0.020]
This series of products need to fix screws in the haid vibration

PV15-29BxxL Series LxWxH: 109.00x58.50x30.00(mm)

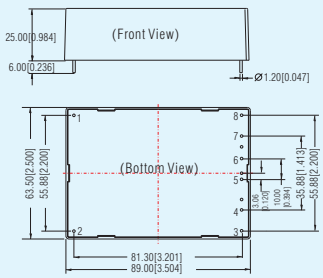


Pin-Out

Pin	Function	Pin	Function
1	+Vin	4	NC
2	-Vin	5	-Vo
3	NC	6	+Vo

Unit: mm[inch]
Pin 1,2,5,6`s diamater: 1.80[0.071],
Pin 3,4`s diamater: 1.20[0.047]
Pin diameter tolerance: ±0.10[±0.004]
pin height tolerance: ±1.50[±0.059]
General tolerance: ±0.50[±0.020]
This series of products need to be fixed with screws in vibration condition.

PV15-29Cxx Series: LxWxH: 89.00x63.50x25.00(mm)



Pin-Out

Pin	Function
1	+Vin
2	-Vin
3	-Vo1
4	+Vo1
5	-Vo2
6	+Vo2
7	-Vo3
8	+Vo3

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

45W 150-1500VDC ultra-wide input voltage caged power supply specialized for SVG

RoHS

Features

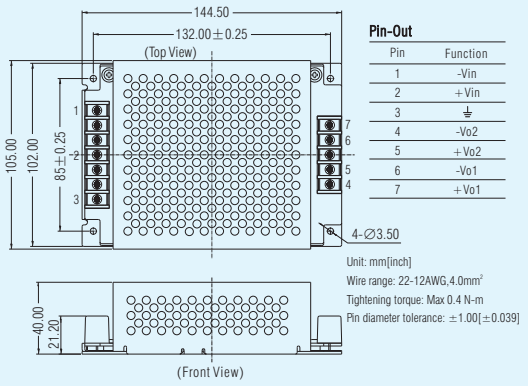
- Specialized for SVG application with input under-voltage, reverse input voltage, output short-circuit and over-voltage protections
- 10:1ultra-wide input voltage range: 150-1500VDC
- Operating temperature: -40℃ to +85℃
- Isolation: 4000VAC
- High reliability, long longevity
- Input under-voltage, reverse input voltage, output over-current and short-circuit protections
- High 78% efficiency low ripple & noise
- Meet 5000m altitude requirements

Product Program

Model Number	Power	Input Voltage Range(Optional)	Output Voltage/ Current(Vo/Io)	Output Voltage Range	Certification
PV45-29D1515-15	45W	150-1500VDC	15V/1.53A 15V/1.53A	12V/15V/24V dual outputs(customization is acceptable)	RoHS
PV45-29D1505-10	45W	150-1500VDC	15V/2.66A, 5V/1A		
PV45-29D1508-06	45W	150-1500VDC	15V/2.66A, 8V/0.625A		

Note: 1500VDC input with 12V/15V/24V dual outputs(customization is acceptable).

Package Dimension LxWxH: 144.5.00x105.00x40.00(mm)



Pin-Out

Pin	Function
1	-Vin
2	+Vin
3	⏚
4	-Vo2
5	+Vo2
6	-Vo1
7	+Vo1

Switching power supply with 250-3300VDC ultra-wide, ultra-high input voltage for renewable energy

RoHS

Features

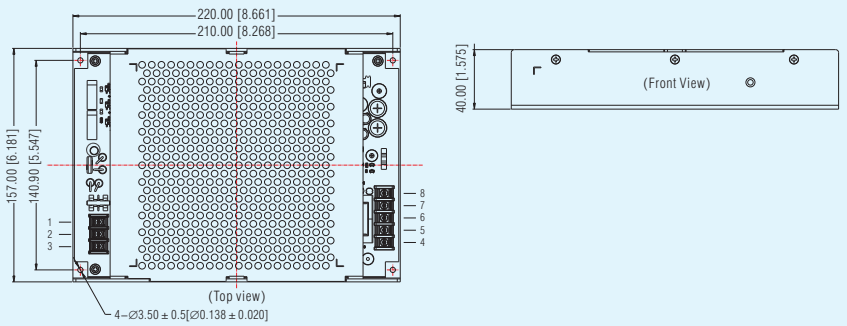
- Ultra-wide input voltage range: 250 - 3300VDC
- Isolation: 6000VAC
- Operating temperature: −40℃ to +85℃
- Input under-voltage, reverse input voltage, output over-current and short-circuit protections

Product Program

Model Number	Power	Input Voltage Range(Optional)	Output Voltage/ Current(Vo/Io)	Output Voltage Range	Certification
PV75-36D15400-01*	75W	250-3300VDC	15V/2A 400V/0.11A	12V/15V/24V dual outputs(customization is acceptable)	RoHS

Note:Products marked with"*"are under development

Package Dimension LxWxH: 144.5.00x105.00x40.00(mm)



Pin-Out

Pin	Function
1	Vin+
2	NC
3	Vin−
4	Vo2−
5	Vo2+
6	NC
7	Vo1−
8	Vo1+

- This catalog is used to introduce our latest products, for more information, please contact our sales department

120-200W new energy 200-1100VDC ultra-wide input voltage converter

CE RoHS

Features

- Ultra-wide input voltage range:200 - 1100VDC(PV200:200-1000VDC)
- Isolation:4000VAC
- Industrial operating temperature:−40℃ to +70℃
- High efficiency, low ripple & noise
- Input reverse voltage, output short-circuit, over-current and over-voltage protections
- High reliability, long longevity
- EN62109 approval(pending)

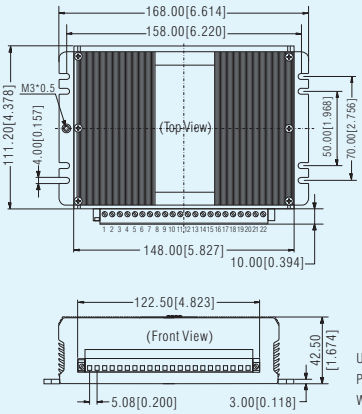
Product Program

Model Number	Power	Input Voltage Range	Output Voltage/Current (Vo/Io)	Effi(%) (typ)	Max.Capacitive Load (μF)	Certification
PV120-27B12	90W	200-1100 VDC	12V/7.5A	84	3000	RoHS
PV120-27B15	100W		15V/6.67A	85	2500	
PV120-27B24	120W		24V/5A	87	2000	
PV120-27B48	120W		48V/2.5A	89	680	
PV200-27B12	120W	200-1000 VDC	12V/10A	86	6000	CE (pending) RoHS
PV200-27B15	150W		15V/10A	87	4000	
PV200-27B24	200W		24V/8.4A	87	2000	
PV200-27B26	200W		26V/7.7A	87	2000	
PV200-27B48	200W		48V/4.2A	87	1000	

Note: If the application requires higher performance for EMC, our matching EMC auxiliary devices are available.

Package Dimension

PV200–27B Series LxWxH: 168.00x110.00x45.00(mm)

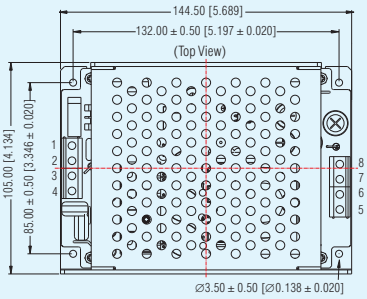


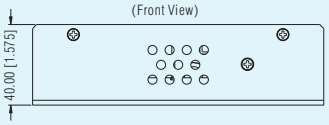
Pin-Out

Pin	Function	Pin	Function
1	VIN+	12	NC
2	NC	13	NC
3	NC	14	NC
4	VIN-	15	NC
5	NC	16	Trim
6	NC	17	Vo-
7	PE	18	Vo-
8	NC	19	Vo-
9	NC	20	Vo+
10	NC	21	Vo+
11	NC	22	Vo+

Unit: mm[inch]
Pin diameter tolerance: ±1.00[±0.039]
Wire range: 28-12AWG

PV120–27B Series LxWxH: 144.50x105.00x40.00(mm)





Pin-Out

Pin	Function
1	+Vin
2	NC
3	-Vin
4	PE
5,6	-Vo
7,8	+Vo

Unit: mm[inch]
Wire range: 24-12AWG
Tightening torque: Max 0.4 N·m
Pin diameter tolerance: ±1.00[±0.039]

200W 300-1500VDC new energy ultra wide& high input voltage converter

RoHS

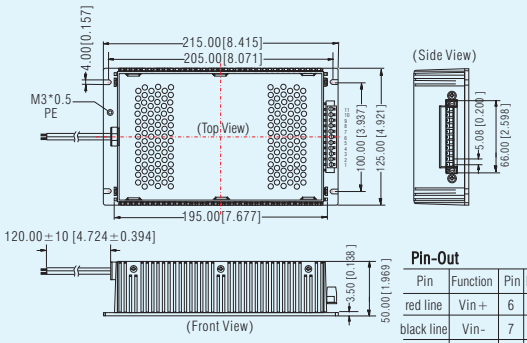
Features

- Ultra-wide input voltage range:300 - 1500VDC
- Isolation:4000VAC
- Industrial operating temperature:–40℃ to +70℃
- High efficiency, low ripple & noise
- Input reverse voltage, output short-circuit, over-current and over-voltage protections
- High reliability, long longevity
- UL 1741/CSA-C22.2 No.107.1, EN62109 approval(pending)
- Meet 5000m altitude requirements

Product Program

Model Number	Power	Input Voltage Range	Output Voltage/ Current(Vo/Io)	Effi(%) (typ)	Max.Capacitive Load (μF)	Certification
PV200-29B24	200W	300-1500 VDC	24V/8.4A	86	5000	RoHS
PV200-29B48			48V/4.2A	87	2000	

Package Dimension LxWxH: 168.00x110.00x45.00(mm)



Unit: mm[inch]
Wire diameter:24-12AWG
Tightening torque: Max 0.4 N-m
Pin diameter tolerance: ±1.00[±0.039]

Pin-Out

Pin	Function	Pin	Function
red line	Vin+	6	Vo+
black line	Vin-	7	Vo+
1	Vo-	8	Vo+
2	Vo-	9	Vo+
3	Vo-	10	Trim
4	Vo-	11	Trim
5	NC		

1W fixed input voltage, isolated & unregulated output series (automotive)

RoHS

Features

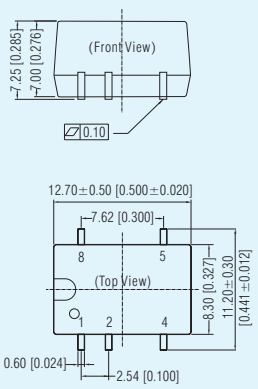
- Specialized for automotive application, the whole machine meet AEC-Q100 standard
- Operating temperature: -40℃ to +105℃
- Isolation: 3500VDC
- Compact SMD package
- Manufacturing process meets IATF16949 standard
- Output short-circuit protection (self-recovery)
- International standard pin-out

Product Program

Model Number	Power	Input Voltage Range (Nominal)	Output Voltage (VDC)	Output Current (mA)	Effi(%) (typ)
CF0505XT-1WR3	1W	4.5-5.5 (5VDC)	5	200	82

Note: If the application requires higher performance for EMC, our matching EMC auxiliary devices are available.

Package Dimension LxWxH: 12.70x11.20x7.25(mm)



Pin-Out

Pin	Function
1	GND
2	Vin
4	0V
5	+Vo
8	NC

NC: No connection.

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

• This catalog is used to introduce our latest products, for more information, please contact our sales department

HK series specialized for intelligent instrument

RoHS

Features

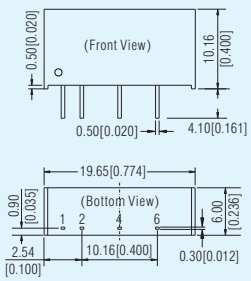
- Suitable for two-wire loop power application
- Operating temperature: -40℃ to +85℃
- High output current up to 5mA
- Ultra-miniature SIP package (HK_S Series)
- Excellent high and low temperature characteristics
- Isolation 1500VDC

Product Program

Model Number	Input Voltage (VDC)	Input Current (mA)	Output Voltage (VDC)	Output Current (mA)	Isolation voltage (package)	Max.Capacitive Load (μF)
HK0503S	5	3.5-20	3.3	2.5	1500VDC (SIP)	10
HK5S03B		4-20	3.3	3.2	1000VDC (SIP)	10
HK8S03B	7.5	4-20	3.3	3.5	1000VDC (SIP)	10
HK8SX3B		4-20	3	5	1000VDC (SIP)	10
HK0803S	7-8	3.5-20	3.3	3.5	1500VDC (SIP)	10
HK0805S	7-8	3.5-20	5	2	1500VDC (SIP)	10

Note: If the application requires higher performance for EMC, our matching EMC auxiliary devices are available.

Package Dimension LxWxH: 19.65x6.00x10.16(mm) HKxxxxB

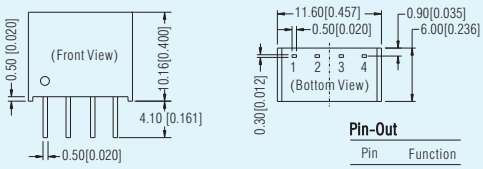


Pin-Out

Pin	Function
1	Vin
2	GND
4	0V
6	+Vo

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

Package Dimension LxWxH: 11.60x6.00x10.16(mm) HKxxxxS

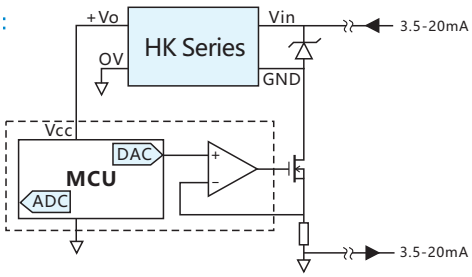


Pin-Out

Pin	Function
1	GND
2	Vin
3	0V
4	+Vo

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

Application:



1W fixed input voltage, isolated & unregulated output series specialized for BMS

RoHS

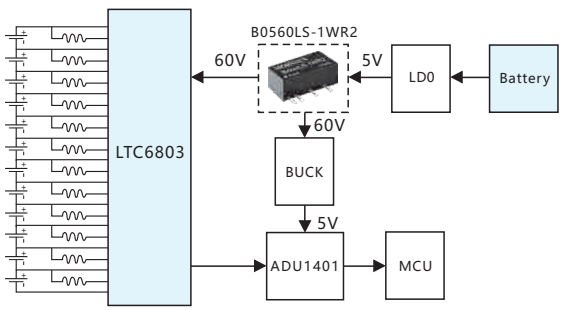
Features

- Suitable for BMS application
- Isolation: 1500VDC
- High power density
- No external component required
- International standard pin-out
- Meet requirements of EMI CISPR25 CLASS 3 Standard

Product Program

Model Number	Input Voltage Range (Nominal)	Output Voltage (VDC)	Output Current (mA)	Effi(%) (typ)	Package
B0560LD-1WR2	4.5-5.5 (5VDC)	60	17	77	DIP
B0550LD-1WR2		50	20	79	DIP
B0505LD-1WR3		5	200	82	DIP

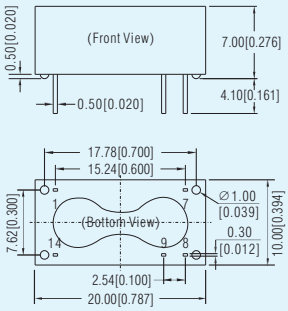
Application:



- This catalog is for reference only, please visit our website for detailed datasheets: www.mornsun-power.com

Package Dimension

B_LD-1WR3 LxWxH: 20.00x10.00x7.00(mm)



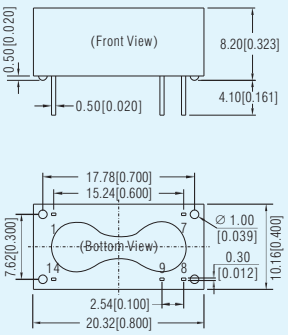
Pin-Out

Pin	Function
1	GND
7	NC
8	0V
9	+Vo
14	Vin

NC: No connection.

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

B_LD-1WR2 LxWxH: 20.32x10.16x8.20(mm)



Pin-Out

Pin	Function
1	GND
7	NC
8	0V
9	+Vo
14	Vin

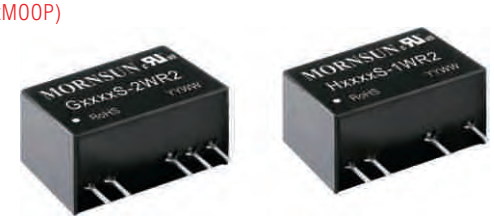
NC: No connection.

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

1-2W fixed input voltage, isolated & unregulated output G/H_S series specialized for medical

Features

- IEC60950,EN60601-1, ANSI/AAMI ES60601-1 approval (3rd edition, 1xMOPP/2xMOOP)
- Operating temperature: -40℃ to +85℃
- Isolation: 4200VAC or 6000VDC
- Efficiency up to 84%
- International standard pin-out
- The patient leakage current: Max 2μA



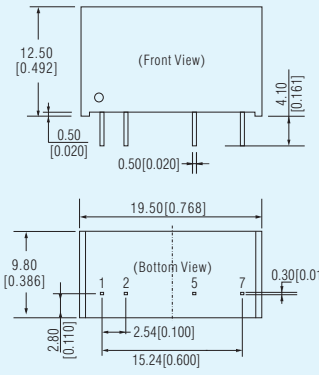
Product Program

Model Number	Power	Input Voltage (Nominal)	Output Voltage/Current (Vo/Io)	Isolation (Package)	Certification
H0305S-1WR2	1W	2.97-3.63(3.3VDC)	5V/200mA	4200VAC (SIP)	RoHS
G0505S-1WR2		4.5-5.5 (5VDC)	±5V/±100mA		cULus CE
G0509S-1WR2			±9V/±56mA		
G0512S-1WR2			±12V/±42mA		
G0515S-1WR2			±15V/±34mA		
H0503S-1WR2			3.3V/303mA		cULus CE CB
H0505S-1WR2			5V/200mA		
H0512S-1WR2			12V/84mA		
H0515S-1WR2			15V/67mA		
G1205S-1WR2	1W	10.8-13.2 (12VDC)	±5V/±100mA	4200VAC (SIP)	cULus CE
G1209S-1WR2			±9V/±56mA		
G1212S-1WR2			±12V/±42mA		
G1215S-1WR2			±15V/±34mA		
H1205S-1WR2			5V/200mA		cULus CB CE
H1212S-1WR2			12V/84mA		
H1215S-1WR2			15V/67mA		
G1515S-1WR2	1W	13.5-16.5(15VDC)	±15V/±34mA	4200VAC (SIP)	cULus
G2405S-1WR2		21.6-26.4 (24VDC)	±5V/±100mA		cULus CE
G2409S-1WR2			±9V/±56mA		
G2412S-1WR2			±12V/±42mA		
G2415S-1WR2			±15V/±34mA		
H2405S-1WR2			5V/200mA		cULus CB CE
H2412S-1WR2			12V/84mA		
H2415S-1WR2			15V/67mA		
G0505S-2WR2	2W	4.5-5.5 (5VDC)	±5V/±200mA	4200VAC (SIP)	cULus CE
G0509S-2WR2			±9V/±111mA		
G0512S-2WR2			±12V/±83mA		
G0515S-2WR2			±15V/±67mA		
H0505S-2WR2			5V/400mA		
H0512S-2WR2			12V/167mA		
H0515S-2WR2			15V/133mA		
G1205S-2WR2	2W	10.8-13.2 (12VDC)	±5V/±200mA	4200VAC (SIP)	cULus CE
G1209S-2WR2			±9V/±111mA		
G1212S-2WR2			±12V/±83mA		
G1215S-2WR2			±15V/±67mA		
H1205S-2WR2			5V/400mA		
H1212S-2WR2			12V/167mA		
H1215S-2WR2			15V/133mA		
G1505S-2WR2	2W	13.5-16.5 (15VDC)	±5V/±200mA	4200VAC (SIP)	RoHS
G1515S-2WR2			±15V/±67mA		
H1505S-2WR2			5V/400mA		cULus
G2405S-2WR2	2W	21.6-26.4 (24VDC)	±5V/±200mA	4200VAC (SIP)	cULus CE
G2409S-2WR2			±9V/±111mA		
G2412S-2WR2			±12V/±83mA		
G2415S-2WR2			±15V/±67mA		
H2405S-2WR2			5V/400mA		
H2412S-2WR2			12V/167mA		
H2415S-2WR2			15V/133mA		

Note: If the application requires higher performance for EMC, our matching EMC auxiliary devices are available.

Package Dimension

H_S-1WR2, H_S-2WR2 Series LxWxH: 19.50x9.80x12.50(mm)

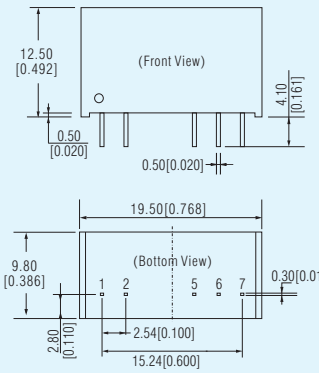


Pin-Out

Pin	Single
1	Vin
2	GND
5	0V
7	+Vo

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

G_S-1WR2, G_S-2WR2 Series LxWxH: 19.50x9.80x12.50(mm)



Pin-Out

Pin	Dual
1	Vin
2	GND
5	-Vo
6	0V
7	+Vo

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

1-2W fixed input voltage, 1500VDC isolated & unregulated output series

RoHS

Features

- Pin-out compatible with DCP01 series
- Operating temperature: -40℃ to +105℃
- Compact size, ultra-thin package
- International standard pin-out
- Continuous short-circuit protection

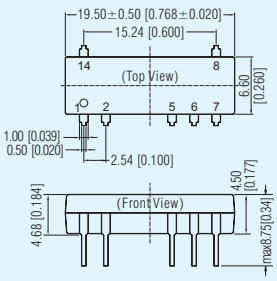
Product Program

Model Number	Power	Input Voltage (Nominal)	Output Voltage/Current (Vo/Io)	Isolation	Package
B0505RN-1WR2	1W	4.5-5.5 (5VDC)	5V/200mA	1500VDC	DIP
B0505RT-1WR2					SMD

Note: If the application requires higher performance for EMC, our matching EMC auxiliary devices are available.

Package Dimension

B_RN-1WR2 LxWxH: 19.50x9.50x4.68(mm)



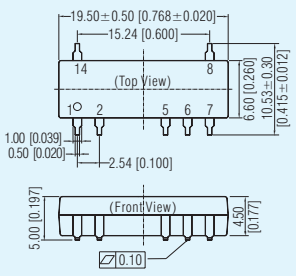
Pin-Out

Pin	Function
1	Vin
2	GND
5	0V
6	+Vo
Others	NC

NC: No connection.

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

B_RT-1WR2 LxWxH: 19.50x10.53x5.00(mm)



Pin-Out

Pin	Function
1	Vin
2	GND
5	0V
6	+Vo
Others	NC

NC: No connection.

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

0.25-1W fixed input voltage, 1500VDC isolated & unregulated output series

Features

- Isolation: 1500VDC
- Operating temperature: -40℃ to +105℃
- Efficiency up to 83%
- No-load input current as low as 5mA
- Miniature SIP package
- Anti-static protection: ±8KV
- Continuous short-circuit protection
- International standard pin-out
- IEC/EN/UL60950 approval,UL/EN62368 approval

Product Program

Model Number	Power	Input Voltage (Nominal)	Output Voltage/ Current(Vo/Io)	Isolation (Package)	Certification
B0303S-W2R2	0.25W	2.97-3.63 (3.3VDC)	3.3V/76mA	1500VDC (SIP)	
B0305S-W2R2			5V/50mA		
B0503S-W2R2		4.5-5.5 (5VDC)	3.3V/76mA		
B0505S-W2R2			5V/50mA		
B0512S-W2R2			12V/21mA		
B1205S-W2R2		10.8-13.2(12VDC)	5V/50mA		
B1505S-W2R2		13.5-16.5(15VDC)	5V/50mA		
B2405S-W2R2		21.6-26.4(24VDC)	5V/50mA		
B0303LS-1WR2*	1W	2.97-3.63 (3.3VDC)	3.3V/303mA	1500VDC (SIP)	RoHS
B0305LS-1WR2*			5V/200mA		
B0303S-1WR2*			3.3V/303mA	1500VDC (SIP)	RoHS
B0305S-1WR2*			5V/200mA		
A0503S-1WR3	1W	4.5-5.5 (5VDC)	±3.3V/±152mA	1500VDC (SIP)	
A0505S-1WR3			±5V/±100mA		
A0509S-1WR3			±9V/±56mA		
A0512S-1WR3			±12/±42mA		
A0515S-1WR3			±15V/±34mA		
A0524S-1WR3			±24V/±21mA		
B0503LS-1WR3			3.3V/303mA		
B0505LS-1WR3			5V/200mA		
B0509LS-1WR3			9V/111mA		
B0512LS-1WR3			12V/84mA	1500VDC (SIP)	RoHS
B0515LS-1WR3			15V/67mA		
B0524LS-1WR3			24V/42mA		
B0503S-1WR3			3.3V/303mA		
B0505S-1WR3			5V/200mA		
B0509S-1WR3			9V/111mA		
B0512S-1WR3			12V/84mA		
B0515S-1WR3			15V/67mA		
B0524S-1WR3			24V/42mA		
A1205S-1WR2	1W	10.8-13.2 (12VDC)	±5V/±100mA	1500VDC (SIP)	
A1212S-1WR2			±12V/±42mA		
A1215S-1WR2			±15V/±34mA		
B1205LS-1WR2			5V/200mA		
B1212LS-1WR2			12V/84mA		
B1215LS-1WR2			15V/67mA		
B1224LS-1WR2			24V/42mA		
B1205S-1WR2			5V/200mA	1500VDC (SIP)	
B1212S-1WR2			12V/84mA		
B1215S-1WR2			15V/67mA		
B1224S-1WR2			24V/42mA		
A1505S-1WR2	1W	13.5-16.5 (15VDC)	±5V/±100mA	1500VDC (SIP)	RoHS
A1512S-1WR2			±12V/±42mA		
A1515S-1WR2			±15V/±34mA		RoHS
B1505LS-1WR2			5V/200mA		RoHS
B1512LS-1WR2			12V/84mA		RoHS
B1515LS-1WR2			15V/67mA		RoHS
B1505S-1WR2			5V/200mA	1500VDC (SIP)	RoHS
B1512S-1WR2			12V/84mA		
B1515S-1WR2			15V/67mA		
A2405S-1WR2*	1W	21.6-26.4 (24VDC)	±5V/±100mA	1500VDC (SIP)	
A2412S-1WR2*			±12V/±42mA		
A2415S-1WR2*			±15V/±34mA		
B2405LS-1WR2*			5V/200mA		
B2412LS-1WR2*			12V/84mA		
B2415LS-1WR2*			15V/67mA		
B2424LS-1WR2*			24V/42mA		

Note: 1. Short circuit protection time of products marked with * is 1s;
2. If the application requires higher performance for EMC, our matching EMC auxiliary devices are available.

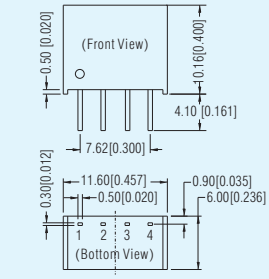
Product Program

Model Number	Power	Input Voltage (Nominal)	Output Voltage/ Current(Vo/Io)	Isolation (Package)	Certification
B2405S-1WR2*	1W	21.6-26.4 (24VDC)	5V/200mA	1500VDC (SIP)	RoHS
B2412S-1WR2*			12V/84mA		
B2415S-1WR2*			15V/67mA		
B2424S-1WR2*			24V/42mA		

Package Dimension

B_S-1WR2、B_S-W2R2、B_S-1WR3 Series (SIP-4)

LxWxH: 11.60x6.00x10.16(mm)



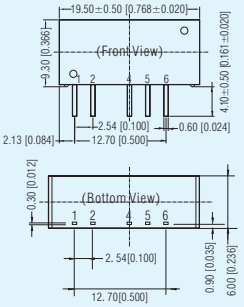
Pin-Out

Pin	Function
1	GND
2	Vin
3	0V
4	+Vo

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

A_S-1WR2、B_LS-1WR2 Series (SIP-7)

LxWxH: 19.50x6.00x9.30(mm)



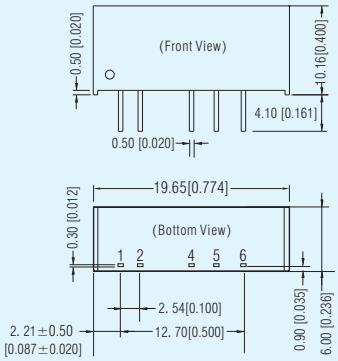
Pin-Out

Pin	A_S-1WR2	B_LS-1WR2
1	Vin	Vin
2	GND	GND
4	-Vo	0V
5	0V	No Pin
6	+Vo	+Vo

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

A_S-1WR3、B_LS-1WR3 Series (SIP-7)

LxWxH: 19.65x6.00x10.16(mm)



Pin-Out

Pin	Single	Dual
1	Vin	Vin
2	GND	GND
4	0V	-Vo
5	No Pin	0V
6	+Vo	+Vo

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

1W fixed input voltage, isolated & unregulated output series

Features

- Isolation: 3000VDC
- Operating temperature: -40℃ to +105℃
- Efficiency up to 85%
- No-load input current as low as 5mA
- Miniature SIP package, automation packaged
- Anti-static protection: ±8KV
- Continuous short-circuit protection
- International standard pin-out
- UL/EN60950 approval,UL/EN62368 approval

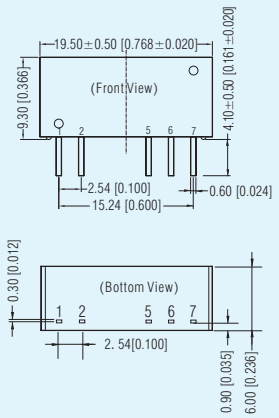
Product Program

Model Number	Power	Input Voltage (Nominal)	Output Voltage/ Current(Vo/Io)	Isolation (Package)	Certification
F0303S-1WR2*	1W	2.97-3.63 (3.3VDC)	3.3V/303mA	3000VDC (SIP)	RoHS
F0305S-1WR2*			5V/200mA		
E0503S-1WR3	1W	4.5-5.5 (5VDC)	±3.3V/±152mA	3000VDC (SIP)	
E0505S-1WR3			±5V/±100mA		
E0509S-1WR3			±9V/±56mA		
E0512S-1WR3			±12V/±42mA		
E0515S-1WR3			±15V/±33mA		
E0524S-1WR3			±24V/±21mA		
F0503S-1WR3			3.3V/303mA		
F0505S-1WR3			5V/200mA		
F0509S-1WR3			9V/111mA		
F0512S-1WR3			12V/83mA		
F0515S-1WR3			15V/67mA		
F0524S-1WR3			24V/42mA		
E1205S-1WR2	1W	10.8-13.2 (12VDC)	±5V/±100mA	3000VDC (SIP)	
E1212S-1WR2			±12V/±42mA		
E1215S-1WR2			±15V/±33mA		
F1205S-1WR2			5V/200mA		
F1212S-1WR2			12V/83mA		
F1215S-1WR2			15V/67mA		
F1224S-1WR2			24V/42mA		
E1505S-1WR2	1W	13.5-16.5 (15VDC)	±5V/±100mA	3000VDC (SIP)	RoHS
E1515S-1WR2			±15V/±33mA		
F1505S-1WR2			5V/200mA		
F1512S-1WR2			12V/83mA		
F1515S-1WR2			15V/67mA		CE RoHS
E2405S-1WR2*	1W	21.6-26.4 (24VDC)	±5V/±100mA	3000VDC (SIP)	
E2412S-1WR2*			±12V/±42mA		
E2415S-1WR2*			±15V/±33mA		
F2405S-1WR2*			5V/200mA		
F2412S-1WR2*			12V/83mA		
F2415S-1WR2*			15V/67mA		
F2424S-1WR2*			24V/42mA		

Note: 1. Short circuit protection time of products marked with * is 1s;
2. If the application requires higher performance for EMC, our matching EMC auxiliary devices are available.

Package Dimension

E_S-1WR2、F_S-1WR2 Series (SIP) LxWxH: 19.50x6.00x9.30(mm)

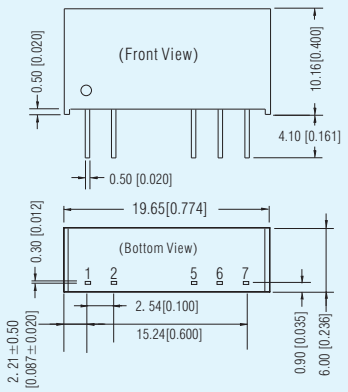


Pin-Out

Pin	E_S-1WR2	F_S-1WR2
1	Vin	Vin
2	GND	GND
5	-Vo	0V
6	0V	No Pin
7	+Vo	+Vo

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

E_S-1WR3、F_S-1WR3 Series (SIP) LxWxH: 19.65x6.00x10.16(mm)



Pin-Out

Pin	Single	Dual
1	Vin	Vin
2	GND	GND
5	0V	-Vo
6	No Pin	0V
7	+Vo	+Vo

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

0.25-1W fixed input voltage, isolated & unregulated output series

Features

- Operating temperature: -40℃ to +105℃
- Efficiency up to 85%
- High power density
- Miniature compact SMD package
- Anti-static protection: ±8KV
- Continuous short-circuit protection

Product Program

Model Number	Power	Input Voltage (Nominal)	Output Voltage/ Current(Vo/Io)	Isolation (Package)	Certification
B0303XT-W2R2*	0.25W	2.97-3.63 (3.3VDC)	3.3V/76mA	1500VDC (SMD)	RoHS
B0305XT-W2R2*			5V/50mA		
B0503XT-W2R2		4.5-5.5 (5VDC)	3.3V/76mA		CE RoHS
B0505XT-W2R2			5V/50mA		
B0515XT-W2R2			15V/17mA		
B1205XT-W2R2		10.8-13.2 (12VDC)	5V/50mA		
B1212XT-W2R2			12V/21mA		
B2405XT-W2R2		21.6-26.4(24VDC)	5V/50mA		
F0505XT-W2R3	0.25W	4.5-5.5(5VDC)	5V/40mA	3000VDC (SMD)	
F1205XT-W2R2		10.8-13.2(12VDC)	5V/50mA		
B0303XT-1WR2*	1W	2.97-3.63 (3.3VDC)	3.3V/303mA	1500VDC (SMD)	CE RoHS
B0305XT-1WR2*			5V/200mA		cULus CE RoHS
B0506XT-1WR2		4.5-5.5(5VDC)	6V/167mA		
A0505XT-1WR3	1W	4.5-5.5 (5VDC)	±5V/±100mA	1500VDC (SMD)	CE RoHS
A0509XT-1WR3			±9V/±56mA		
A0512XT-1WR3			±12V/±42mA		
A0515XT-1WR3			±15V/±34mA		
A0524XT-1WR3			±24V/±21mA		
B0503XT-1WR3			3.3V/303mA		
B0505XT-1WR3			5V/200mA		
B0509XT-1WR3			9V/111mA		
B0512XT-1WR3			12V/84mA		
B0515XT-1WR3			15V/67mA		
B0524XT-1WR3			24V/42mA		
A1205XT-1WR2	1W	10.8-13.2 (12VDC)	±5V/±100mA	1500VDC (SMD)	cULus CE RoHS
A1212XT-1WR2			±12V/±42mA		
A1215XT-1WR2			±15V/±33mA		
B1205XT-1WR2			5V/200mA		
B1212XT-1WR2			12V/84mA		
B1215XT-1WR2			15V/67mA		
B1224XT-1WR2			24V/42mA		
A1515XT-1WR2	1W	13.5-16.5 (15VDC)	±15V/±33mA	1500VDC (SMD)	CE RoHS
B1505XT-1WR2			5V/200mA		
B1515XT-1WR2			15V/67mA		
A2405XT-1WR2*	1W	21.6-26.4 (24VDC)	±5V/±100mA	1500VDC (SMD)	cULus CE RoHS
A2412XT-1WR2*			±12V/±42mA		
A2415XT-1WR2*			±15V/±33mA		
B2405XT-1WR2*			5V/200mA		CE RoHS
B2412XT-1WR2*			12V/84mA		
B2415XT-1WR2*			15V/67mA		cULus CE RoHS
B2424XT-1WR2*			24V/42mA		
F0303XT-1WR2*	1W	2.97-3.63 (3.3VDC)	3.3V/303mA	3000VDC (SMD)	cULus CE RoHS
F0305XT-1WR2*			5V/200mA		
E0505XT-1WR3	1W	4.5-5.5 (5VDC)	±5V/±100mA	3000VDC (SMD)	CE RoHS
E0509XT-1WR3			±9V/±56mA		
E0512XT-1WR3			±12V/±42mA		
E0515XT-1WR3			±15V/±34mA		
E0524XT-1WR3			±24V/±21mA		
F0503XT-1WR3			3.3V/303mA		
F0505XT-1WR3			5V/200mA		
F0509XT-1WR3			9V/111mA		
F0512XT-1WR3			12V/84mA		
F0515XT-1WR3			15V/67mA		
F0524XT-1WR3			24V/42mA		
E1205XT-1WAR2	1W	10.8-13.2 (12VDC)	±5V/±100mA	3000VDC (SMD)	cULus CE RoHS
E1212XT-1WAR2			±12V/±42mA		
E1215XT-1WAR2			±15V/±33mA		
E1224XT-1WAR2			±24V/±21mA		
F1205XT-1WR2			5V/200mA		
F1212XT-1WR2			12V/84mA		
F1215XT-1WR2			15V/67mA		
F1224XT-1WR2			24V/42mA		

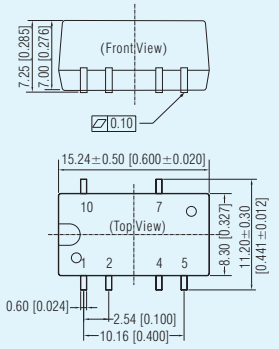
Product Program

Model Number	Power	Input Voltage (Nominal)	Output Voltage/ Current(Vo/Io)	Isolation (Package)	Certification
E1515XT-1WAR2	1W	13.5-16.5 (15VDC)	±15V/±33mA	3000VDC (SMD)	CE RoHS
F1515XT-1WR2			15V/67mA		
E2405XT-1WAR2*	1W	21.6-26.4 (24VDC)	±5V/±100mA	3000VDC (SMD)	cULus CE RoHS
E2412XT-1WAR2*			±12V/±42mA		
E2415XT-1WAR2*			±15V/±33mA		
E2424XT-1WAR2*			±24V/±21mA		
F2405XT-1WR2*			5V/200mA		
F2415XT-1WR2*			15V/67mA		
F2424XT-1WR2*			24V/42mA		

Note: 1. Short circuit protection time of products marked with * is 1s;
2. If the application requires higher performance for EMC, our matching EMC auxiliary devices are available.

Package Dimension

A_XT-1WR2、E_XT-1WR2 Series LxWxH: 15.24x11.20x7.25(mm)



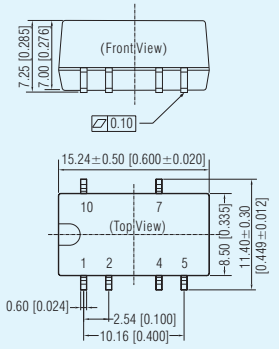
Pin-Out

Pin	Function
1	GND
2	Vin
4	0V
5	-Vo
7	+Vo
10	NC

NC: No connection.

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

A_XT-1WR3、E_XT-1WR3 Series LxWxH: 15.24x11.40x7.25(mm)



Pin-Out

Pin	Function
1	GND
2	Vin
4	0V
5	-Vo
7	+Vo
10	NC

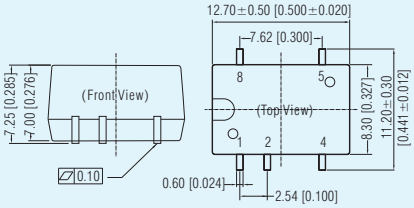
NC: No connection.

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

• This catalog is for reference only, please visit our website for detailed datasheets: www.mornsun-power.com

Package Dimension

B/F_XT-W2R2、B/F_XT-1WR2 Series LxWxH: 12.70x11.20x7.25(mm)

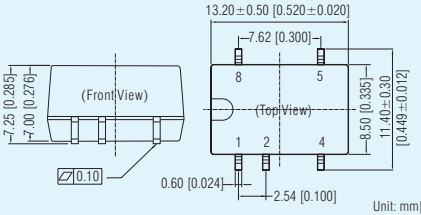


Pin-Out	
Pin	Function
1	GND
2	Vin
4	0V
5	+Vo
8	NC

NC: No connection.

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

F_XT-W2R3、B/F_XT-1WR3 Series LxWxH: 13.20x11.40x7.25(mm)



Pin-Out	
Pin	Function
1	GND
2	Vin
4	0V
5	+Vo
8	NC

NC: No connection.

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

1W fixed input voltage, isolated & unregulated output series

Features

- Operating temperature: -40℃ to +105℃
- Isolation: 3000VDC
- Efficiency up to 83%
- No-load input current as low as 5mA
- Miniature DIP package
- Anti-static protection: ±8KV
- Continuous short-circuit protection
- International standard pin-out
- IEC/EN/UL60950 approval,UL/EN62368 approval(pending)

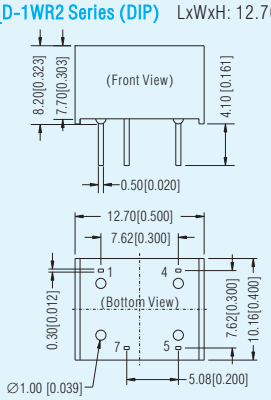
Product Program

Model Number	Power	Input Voltage (Nominal)	Output Voltage/Current (Vo/Io)	Isolation (Package)	Certification
B0303D-1WR2*	1W	2.97-3.63 (3.3VDC)	3.3V/303mA	1500VDC (DIP)	RoHS
B0305D-1WR2*			5V/200mA		
A1205D-1WR2	1W	10.8-13.2 (12VDC)	±5V/±100mA	1500VDC (DIP)	RoHS
A1212D-1WR2			±12V/±42mA		
B1205D-1WR2			5V/200mA	1500VDC (DIP)	cULus CE RoHS
B1212D-1WR2			12V/84mA		
B1215D-1WR2			15V/67mA		
B1505D-1WR2	1W	13.5-16.5 (15VDC)	5V/200mA	1500VDC (DIP)	RoHS
B1515D-1WR2			15V/67mA		
A2412D-1WR2*	1W	21.6-26.4 (24VDC)	±12V/±42mA	1500VDC (DIP)	RoHS
A2415D-1WR2*			±15V/±34mA		
B2405D-1WR2*			5V/200mA	1500VDC (DIP)	cULus CE RoHS
B2412D-1WR2*			12V/84mA		
B2415D-1WR2*			15V/67mA		
B2424D-1WR2*			24V/42mA		
E0505D-1WR3	1W	4.5-5.5 (5VDC)	±5V/±100mA	3000VDC (DIP)	CE RoHS
E0509D-1WR3			±9V/±56mA		
E0512D-1WR3			±12V/±42mA		
E0515D-1WR3			±15V/±34mA		
F0303D-1WR2*		2.97-3.63(3.3VDC)	3.3V/303mA		
F0503D-1WR2		4.5-5.5 (5VDC)	3.3V/303mA		
F0505D-1WR2			5V/200mA		
F0512D-1WR2			12V/83mA		
F0515D-1WR2			15V/67mA		
E1205D-1WR2	1W	10.8-13.2 (12VDC)	±5V/±100mA	3000VDC (DIP)	CE RoHS
F1205D-1WR2			5V/200mA		
F1212D-1WR2			12V/83mA		
F1215D-1WR2			15V/67mA		
F1515D-1WR2		13.5-16.5(15VDC)	15V/67mA		cULus CE RoHS
E2412D-1WR2*	1W	21.6-26.4 (24VDC)	±12V/±42mA	3000VDC (DIP)	CE RoHS
E2415D-1WR2*			±15V/±34mA		
F2405D-1WR2*			5V/200mA		
F0503N-1WR3	1W	4.5-5.5 (5VDC)	3.3V/303mA	3000VDC (DIP)	cULus CE RoHS
F0505N-1WR3			5V/200mA		
F0509N-1WR3			9V/111mA		
F0512N-1WR3			12V/84mA		
F0515N-1WR3			15V/67mA		
F0524N-1WR3			24V/42mA		

Note: 1. Short circuit protection time of products marked with * is 1s;
2. If the application requires higher performance for EMC, our matching EMC auxiliary devices are available.

Package Dimension

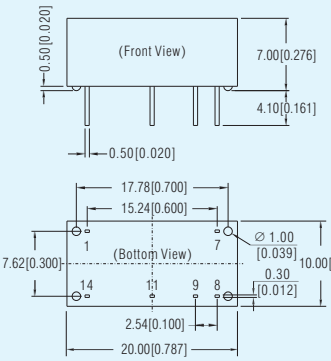
B_D-1WR2 Series (DIP) LxWxH: 12.70x10.16x8.20(mm)



Pin-Out	
Pin	Function
1	GND
4	Vin
5	+Vo
7	0V

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

A_D-1WR2 Series (DIP) LxWxH: 20.00x10.00x7.00(mm)



Pin-Out	
Pin	Function
1	GND
7	NC
8	0V
9	+Vo
11	-Vo
14	Vin

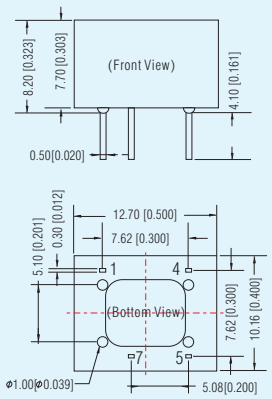
NC: No connection.

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

• This catalog is used to introduce our latest products, for more information, please contact our sales department

Package Dimension

F05_N-1WR3 Series (DIP) LxWxH: 12.70x10.16x8.20(mm)

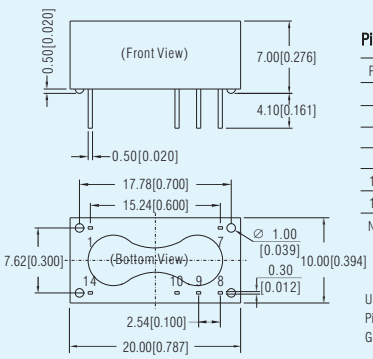


Pin-Out

Pin	Function
1	GND
4	Vin
5	+Vo
7	0V

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

E/F_D-1WR2、E_D-1WR3 Series (DIP) LxWxH: 20.00x10.00x7.00(mm)



Pin-Out

Pin	Single	Dual
1	GND	GND
7	NC	NC
8	+Vo	+Vo
9	No Pin	0V
10	0V	-Vo
14	Vin	Vin

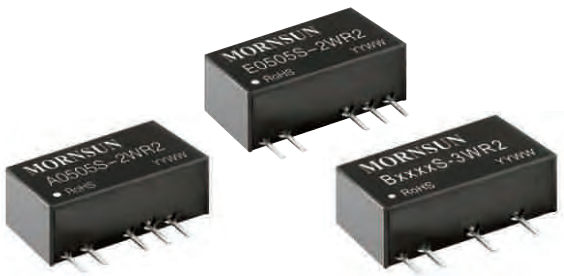
NC: No connection.

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

2-3W fixed input voltage, isolated & unregulated output series

Features

- Operating temperature: -40℃ to +105℃
- Efficiency up to 88%
- High power density
- Miniature SIP package
- Anti-static protection: ±8KV
- Continuous short-circuit protection



Product Program

Model Number	Power	Input Voltage (Nominal)	Output Voltage/Current (Vo/Io)	Isolation (Package)	Certification
A0505S-2WR2	2W	4.5-5.5 (5VDC)	±5V/±200mA	1500VDC (SIP)	cULus CE CB RoHS
A0512S-2WR2			±12V/±83mA		
A0515S-2WR2			±15V/±67mA		
B0503S-2WR2			3.3V/400mA		
B0505S-2WR2			5V/400mA		
B0512S-2WR2			12V/167mA		
B0515S-2WR2			15V/133mA		
B0524S-2WR2*			24V/83mA		
A1205S-2WR2	2W	10.8-13.2 (12VDC)	±5V/±200mA	1500VDC (SIP)	cULus CE CB RoHS
A1212S-2WR2			±12V/±83mA		
A1215S-2WR2			±15V/±67mA		
B1205S-2WR2			5V/400mA		
B1212S-2WR2			12V/167mA		
B1215S-2WR2			15V/133mA		
B1224S-2WR2			24V/83mA		
A1505S-2WR2	2W	13.5-16.5 (15VDC)	±5V/±200mA	1500VDC (SIP)	RoHS
A1515S-2WR2			±15V/±67mA		
B1505S-2WR2			5V/400mA		
B1515S-2WR2			15V/133mA		
A2405S-2WR2*	2W	21.6-26.4 (24VDC)	±5V/±200mA	1500VDC (SIP)	cULus CE CB RoHS
A2412S-2WR2*			±12V/±83mA		
A2415S-2WR2*			±15V/±67mA		
B2405S-2WR2*			5V/400mA		
B2412S-2WR2*			12V/167mA		
B2415S-2WR2*			15V/133mA		
B2424S-2WR2*			24V/83mA		

Note: 1. Short circuit protection time of products marked with * is 1s;
2. If the application requires higher performance for EMC, our matching EMC auxiliary devices are available.

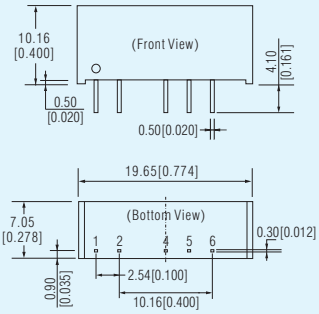
Product Program

Model Number	Power	Input Voltage (Nominal)	Output Voltage/Current (Vo/Io)	Isolation (Package)	Certification
E0505S-2WR2	2W	4.5-5.5 (5VDC)	±5V/±200mA	3000VDC (SIP)	cULus CE CB RoHS
E0512S-2WR2			±12V/±83mA		
E0515S-2WR2			±15V/±67mA		
F0503S-2WR2			3.3V/400mA		
F0505S-2WR2			5V/400mA		
F0512S-2WR2			12V/167mA		
F0515S-2WR2			15V/133mA		
F0524S-2WR2*			24V/83mA		
E1205S-2WR2	2W	10.8-13.2 (12VDC)	±5V/±200mA	3000VDC (SIP)	cULus CE CB RoHS
E1212S-2WR2			±12V/±83mA		
E1215S-2WR2			±15V/±67mA		
F1205S-2WR2			5V/400mA		
F1212S-2WR2			12V/167mA		
F1215S-2WR2			15V/133mA		
F1224S-2WR2			24V/83mA		
E1515S-2WR2	2W	13.5-16.5 (15VDC)	±15V/±67mA	3000VDC (SIP)	RoHS
F1505S-2WR2			5V/400mA		
F1512S-2WR2			12V/167mA		
E2405S-2WR2*	2W	21.6-26.4 (24VDC)	±5V/±200mA	3000VDC (SIP)	cULus CE CB RoHS
E2412S-2WR2*			±12V/±83mA		
E2415S-2WR2*			±15V/±67mA		
F2405S-2WR2*			5V/400mA		
F2412S-2WR2*			12V/167mA		
F2415S-2WR2*			15V/133mA		
F2424S-2WR2*			24V/83mA		
B0505S-3WR2*	3W	4.5-5.5(5VDC)	5V/600mA	1500VDC (SIP)	RoHS
B1212S-3WR2*		10.8-13.2(12VDC)	12V/250mA		
F0505S-3WR2	3W	4.5-5.5(5VDC)	5V/600mA	3000VDC (SIP)	RoHS
F1205S-3WR2		10.8-13.2 (12VDC)	5V/600mA		
F1212S-3WR2			12V/250mA		

• This catalog is for reference only, please visit our website for detailed datasheets: www.mornsun-power.com

Package Dimension

A_S-2WR2, B_S-2WR2 Series (SIP) LxWxH: 19.65x7.05x10.16(mm)

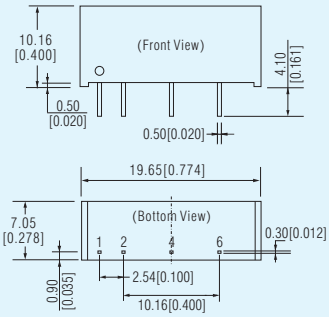


Pin-Out

Pin	A_S-2WR2	B_S-2WR2
1	Vin	Vin
2	GND	GND
4	-Vo	0V
5	0V	No Pin
6	+Vo	+Vo

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

B_S-3WR2 Series (SIP) LxWxH: 19.65x7.05x10.16(mm)

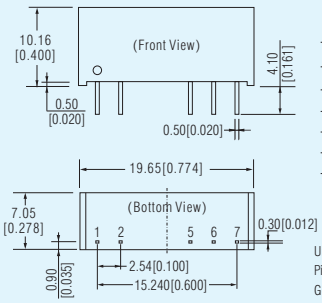


Pin-Out

Pin	Function
1	Vin
2	GND
4	0V
6	+Vo

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

E_S-2WR2, F_S-2WR2, F_S-3WR2 Series(SIP) LxWxH: 19.65x7.05x10.16(mm)



Pin-Out

Pin	E_S-2WR2	F_S-2WR2/3WR2
1	Vin	Vin
2	GND	GND
5	-Vo	0V
6	0V	No Pin
7	+Vo	+Vo

Unit: mm[inch]
Pin section tolerance: ±0.10mm[±0.004]
General tolerance: ±0.25mm[±0.010]

2W fixed input voltage, isolated & unregulated output series

CE RoHS

Features

- Operating temperature: -40℃ to +105℃
- Efficiency up to 84%
- High power density
- Miniature SMD package
- Anti-static protection: ±8KV

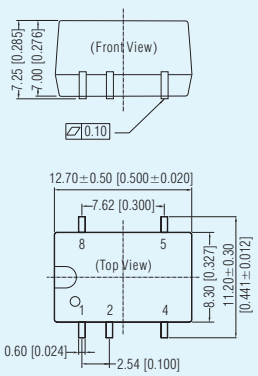
Product Program

Model Number	Power	Input Voltage (Nominal)	Output Voltage/Current (Vo/Io)	Isolation (Package)	Certification
B0503XT-2WR2	2W	4.5-5.5 (5VDC)	3.3V/400mA	1500VDC (SMD)	CE RoHS
B0505XT-2WR2			5V/400mA		
B0512XT-2WR2			12V/167mA		
B0515XT-2WR2			15V/133mA		
B1205XT-2WR2	2W	10.8-13.2 (12VDC)	5V/400mA	1500VDC (SMD)	CE RoHS
B1212XT-2WR2			12V/167mA		
B1215XT-2WR2			15V/133mA		
B1224XT-2WR2			24V/83mA		
B1505XT-2WR2		13.5-16.5 (15VDC)	5V/400mA		RoHS
B1515XT-2WR2			15V/133mA		CE RoHS
B2405XT-2WR2	2W	21.6-26.4 (24VDC)	5V/400mA	1500VDC (SMD)	CE RoHS
B2412XT-2WR2			12V/167mA		
B2415XT-2WR2			15V/133mA		
B2424XT-2WR2			24V/83mA		
F0505XT-2WR2	2W	4.5-5.5 (5VDC)	5V/400mA	3000VDC (SMD)	CE RoHS
F0512XT-2WR2			12V/167mA		
F0515XT-2WR2			15V/133mA		
F1205XT-2WR2	2W	10.8-13.2 (12VDC)	5V/400mA	3000VDC (SMD)	CE RoHS
F1212XT-2WR2			12V/167mA		
F1215XT-2WR2			15V/133mA		
F1224XT-2WR2			24V/83mA		
F1505XT-2WR2	2W	13.5-16.5 (15VDC)	5V/400mA	3000VDC (SMD)	RoHS
F1515XT-2WR2			15V/133mA		
F2405XT-2WR2	2W	21.6-26.4 (24VDC)	5V/400mA	3000VDC (SMD)	CE RoHS
F2412XT-2WR2			12V/167mA		
F2415XT-2WR2			15V/133mA		
F2424XT-2WR2			24V/83mA		

Note: If the application requires higher performance for EMC, our matching EMC auxiliary devices are available.

Package Dimension

B/F_XT-2WR2 Series LxWxH: 12.70x11.20x7.25(mm)



Pin-Out

Pin	Function
1	GND
2	Vin
4	0V
5	+Vo
8	NC

NC: No connection.

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

• This catalog is used to introduce our latest products, for more information, please contact our sales department

2W fixed input voltage, isolated & unregulated output series

Features

- Operating temperature: -40℃ to +85℃
- Efficiency up to 85%
- Miniature DIP package
- Anti-static protection: ±8KV
- Continuous short-circuit protection

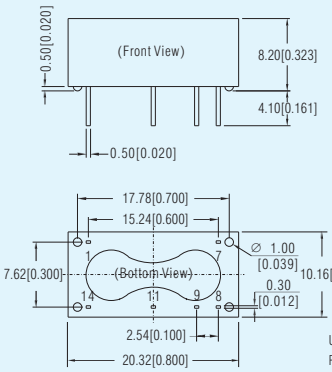
Product Program

Model Number	Power	Input Voltage (Nominal)	Output Voltage/Current (Vo/Io)	Isolation (Package)	Certification
B0303D-2WR2*	2W	2.97-3.63 (3.3VDC)	3.3V/400mA	1500VDC (DIP)	RoHS
B0305D-2WR2*			5V/400mA		
A0505D-2WR2	2W	4.5-5.5 (5VDC)	±5V/±200mA	1500VDC (DIP)	cULus CE CB RoHS
A0512D-2WR2*			±12V/±83mA		
A0515D-2WR2*			±15V/±67mA		
B0503D-2WR2			3.3V/400mA		RoHS
B0505D-2WR2			5V/400mA		cULus CB CE RoHS
B0512D-2WR2			12V/167mA		
B0515D-2WR2			15V/133mA		
B0524D-2WR2*			24V/83mA		
A1205D-2WR2	2W	10.8-13.2 (12VDC)	±5V/±200mA	1500VDC (DIP)	cULus CE CB RoHS
A1212D-2WR2			±12V/±83mA		
A1215D-2WR2			±15V/±67mA		
B1205D-2WR2			5V/400mA		
B1212D-2WR2			12V/167mA		
B1215D-2WR2			15V/133mA		
B1224D-2WR2			24V/83mA		
A1515D-2WR2	2W	13.5-16.5(15VDC)	±15V/±67mA	1500VDC (DIP)	RoHS
A2405D-2WR2*		21.6-26.4 (24VDC)	±5V/±200mA		cULus CE CB RoHS
A2412D-2WR2*			±12V/±83mA		
A2415D-2WR2*			±15V/±67mA		
B2405D-2WR2*			5V/400mA		
B2412D-2WR2*			12V/167mA		
B2415D-2WR2*			15V/133mA		
B2424D-2WR2*			24V/83mA		
E0505D-2WR2	2W	4.5-4.5 (5VDC)	±5V/±200mA	3000VDC (DIP)	cULus CE CB RoHS
E0512D-2WR2*			±12V/±83mA		
E0515D-2WR2*			±15V/±67mA		
F0505D-2WR2			5V/400mA		
F0512D-2WR2			12V/167mA		
F0515D-2WR2			15V/133mA		
F0524D-2WR2*			24V/83mA		
E1205D-2WR2	2W	10.6-13.2 (12VDC)	±5V/±200mA	3000VDC (DIP)	cULus CE CB RoHS
E1212D-2WR2			±12V/±83mA		
E1215D-2WR2			±15V/±67mA		
F1205D-2WR2			5V/400mA		
F1212D-2WR2			12V/167mA		
F1215D-2WR2			15V/133mA		
F1224D-2WR2			24V/83mA		
E1512D-2WR2	2W	13.5-16.5 (15VDC)	±12V/±83mA	3000VDC (DIP)	RoHS
E1515D-2WR2			±15V/±67mA		
F1505D-2WR2			5V/400mA		
F1515D-2WR2			15V/133mA		
E2405D-2WR2*	2W	21.6-26.4 (24VDC)	±5V/±200mA	3000VDC (DIP)	cULus CE CB RoHS
E2412D-2WR2*			±12V/±83mA		
F2405D-2WR2*			5V/400mA		
F2412D-2WR2*			12V/167mA		
F2415D-2WR2*			15V/133mA		
F2424D-2WR2*			24V/83mA		

Note: 1. Short circuit protection time of products marked with * is 1s;
2. If the application requires higher performance for EMC, our matching EMC auxiliary devices are available.

Package Dimension

A/B_D-2WR2 Series (DIP-14) LxWxH: 20.32x10.16x8.20(mm)



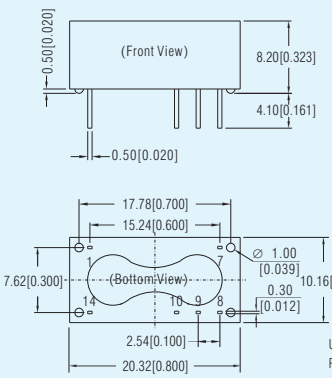
Pin-Out

Pin	Single	Dual
1	GND	GND
7	NC	NC
8	0V	0V
9	+Vo	+Vo
11	No Pin	-Vo
14	Vin	Vin

NC: No connection.

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

E/F_D-2WR2 Series (DIP-14) LxWxH: 20.32x10.16x8.20(mm)



Pin-Out

Pin	Single	Dual
1	GND	GND
7	NC	NC
8	+Vo	+Vo
9	No Pin	0V
10	0V	-Vo
14	Vin	Vin

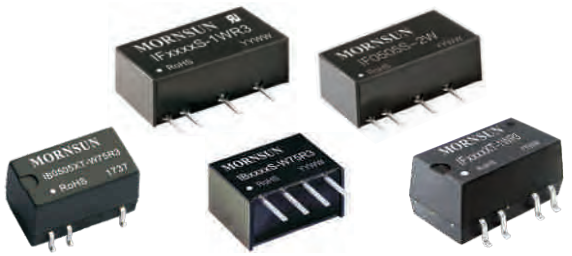
NC: No connection.

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

0.75-2W fixed input voltage, isolated & regulated output series

Features

- Isolation: 3000VDC
- Operating temperature: -40℃ to +85℃
- Efficiency up to 74%
- No-load input current as low as 5mA
- Miniature SIP package
- Continuous short-circuit protection
- International standard pin-out
- EN60950 approval,UL/EN62368 approval(pending)



Product Program

Model Number	Power	Input Voltage (Nominal)	Output Voltage/ Current(Vo/Io)	Isolation (Package)	Certification
IB0503S-W75R3	0.75W	4.75-5.25 (5VDC)	3.3V/200mA	1500VDC (SIP)	CE (pending) RoHS
IB0505S-W75R3			5V/150mA		
IB0509S-W75R3			9V/83mA		
IB0512S-W75R3			12V/62mA		
IB0515S-W75R3			15V/50mA		
IB0503LS-1WR3	1W	4.75-5.25 (5VDC)	3.3V/250mA	1500VDC (SIP)	RoHS
IB0505LS-1WR3			5V/200mA		cULus CE RoHS CB
IB0509LS-1WR3			9V/111mA		
IB0512LS-1WR3			12V/84mA		
IB0515LS-1WR3			15V/67mA		
IB0524LS-1WR3			24V/41mA		RoHS
IB1205LS-1W*		11.4-12.6 (12VDC)	5V/200mA	1000VDC (SIP)	CE RoHS
IB1212LS-1W			12V/83mA		
IB1215LS-1W			15V/67mA		
IB1224LS-1W*			24V/42mA		
IB1505LS-1W*		14.25-15.75 (15VDC)	5V/200mA		
IB1515LS-1W			15V/67mA		
IB2405LS-1W*		22.8-25.2 (24VDC)	5V/200mA		
IB2412LS-1W			12V/83mA		
IB2415LS-1W			15V/67mA		
IB0503XT-W75R3	0.75W	4.75-5.25 (5VDC)	3.3V/200mA	1500VDC (SMD)	RoHS
IB0505XT-W75R3			5V/150mA		
IB0509XT-W75R3			9V/83mA		
IB0512XT-W75R3			12V/62mA		
IB0515XT-W75R3			15V/50mA		
IB0503XT-1WR2	1W	4.75-5.25 (5VDC)	3.3V/243mA		
IB0505XT-1WR2			5V/200mA		
IB0512XT-1WR2			12V/84mA		
IB0515XT-1WR2			15V/67mA		
IB1205XT-1WR2		11.4-12.6 (12VDC)	5V/200mA		
IB1212XT-1WR2			12V/84mA		
IB1215XT-1WR2			15V/67mA		
IB1505XT-1WR2		14.25-15.75(15VDC)	5V/200mA		
IB2405XT-1WR2		22.8-25.2 (24VDC)	5V/200mA		
IB2412XT-1WR2			12V/84mA		
IB2415XT-1WR2			15V/67mA		
IF0503XT-1WR3	1W	4.75-5.25 (5VDC)	3.3V/250mA	3000VDC (SIP)	RoHS
IF0505XT-1WR3			5V/200mA		
IF0509XT-1WR3			9V/111mA		
IF0512XT-1WR3			12V/84mA		
IF0515XT-1WR3			15V/67mA		
IF1205XT-1WR2		11.4-12.6 (12VDC)	5V/200mA		
IF1212XT-1WR2			12V/83mA		
IF2405XT-1WR2		22.8-25.2(24VDC)	5V/200mA		
IF0503S-1WR3	1W	4.75-5.25 (5VDC)	3.3V/250mA	3000VDC (SIP)	cULus CE CB RoHS
IF0505S-1WR3			5V/200mA		
IF0509S-1WR3			9V/111mA		
IF0512S-1WR3			12V/84mA		
IF0515S-1WR3			15V/67mA		
IF0524S-1WR3			24V/41mA	3000VDC (SIP)	RoHS
IF1205S-1W*		11.4-12.6 (12VDC)	5V/200mA		
IF1212S-1W			12V/83mA		
IF2405S-1W*		22.8-25.2 (24VDC)	5V/200mA		
IF2415S-1W			15V/67mA		
IB0505S-2W	2W	4.75-5.25(5VDC)	5V/400mA	1000VDC (SIP)	RoHS
IB1205S-2W		11.4-12.6 (12VDC)	5V/400mA		
IB1212S-2W			12V/167mA		
IB1215S-2W			15V/133mA		
IB2405S-2W		22.8-25.2(24VDC)	5V/400mA		

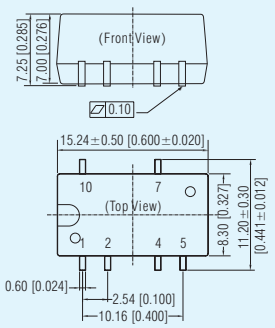
Product Program

Model Number	Power	Input Voltage (Nominal)	Output Voltage/ Current(Vo/Io)	Isolation (Package)	Certification
IF0505S-2W	2W	4.75-5.25(5VDC)	5V/400mA	3000VDC (SIP)	CE RoHS
IF2405S-2W		22.8-25.2(24VDC)	5V/400mA		
IE0505KS-1WR3	1W	4.75-5.25 (5VDC)	±5V/±100mA	3000VDC (SIP)	RoHS
IE0509KS-1WR3			±9V/±56mA		
IE0512KS-1WR3			±12V/±42mA		
IE0515KS-1WR3			±15V/±33mA		

Note: 1. Short circuit protection time of products marked with * is 1s;
2. If the application requires higher performance for EMC, our matching EMC auxiliary devices are available.

Package Dimension

IB_XT-1WR2, IF_XT-1WR2 Series LxWxH: 15.24x11.20x7.25(mm)



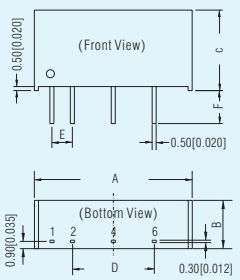
Pin-Out

Pin	Function
1	GND
2	Vin
4	0V
5	0V
7	+Vo
10	NC

NC: No connection.

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

IF_S-1W、IB_LS-1W、IF_S-1WR3、IB_LS-1WR3、IB_S-2W、IF_S-2W Series



Pin-Out

Pin	1	2	4	6
Function	Vin	GND	0V	+Vo

Outline & Dimensions

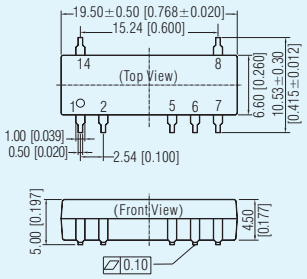
NO.	IF_S-1W/IB_LS-1W IB_LS-1WR3 IF_S-1WR3	IB/IF_S-2W
A	19.65	19.65
B	6.00	7.05
C	10.16	10.16
D	10.16	10.16
E	2.54	2.54
F	4.10	4.10

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

• This catalog is used to introduce our latest products, for more information, please contact our sales department

Package Dimension

IF_RT-1W Series LxWxH: 19.50x10.53x5.00(mm)



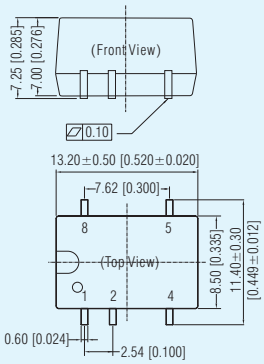
Pin-Out

Pin	Function
1	Vin
2	GND
5	0V
6	+Vo
Others	NC

NC: No connection.

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

IB05_XT-W75R3 LxWxH: 13.20x11.40x7.25(mm)



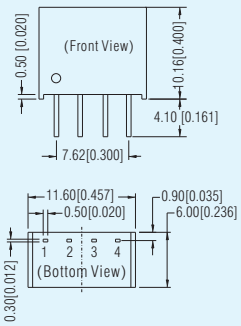
Pin-Out

Pin	Function
1	GND
2	Vin
4	0V
5	+Vo
8	NC

NC: No connection.

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

IB05_S-W75R3 Series LxWxH: 11.60x6.00x10.16(mm)

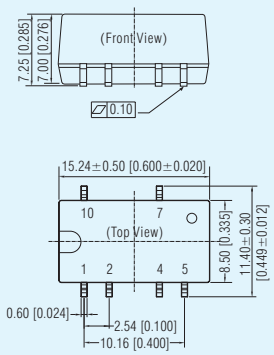


Pin-Out

Pin	Function
1	GND
2	Vin
3	0V
4	+Vo

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

IF05-XT-1WR3 Series LxWxH: 15.24x11.20x7.25(mm)



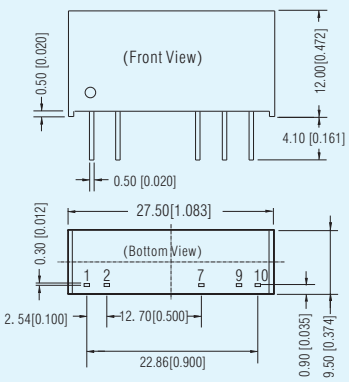
Pin-Out

Pin	Function
1	GND
2	Vin
4	0V
5	0V
7	+Vo
10	NC

NC: No connection.

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

IE05_KS-1WR3 Series LxWxH: 27.50x9.50x12.00(mm)



Pin-Out

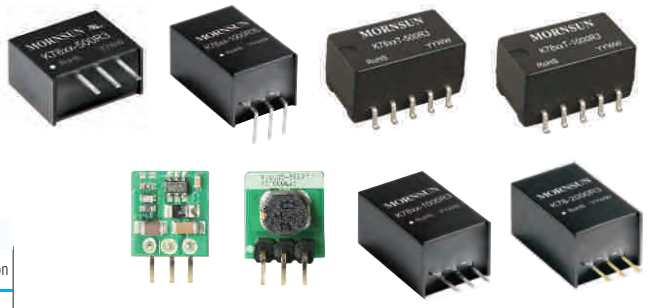
Pin	Function
1	Vin
2	GND
7	+Vo
9	−Vo
10	0V

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

0.5-2A non-isolated switching regulator

Features

- Operating temperature: -40℃ to +85℃
- Efficiency up to 96%
- No-load input current as low as 0.1mA
- Negative output available: R3 series
- Pin-Out compatible with LM78xx Linear regulators
- Continuous short-circuit protection



Product Program

Model Number	Input Voltage Range (Nominal)	Output Voltage (VDC)	Output Current (mA)	Certification
K78(L)03-500R3	4.75-36 (24VDC)	3.3	500	cULus CE RoHS
K78(L)05-500R3	6.5-36 (24VDC)	5	500	
	7-31 (12VDC)	-5	-300	
K7809-500R3	12-36 (24VDC)	9	500	
K78(L)12-500R3	15-36 (24VDC)	12	500	
	8-24 (12VDC)	-12	-150	
K78(L)15-500R3	19-36 (24VDC)	15	500	
	8-21 (12VDC)	-15	-150	
K7803-1000R3(L)	6-36(24VDC)	3.3	1000	cULus CE RoHS CB
K7805-1000R3(L)	8-36 (24VDC)	5	1000	
	8-27 (12VDC)	-5	-500	
K7809-1000R3(L)	13-36(24VDC)	9	1000	
K7812-1000R3(L)	16-36(24VDC)	12	1000	
	8-20(12VDC)	-12	-300	
K7815-1000R3(L)	20-36(24VDC)	15	1000	
	8-18(12VDC)	-15	-300	
K78L03-1000R3	6-36 (24VDC)	3.3	1000	cULus CE CB RoHS
K78L05-1000R3	8-36 (24VDC)	5	1000	
	8-27 (12VDC)	-5	-500	
K78L12-1000R3	16-36 (24VDC)	12	1000	
	8-20 (12VDC)	-12	-300	
K78L15-1000R3	20-36 (24VDC)	15	1000	
	8-18 (12VDC)	-15	-300	
K7803M-1000R3	6-36 (24VDC)	3.3	1000	CE RoHS
K7805M-1000R3	8-36 (24VDC)	5	1000	
	8-27 (12VDC)	-5	-500	
K7809M-1000R3	13-36 (24VDC)	9	1000	
K7812M-1000R3	16-36 (24VDC)	12	1000	
	8-20 (12VDC)	-12	-300	
K7815M-1000R3	20-36 (24VDC)	15	1000	
	8-18 (12VDC)	-15	-300	

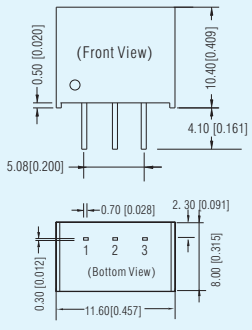
Note: 1. Series with suffix "L" are available for 90°pin-out;
2. If the application requires higher performance for EMC, our matching EMC auxiliary devices are available.

Product Program

Model Number	Input Voltage Range (Nominal)	Output Voltage (VDC)	Output Current (mA)	Certification
K78U03-500(L)	9-72(48VDC)	3.3	500	RoHS
K78U05-500(L)	9-72(48VDC)	5		
K78U12-500(L)	17-72(48VDC)	12		
K7803-2000R3	6-36(12VDC)	3.3	2000	CE (pending) RoHS
K7805-2000R3	8-36(12VDC)	5		
K7809-2000R3	13-36(12VDC)	9		
K7812-2000R3	16-36(12VDC)	12		
K7815-2000R3	18-36(12VDC)	15		
K7801T-500R3	4.75-28(12VDC)	1.5	500	CE RoHS
K78X2T-500R3	4.75-28(12VDC)	1.8		
K7802T-500R3	4.75-32(12VDC)	2.5		
K7803T-500R3	4.75-36(24VDC)	3.3		
K7805T-500R3	6.5-36(24VDC)	5		
K78X6T-500R3	8-36(24VDC)	6.5		
K7809T-500R3	12-36(24VDC)	9		
K7812T-500R3	15-36(24VDC)	12		
K7815T-500R3	19-36(24VDC)	15		
K7801T-1000R3	4.75-32(12VDC)	1.5	1000	CE RoHS
K78X2T-1000R3	4.75-32(12VDC)	1.8		
K7802T-1000R3	4.75-32(12VDC)	2.5		
K7803T-1000R3	6.5-36(24VDC)	3.3		
K7805T-1000R3	8-36(24VDC)	5		
K78X6T-1000R3	10-36(24VDC)	6.5		
K7809T-1000R3	13-36(24VDC)	9		
K7812T-1000R3	16-36(24VDC)	12	800	

Package Dimension

K78xxM-1000R3 Series LxWxH: 11.60x8.00x10.40(mm)

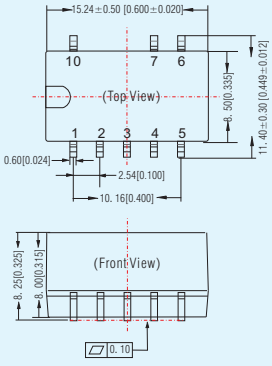


Pin-Out

Pin	Positive output	Negative output
1	Vin	Vin
2	GND	-Vo
3	+Vo	GND

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

K78_T-500R3/K78_T-1000R3 Series LXWXH: 11.40X15.24X8.25(mm)



Pin-Out

Pin	Function
1	+Vin
2	+Vin
3	GND
4	+Vout
5	+Vout
6	vadj
7	GND
10	Remote on/off

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.020]

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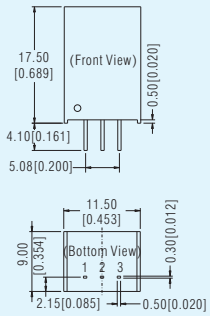
Package Dimension

K78-1000R3, K78U-500, K78-1500 Series

LxWxH: 11.50x9.00x17.50(mm)



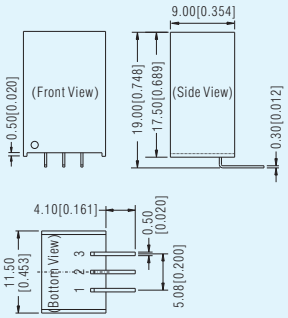
Pin-Out

Pin	Positive output	Negative output
1	Vin	Vin
2	GND	-Vo
3	+Vo	GND

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

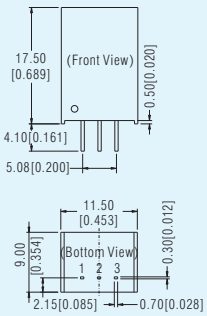
K78-1000R3L, K78U-500L, K78-1500L Series

LxWxH: 19.00x11.50X9.00(mm)



Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

K78xx-2000R3 Series LxWxH: 11.50x9.00x17.50(mm)

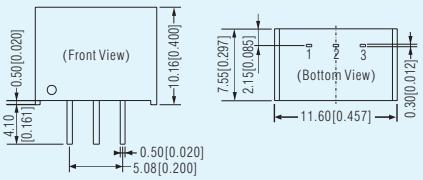


Pin-Out

Pin	Positive output
1	Vin
2	GND
3	+Vo

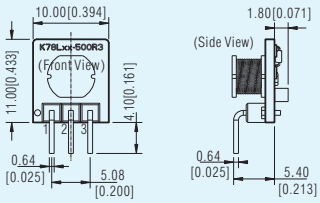
Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

K78-500R3 Series (Potting) LxWxH:11.60x7.55x10.16(mm)



Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

K78L-500R3 Series (Open Frame) LxWxH:10.00x7.20x11.00(mm)



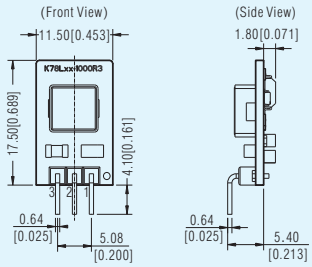
Pin-Out

Pin	Positive output	Negative output
1	Vin	Vin
2	GND	-Vo
3	+Vo	GND

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

K78L-1000R3 Series (Open Frame)

LxWxH:11.50x7.20x17.50(mm)



Pin-Out

Pin	Positive output	Negative output
1	Vin	Vin
2	GND	-Vo
3	+Vo	GND

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

6-16A wide input voltage ,non-isolated switching regulator

RoHS

Features

- Efficiency up to 96%
- Operating temperature: –40℃ to +85℃
- Input under-voltage, output over-current and short-circuit protections
- Fast dynamic response speed
- Miniature open frame SMD package

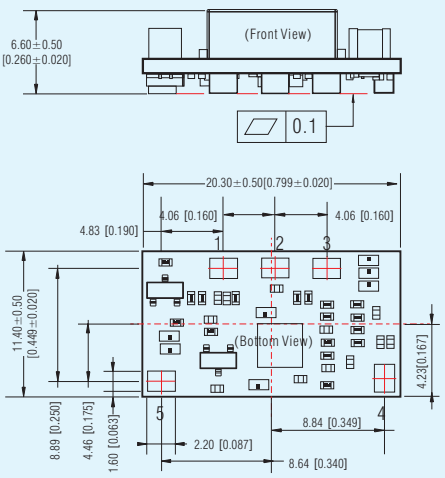
Product Program

Model Number	Input Voltage (Nominal)	Output Voltage (VDC)	Output Current (mA)	Certification
K12T-6A-P	8.3-14(12VDC)	0.75-5.0	6000	RoHS
K12T-6A-N	8.3-14(12VDC)	0.75-5.0	6000	
K12T-10A-P	8.3-14(12VDC)	0.75-5.0	10000	
K12T-10A-N	8.3-14(12VDC)	0.75-5.0	10000	
K12T-16A-P	8.3-14(12VDC)	0.75-5.0	16000	
K12T-16A-N	8.3-14(12VDC)	0.75-5.0	16000	

Note:Series with suffix"H" feature Ctrl pin is positive logic control, with suffix"N" feature Ctrl pin is negative logic control.

Package Dimension

K12T-6A Series LxWxH: 20.30x11.40x6.60(mm)

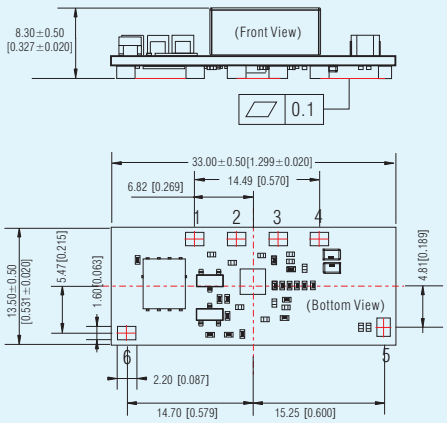


Pin-Out

Pin	Function
1	GND
2	Trim
3	+Vo
4	Ctrl
5	Vin

Unit: mm[inch]
General tolerance: ±0.25[±0.010]
The layout of devices is for reference only,please in kind prevail

K12T-10A、16ASeries LxWxH: 33.02x13.50x8.32(mm)



Pin-Out

Pin	Function
1	GND
2	+Vo
3	Trim
4	Sense
5	Ctrl
6	Vin

Unit: mm[inch]
General tolerance: ±0.25[±0.010]
The layout of devices is for reference only, please in kind prevail

1W 2:1 wide input voltage, isolated & regulated output series

Features

- Suitable for communication, instrumentation and industrial electronics applications
- Operating temperature: -40℃ to +85℃
- Low ripple & noise
- High power density
- Remote ON/OFF
- Continuous short-circuit protection, self-recovery
- EN60950 approval

Product Program 2:1 Input series

Model Number	Power	Input Voltage (Nominal)	Output Voltage/Current (Vo/Io)	Isolation (Package)	Certification
WRA0505S-1WR2	1W	4.5-9 (5VDC)	±5V/±100mA	1500VDC (SIP)	CE RoHS
WRA0512S-1WR2			±12V/±42mA		
WRA0515S-1WR2			±15V/±33mA		
WRB0503S-1WR2			3.3V/303mA		
WRB0505S-1WR2			5V/200mA		
WRB0512S-1WR2			12V/83mA		
WRB0515S-1WR2			15V/67mA		
WRB0524S-1WR2			24V/42mA		
WRA1205S-1WR2	1W	9-18 (12VDC)	±5V/±100mA	1500VDC (SIP)	CE RoHS
WRA1212S-1WR2			±12V/±42mA		
WRA1215S-1WR2			±15V/±33mA		
WRB1203S-1WR2			3.3V/303mA		
WRB1205S-1WR2			5V/200mA		
WRB1209S-1WR2			9V/111mA		
WRB1212S-1WR2			12V/83mA		
WRB1215S-1WR2			15V/67mA		
WRB1224S-1WR2			24V/42mA		
WRA2405S-1WR2	1W	18-36 (24VDC)	±5V/±100mA	1500VDC (SIP)	CE RoHS
WRA2409S-1WR2			±9V/±56mA		
WRA2412S-1WR2			±12V/±42mA		
WRA2415S-1WR2			±15V/±33mA		
WRB2403S-1WR2			3.3V/303mA		
WRB2405S-1WR2			5V/200mA		
WRB2412S-1WR2			12V/83mA		
WRB2415S-1WR2			15V/67mA		
WRB2424S-1WR2			24V/42mA		
WRA4805S-1WR2	1W	36-75 (48VDC)	±5V/±100mA	1500VDC (SIP)	CE RoHS
WRA4812S-1WR2			±12V/±42mA		
WRA4815S-1WR2			±15V/±33mA		
WRB4803S-1WR2			3.3V/303mA		
WRB4805S-1WR2			5V/200mA		
WRB4812S-1WR2			12V/83mA		
WRB4815S-1WR2			15V/67mA		

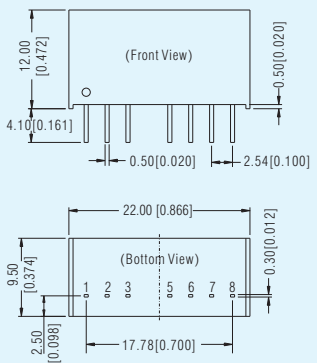
Product Program 2:1 Input series

Model Number	Power	Input Voltage (Nominal)	Output Voltage/Current (Vo/Io)	Isolation (Package)	Certification
WRE0505S-1WR2	1W	4.5-9 (5VDC)	±5V/±100mA	3000VDC (SIP)	CE RoHS
WRE0512S-1WR2			±12V/±42mA		
WRE0515S-1WR2			±15V/±33mA		
WRF0505S-1WR2			5V/200mA		
WRF0512S-1WR2			12V/83mA		
WRF0515S-1WR2			15V/67mA		
WRE1205S-1WR2	1W	9-18 (12VDC)	±5V/±100mA	3000VDC (SIP)	CE RoHS
WRE1212S-1WR2			±12V/±42mA		
WRE1215S-1WR2			±15V/±33mA		
WRF1203S-1WR2			3.3V/303mA		
WRF1205S-1WR2			5V/200mA		
WRF1209S-1WR2			9V/111mA		
WRF1212S-1WR2			12V/83mA		
WRF1215S-1WR2			15V/67mA		
WRE2405S-1WR2	1W	18-36 (24VDC)	±5V/±100mA	3000VDC (SIP)	CE RoHS
WRE2412S-1WR2			±12V/±42mA		
WRE2415S-1WR2			±15V/±33mA		
WRF2403S-1WR2			3.3V/303mA		
WRF2405S-1WR2			5V/200mA		
WRF2412S-1WR2			12V/83mA		
WRF2415S-1WR2			15V/67mA		
WRF2424S-1WR2			24V/42mA		
WRE4805S-1WR2	1W	36-75 (48VDC)	±5V/±100mA	3000VDC (SIP)	CE RoHS
WRE4812S-1WR2			±12V/±42mA		
WRE4815S-1WR2			±15V/±33mA		
WRF4803S-1WR2			3.3V/303mA		
WRF4805S-1WR2			5V/200mA		
WRF4812S-1WR2			12V/83mA		
WRF4815S-1WR2			15V/67mA		

Note: If the application requires higher performance for EMC, our matching EMC auxiliary devices such as FC-AX3D, FC-B02D, FI-B03D and FT-BX1D are available. For more information, please contact our sales department.

Package Dimension

WRA/B_S-1WR2, WRE/F_S-1WR2 Series LxWxH: 22.00x9.50x12.00(mm)



Pin-Out

Pin	Single	Dual
1	GND	GND
2	Vin	Vin
3	Ctrl	Ctrl
5	NC	NC
6	+Vo	+Vo
7	0V	0V
8	CS	-Vo

NC: No connection.

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

- This catalog is for reference only, please visit our website for detailed datasheets: www.mornsun-power.com

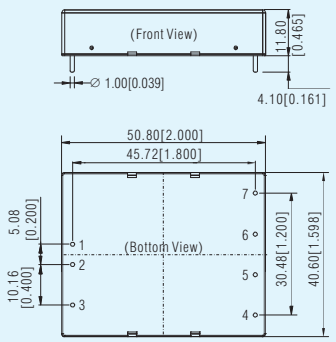
20W ultra-wide input voltage,1500VDC isolated & regulated output series

RoHS

Features

- Suitable for automotive application
- Operating temperature: -40℃ to +85℃
- Efficiency up to 82%
- Input voltage as low as 6VDC
- Standby power consumption as low as 0.4W
- Meet CISPR22/EN55022 CLASS A
- Input under-voltage, output over-voltage, over-current and short-circuit protections

Package Dimension LxWxH: 50.80x40.60x11.8(mm)



Pin-Out

Pin	Function
1	Vin
2	GND
3	No Pin
4	0V
5	+Vo
6	No Pin
7	No Pin

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

Product Program

Model Number	Power	Input Voltage (Nominal)	Output Voltage/Current (Vo/Io)	Isolation	Certification
UW2405D-20W	20W	6-50 (24VDC)	5V/4000mA	1500VDC	RoHS
UWD240512D-20W			5V/3500mA 12V/500mA		

Note: Special input, output and power customization is acceptable such as series less than 4.5VDC input .

600VDC/1000VDC/2000VDC high output voltage , non-isolated & regulated output series

RoHS

Features

- Ultra-wide input voltage range: 0-2000VDC
- Input under-voltage,output over-current andshort-circuit protections
- Low ripple,low power consumption
- Constant current output

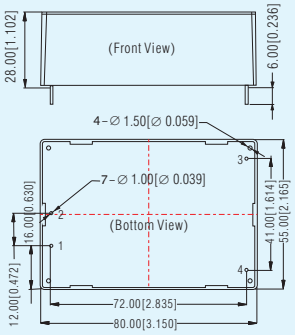
Product Program

Model Number	Input Voltage (VDC)	Output Voltage(VDC)		Output Current (mA)
	Input Voltage (Nominal)	Nominal	Range	
HO1-P601-2C	10.8-13.2 (12VDC)	600	0-600	2
HO1-P102-20D	14-18 (16VDC)	1000	0-1000	20
HO1-P202-20D		2000	0-2000	20

Note:Other input voltage,output voltage and power customization is acceptable.

Package Dimension

HO1-P102-20D & HO1-P202-20D LxWxH: 80.00x55.00x28.00(mm)

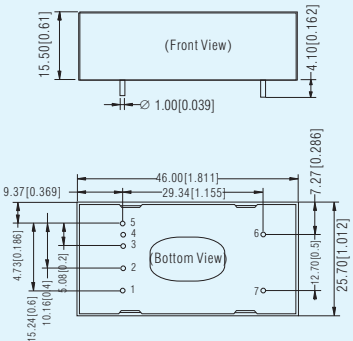


Pin-Out

Pin	Function
1	Vin
2	GND
3	H.V.
4	HGND

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

HO1-P601-2C LxWxH: 46.00x25.70x15.50(mm)



Pin-Out

Pin	Function
1	Vin
2	GND
3	No Pin
4	Adj
5	Vref
6	HV
7	HGND

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

• This catalog is used to introduce our latest products, for more information, please contact our sales department

3W 2:1 wide input voltage, 1500VDC isolated & regulated output series

CE RoHS

Features

- Suitable for communication, instrumentation and industrial electronics applications
- Operating temperature: -40℃ to +85℃
- Low ripple & noise
- High power density
- Continuous short-circuit protection, self-recovery
- EN60950 approval

Product Program 2:1 Input series

Model Number	Power	Input Voltage (Nominal)	Output Voltage/ Current(Vo/Io)	Isolation (Package)	Certification
WRA0505S-3WR2*	3W	4.5-9 (5VDC)	±5V/±250mA	1500VDC (SIP)	CE RoHS
WRA0512S-3WR2*			±12V/±104mA		
WRA0515S-3WR2*			±15V/±83mA		
WRA0524S-3WR2*			±24V/±52mA		
WRB0503S-3WR2*			3.3V/758mA		
WRB0505S-3WR2*			5V/500mA		
WRB0509S-3WR2*			9V/278mA		
WRB0512S-3WR2*			12V/208mA		
WRB0515S-3WR2*			15V/167mA		
WRB0524S-3WR2*			24V/104mA		
WRA1205S-3WR2*	3W	9-18 (12VDC)	±5V/±300mA	1500VDC (SIP)	CE RoHS
WRA1209S-3WR2*			±9V/±167mA		
WRA1212S-3WR2*			±12V/±125mA		
WRA1215S-3WR2*			±15V/±100mA		
WRB1203S-3WR2*			3.3V/758mA		
WRB1205S-3WR2*			5V/600mA		
WRB1206S-3WR2*			6V/500mA		
WRB1209S-3WR2*			9V/333mA		
WRB1212S-3WR2*			12V/250mA		
WRB1215S-3WR2*			15V/200mA		
WRB1224S-3WR2*			24V/125mA		
WRA2405S-3WR2*	3W	18-36 (24VDC)	±5V/±300mA	1500VDC (SIP)	CE RoHS
WRA2409S-3WR2*			±9V/±167mA		
WRA2412S-3WR2*			±12V/±125mA		
WRA2415S-3WR2*			±15V/±100mA		
WRB2403S-3WR2*			3.3V/758mA		
WRB2405S-3WR2*			5V/600mA		
WRB2409S-3WR2*			9V/333mA		
WRB2412S-3WR2*			12V/250mA		
WRB2415S-3WR2*			15V/200mA		
WRB2424S-3WR2*			24V/125mA		
WRA4805S-3WR2*	3W	36-75 (48VDC)	±5V/±300mA	1500VDC (SIP)	CE RoHS
WRA4812S-3WR2*			±12V/±125mA		
WRA4815S-3WR2*			±15V/±100mA		
WRB4803S-3WR2*			3.3V/758mA		
WRB4805S-3WR2*			5V/600mA		
WRB4812S-3WR2*			12V/250mA		
WRB4815S-3WR2*			15V/200mA		
WRB4824S-3WR2*			24V/125mA		
WRA0505ZP-3WR2	3W	4.5-9 (5VDC)	±5V/±300mA	1500VDC (DIP)	CE RoHS
WRA0509ZP-3WR2			±9V/±166mA		
WRA0512ZP-3WR2			±12V/±125mA		
WRA0515ZP-3WR2			±15V/±100mA		
WRB0505ZP-3WR2			5V/600mA		
WRB0512ZP-3WR2			12V/250mA		
WRB0515ZP-3WR2			15V/200mA		
WRA1205ZP-3WR2	3W	9-18 (12VDC)	±5V/±300mA	1500VDC (DIP)	CE RoHS
WRA1209ZP-3WR2			±9V/±166mA		
WRA1212ZP-3WR2			±12V/±125mA		
WRA1215ZP-3WR2			±15V/±100mA		
WRB1203ZP-3WR2			3.3V/909mA		
WRB1205ZP-3WR2			5V/600mA		
WRB1212ZP-3WR2			12V/250mA		
WRB1215ZP-3WR2			15V/200mA		
WRB1224ZP-3WR2			24V/125mA		
WRA2405ZP-3WR2	3W	18-36 (24VDC)	±5V/±300mA	1500VDC (DIP)	CE RoHS
WRA2412ZP-3WR2			±12V/±125mA		
WRA2415ZP-3WR2			±15V/±100mA		
WRB2403ZP-3WR2			3.3V/909mA		
WRB2405ZP-3WR2			5V/600mA		

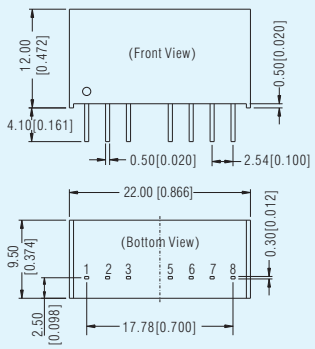
Product Program 2:1 Input series

Model Number	Power	Input Voltage (Nominal)	Output Voltage/ Current(Vo/Io)	Isolation (Package)	Certification
WRB2409ZP-3WR2	3W	18-36 (24VDC)	9V/333mA	1500VDC (DIP)	CE RoHS
WRB2412ZP-3WR2			12V/250mA		
WRB2415ZP-3WR2			15V/200mA		
WRB2424ZP-3WR2			24V/125mA		
WRA4805ZP-3WR2	3W	36-75 (48VDC)	±5V/±300mA	1500VDC (DIP)	CE RoHS
WRA4812ZP-3WR2			±12V/±125mA		
WRA4815ZP-3WR2			±15V/±100mA		
WRA4824ZP-3WR2			±24V/±63mA		
WRB4803ZP-3WR2			3.3V/909mA		
WRB4805ZP-3WR2			5V/600mA		
WRB4812ZP-3WR2			12V/250mA		
WRB4815ZP-3WR2			15V/200mA		
WRB4824ZP-3WR2			24V/125mA		

Note: 1. Series with suffix "ZP" are standard DIP24 packaged with aluminum casing and detailed dimension please refer to illustration;
2. If the application requires higher performance for EMC, our matching EMC auxiliary devices such as FC-AX3D, FC-B02D, FI-B03D and FT-BX1D are available. For more information, please contact our sales department
3. Products marked with " * " feature remote pin and remote control function

Package Dimension

WRA/B_S-3WR2 Series LxWxH: 22.00x9.50x12.00(mm)



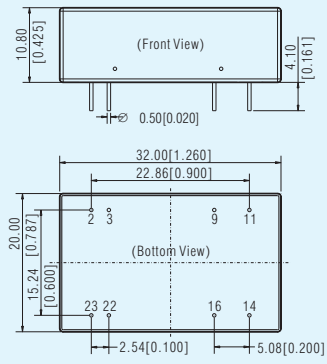
Pin-Out

Pin	Single	Dual
1	GND	GND
2	Vin	Vin
3	Ctrl	Ctrl
5	NC	NC
6	+Vo	+Vo
7	0V	0V
8	CS	-Vo

NC: No connection.

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

WRA/B_ZP-3WR2 LxWxH: 32.00x20.00x10.80(mm)



Pin-Out

Pin	Single	Dual
2,3	GND	GND
9	No Pin	0V
11	NC	-Vo
14	+Vo	+Vo
16	0V	0V
22,23	Vin	Vin

NC: No connection.

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

• This catalog is for reference only, please visit our website for detailed datasheets: www.mornsun-power.com

3W 4:1 wide input voltage, 1500VDC isolated & regulated output series

CE RoHS

Features

- Suitable for communication, instrumentation and industrial electronics applications
- Operating temperature: -40℃ to +85℃
- Low ripple & noise
- High power density
- Continuous short-circuit protection, self-recovery
- EN60950 approval

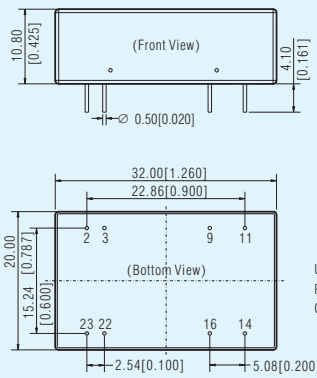
Product Program 4:1 Input series

Model Number	Power	Input Voltage (Nominal)	Output Voltage/Current (Vo/Io)	Isolation (Package)	Certification
PWB2403ZP-3WR2	3W	9-36 (24VDC)	3.3V/909mA	1500VDC (DIP)	CE RoHS
PWB2405ZP-3WR2			5V/600mA		
PWB2409ZP-3WR2			9V/333mA		
PWB2412ZP-3WR2			12V/250mA		
PWB2415ZP-3WR2			15V/200mA		
PWB2424ZP-3WR2			24V/125mA		
PWB4803ZP-3WR2	3W	18-75 (48VDC)	3.3V/909mA	1500VDC (DIP)	CE RoHS
PWB4805ZP-3WR2			5V/600mA		
PWB4809ZP-3WR2			9V/333mA		
PWB4812ZP-3WR2			12V/250mA		
PWB4815ZP-3WR2			15V/200mA		
PWB4824ZP-3WR2			24V/125mA		

Note: 1. Series with suffix "ZP" are standard DIP24 packaged with aluminum casing and detailed dimension please refer to illustration;
2. If the application requires higher performance for EMC, our matching EMC auxiliary devices such as FC-AX3D, FC-B02D, FI-B03D and FT-BX1D are available. For more information, please contact our sales department.

Package Dimension

PWB_ZP-3WR2 Series LxWxH: 32.00x20.00x10.80(mm)



Pin-Out

Pin	Function
2,3	GND
11	NC
14	+Vo
16	0V
22,23	Vin

NC: No connection.

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

3W 4:1 wide input voltage, 1500VDC isolated & regulated output series (SMD)

cULus CE RoHS

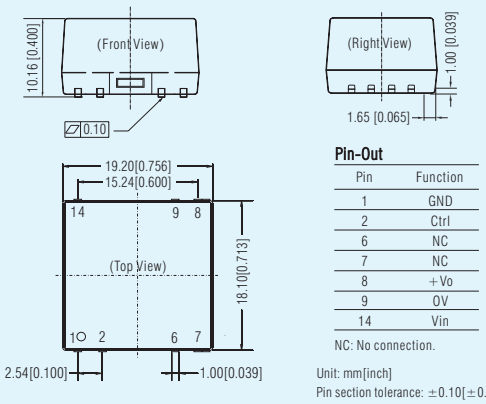
Features

- Suitable for communication, instrumentation and control electric power applications
- Operating temperature: -40℃ to +85℃
- Efficiency up to 84%
- Standby power consumption as low as 0.10W
- International standard pin-out
- Input under-voltage, output short-circuit and over-current protections
- IEC/UL/EN60950 approval

Product Program

Model Number	Power	Input Voltage (Nominal)	Output Voltage/Current (Vo/Io)	Isolation (Package)	Certification
URB2405MT-3WR3	3W	9-36 (24VDC)	5V/600mA	1500VDC (SMD)	cULus CE RoHS
URB2412MT-3WR3			12V/250mA		
URB2415MT-3WR3			15V/200mA		
URB2424MT-3WR3			24V/125mA		
URB2403MT-3WR3	3W	9-36 (24VDC)	3.3V/728mA	1500VDC (SMD)	RoHS
URB2409MT-3WR3			9V/333mA		
URB4803MT-3WR3	3W	18-75 (48VDC)	3.3V/728mA	1500VDC (SMD)	CE RoHS
URB4805MT-3WR3			5V/600mA		
URB4812MT-3WR3			12V/250mA		
URB4815MT-3WR3			15V/200mA		
URB4824MT-3WR3			24V/125mA		

Package Dimension LxWxH: 19.20x18.10x10.16(mm)



Pin-Out

Pin	Function
1	GND
2	Ctrl
6	NC
7	NC
8	+Vo
9	0V
14	Vin

NC: No connection.

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

• This catalog is used to introduce our latest products, for more information, please contact our sales department

3W 2:1 wide input voltage, 3000VDC isolated & regulated output series

CE RoHS

Features

- Suitable for communication, instrumentation and industrial electronics applications
- Operating temperature: -40℃ to +85℃
- Low ripple & noise
- High power density
- Remote ON/OFF
- Continuous short-circuit protection, self-recovery
- EN60950 approval

Product Program 2:1 Input series

Model Number	Power	Input Voltage (Nominal)	Output Voltage/Current (Vo/Io)	Isolation (Package)	Certification
WRE0505S-3WR2	3W	4.5-9 (5VDC)	±5V/±250mA	3000VDC (SIP)	CE RoHS
WRE0512S-3WR2			±12V/±104mA		
WRE0515S-3WR2			±15V/±83mA		
WRF0505S-3WR2			5V/500mA		
WRF0509S-3WR2			9V/278mA		
WRF0512S-3WR2			12V/208mA		
WRF0515S-3WR2			15V/167mA		
WRE1205S-3WR2	3W	9-18 (12VDC)	±5V/±300mA	3000VDC (SIP)	CE RoHS
WRE1212S-3WR2			±12V/±125mA		
WRE1215S-3WR2			±15V/±100mA		
WRF1203S-3WR2			3.3V/758mA		
WRF1205S-3WR2			5V/600mA		
WRF1209S-3WR2			9V/333mA		
WRF1212S-3WR2			12V/250mA		
WRF1215S-3WR2			15V/200mA		
WRF1224S-3WR2			24V/125mA		
WRE2405S-3WR2	3W	18-36 (24VDC)	±5V/±300mA	3000VDC (SIP)	CE RoHS
WRE2409S-3WR2			±9V/±167mA		
WRE2412S-3WR2			±12V/±125mA		
WRE2415S-3WR2			±15V/±100mA		
WRF2403S-3WR2			3.3V/758mA		
WRF2405S-3WR2			5V/600mA		
WRF2409S-3WR2			9V/333mA		
WRF2412S-3WR2			12V/250mA		
WRF2415S-3WR2			15V/200mA		
WRF2424S-3WR2			24V/125mA		
WRE4805S-3WR2	3W	36-75 (48VDC)	±5V/±300mA	3000VDC (SIP)	CE RoHS
WRE4812S-3WR2			±12V/±125mA		
WRE4815S-3WR2			±15V/±100mA		
WRF4803S-3WR2			3.3V/758mA		
WRF4805S-3WR2			5V/600mA		
WRF4812S-3WR2			12V/250mA		
WRF4815S-3WR2			15V/200mA		
WRE0505P-3WR2	3W	4.5-9 (5VDC)	±5V/±300mA	3000VDC (DIP)	CE RoHS
WRE0512P-3WR2			±12V/±125mA		
WRE0515P-3WR2			±15V/±100mA		
WRF0505P-3WR2			5V/600mA		
WRF0512P-3WR2			12V/250mA		
WRF0515P-3WR2			15V/200mA		
WRE1205P-3WR2	3W	9-18 (12VDC)	±5V/±300mA	3000VDC (DIP)	CE RoHS
WRE1209P-3WR2			±9V/±166mA		
WRE1212P-3WR2			±12V/±125mA		
WRE1215P-3WR2			±15V/±100mA		
WRF1203P-3WR2			3.3V/909mA		
WRF1205P-3WR2			5V/600mA		
WRF1212P-3WR2			12V/250mA		
WRF1215P-3WR2			15V/200mA		
WRF1224P-3WR2			24V/125mA		
WRE2405P-3WR2	3W	18-36 (24VDC)	±5V/±300mA	3000VDC (DIP)	CE RoHS
WRE2412P-3WR2			±12V/±125mA		
WRE2415P-3WR2			±15V/±100mA		
WRF2403P-3WR2			3.3V/909mA		
WRF2405P-3WR2			5V/600mA		
WRF2412P-3WR2			12V/250mA		
WRF2415P-3WR2			15V/200mA		
WRF2424P-3WR2			24V/125mA		

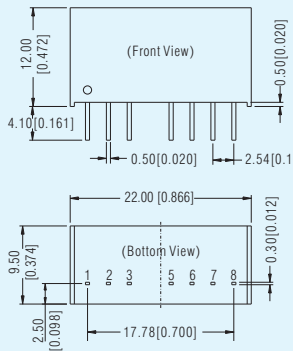
Product Program 2:1 Input series

Model Number	Power	Input Voltage (Nominal)	Output Voltage/Current (Vo/Io)	Isolation (Package)	Certification
WRE4803P-3WR2	3W	36-75 (48VDC)	±3.3V/±454mA	3000VDC (DIP)	CE RoHS
WRE4805P-3WR2			±5V/±300mA		
WRE4812P-3WR2			±12V/±125mA		
WRE4815P-3WR2			±15V/±100mA		
WRF4803P-3WR2			3.3V/909mA		
WRF4805P-3WR2			5V/600mA		
WRF4812P-3WR2			12V/250mA		
WRF4815P-3WR2			15V/200mA		

Note: 1. Series with suffix "P" are standard DIP24 packaged with plastic casing and detailed dimension please refer to illustration;
2. If the application requires higher performance for EMC, our matching EMC auxiliary devices such as FC-AX3D, FC-B02D, FI-B03D and FT-BX1D are available. For more information, please contact our sales department.

Package Dimension

WRE/F_S-3WR2 Series LxWxH: 22.00x9.50x12.00(mm)



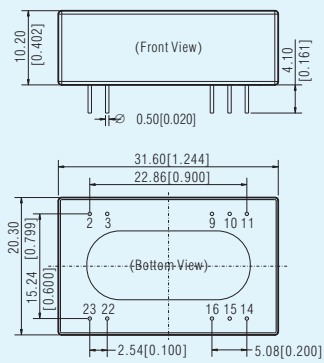
Pin-Out

Pin	Single	Dual
1	GND	GND
2	Vin	Vin
3	Ctrl	Ctrl
5	NC	NC
6	+Vo	+Vo
7	0V	0V
8	CS	-Vo

NC: No connection.

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

WRE/F_P-3WR2 Series LxWxH: 31.60x20.30x10.20(mm)



Pin-Out

Pin	Single	Dual
2,3	GND	GND
9	NC	0V
10,15	NC	NC
11	NC	-Vo
14	+Vo	+Vo
16	0V	0V
22,23	Vin	Vin

NC: No connection.

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

• This catalog is for reference only, please visit our website for detailed datasheets: www.mornsun-power.com

3W 2:1wide input voltage, 4300VDC isolated & regulated output series (automotive) RoHS

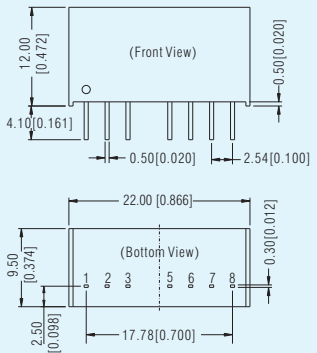
Features

- Suitable for automotive application
- Operating temperature: -40℃ to +105℃
- Efficiency up to 82%
- Isolation: 4300VDC
- Materials meet AEC-Q standards
- Internal surface mounted design
- International standard pin-out

Product Program

Model Number	Power	Input Voltage (Nominal)	Output Voltage/Current (Vo/Io)	Isolation	Certification
CWRF1215S-3W	3W	7-18 (12VDC)	15V/200mA	4300VDC	RoHS

Package Dimension LxWxH: 22.00x9.50x12.00(mm)



Pin-Out

Pin	Function
1	GND
2	Vin
3	NC
5	NC
6	+Vo
7	0V
8	CS

NC: No connection.

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

6W 4:1wide input voltage, 6000VDC high isolated & regulated output series (medical) CE RoHS

Features

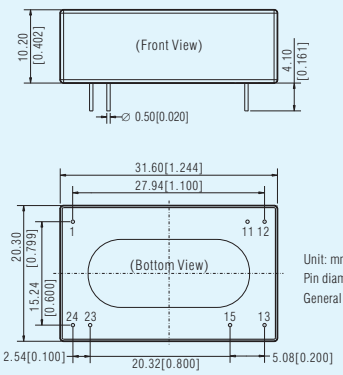
- EN60601-1 approval(meet 3rd edition medical certification, 2xMOPP)
- Specialized for medical and energy storage system.
- 4:1Ultra wide input voltage range
- Highe fficiency up to 85%
- Standby power consumption as low as 0.12W
- Isolation:6000VDC(enhanced)
- Operating temperature range:-40°C to +85°C
- International standard pin-out
- Input under-voltage,output over-voltage,over-current and short-circuit protections

Product Program

Model Number	Power	Input Voltage (Nominal)	Output Voltage/Current (Vo/Io)	Isolation	Certification
URH2405P-6WR3	6W	9-36 (24VDC)	5V/1200mA	6000VDC	CE RoHS
URH2406P-6WR3			6V/1000mA		
URH2409P-6WR3			9V/667mA		
URH2412P-6WR3			12V/500mA		
URH2415P-6WR3			15V/400mA		
URH2424P-6WR3			24V/250mA		
URH4805P-6WR3	6W	18-75 (48VDC)	5V/1200mA	6000VDC	CE RoHS
URH4809P-6WR3			9V/667mA		
URH4812P-6WR3			12V/500mA		
URH4815P-6WR3			15V/400mA		
URH4824P-6WR3			24V/250mA		

Note: If the application requires higher performance for EMC, our matching EMC auxiliary devices such as FC-AX3D, FC-B02D, FI-B03D and FT-BX1D are available. For more information, please contact our sales department.

Package Dimension LxWxH: 31.60x20.30x10.20(mm)



Pin-Out

Pin	Function
1	Vin
11	No pin
12	0V
13	+Vo
15	No pin
23	GND
24	GND

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

• This catalog is used to introduce our latest products, for more information, please contact our sales department

6W 2:1 wide input voltage, isolated & regulated output series

Features

- Suitable for industrial control, electric power, instrumentation and communication applications
- Operating temperature: -40℃ to +85℃/-40℃ to +105℃
- Standby power consumption as low as 0.12W
- International standard pin-out
- Meet CISPR22/EN55022 CLASS A
- Input under-voltage, output over-voltage, over-current and short-circuit protections
- IEC/EN/UL60950 approval,EN62368 approval(pending)

Product Program 2:1 Input series

Model Number	Power	Input Voltage (Nominal)	Output Voltage/ Current(Vo/Io)	Isolation (Package)	Certification
VRA1205YMD-6WR3	6W	9-18 (12VDC)	±5V/±600mA	1500VDC (DIP)	cULus CB CE RoHS
VRA1212YMD-6WR3			±12V/±250mA		
VRB1205YMD-6WR3			5V/1200mA		CE RoHS
VRB1212YMD-6WR3			12V/500mA		
VRA2405YMD-6WR3	6W	18-36 (24VDC)	±5V/±600mA	1500VDC (DIP)	cULus CB CE RoHS
VRA2412YMD-6WR3			±12V/±250mA		
VRA2415YMD-6WR3			±15V/±200mA		
VRB2403YMD-6WR3			3.3V/1500mA		CE RoHS
VRB2405YMD-6WR3			5V/1200mA		
VRB2409YMD-6WR3			9V/667mA		RoHS
VRB2412YMD-6WR3			12V/500mA		CE RoHS
VRB2415YMD-6WR3			15V/400mA		
VRB2424YMD-6WR3			24V/250mA		
VRB4803YMD-6WR3	6W	36-75 (48VDC)	3.3V/1500mA	1500VDC (DIP)	RoHS
VRB4805YMD-6WR3			5V/1200mA		
VRB4812YMD-6WR3			12V/500mA		
VRB4815YMD-6WR3			15V/400mA		
VRB4824YMD-6WR3			24V/250mA		
VRA0505ZP-6WR3	6W	4.5-9 (5VDC)	±5V/±600mA	1500VDC (DIP)	RoHS
VRA0512ZP-6WR3			±12V/±250mA		
VRA0515ZP-6WR3			±15V/±200mA		
VRA0524ZP-6WR3			±24V/±125mA		
VRB0505ZP-6WR3			5V/1200mA		
VRB0512ZP-6WR3			12V/500mA		
VRB0515ZP-6WR3			15V/400mA		
VRB0524ZP-6WR3			24V/250mA		
VRA1205ZP-6WR3	6W	9-18 (12VDC)	±5V/±600mA	1500VDC (DIP)	CE RoHS
VRA1212ZP-6WR3			±12V/±250mA		
VRA1215ZP-6WR3			±15V/±200mA		
VRA1224ZP-6WR3			±24V/±125mA		
VRB1203ZP-6WR3			3.3V/1500mA		
VRB1205ZP-6WR3			5V/1200mA		
VRB1212ZP-6WR3			12V/500mA		
VRB1215ZP-6WR3			15V/400mA		
VRB1224ZP-6WR3			24V/250mA		
VRA2405ZP-6WR3	6W	18-36 (24VDC)	±5V/±600mA	1500VDC (DIP)	CE RoHS
VRA2412ZP-6WR3			±12V/±250mA		
VRA2415ZP-6WR3			±15V/±200mA		
VRA2424ZP-6WR3			±24V/±125mA		
VRB2403ZP-6WR3			3.3V/1500mA		
VRB2405ZP-6WR3			5V/1200mA		
VRB2412ZP-6WR3			12V/500mA		
VRB2415ZP-6WR3			15V/400mA		
VRB2424ZP-6WR3			24V/250mA		
VRA4805ZP-6WR3	6W	36-75 (48VDC)	±5V/±600mA	1500VDC (DIP)	CE RoHS
VRA4812ZP-6WR3			±12V/±250mA		
VRA4815ZP-6WR3			±15V/±200mA		
VRA4824ZP-6WR3			±24V/±125mA		
VRB4803ZP-6WR3			3.3V/1500mA		
VRB4805ZP-6WR3			5V/1200mA		
VRB4812ZP-6WR3			12V/500mA		
VRB4815ZP-6WR3			15V/400mA		
VRB4824ZP-6WR3			24V/250mA		
VRB1203S-6WR3*	6W	9-18 (12VDC)	3.3V/1350mA	1600VDC (SIP)	CE RoHS
VRB1205S-6WR3*			5V/1200mA		
VRB1209S-6WR3*			9V/667mA		
VRB1212S-6WR3*			12V/500mA		
VRB1215S-6WR3*			15V/400mA		
VRB1224S-6WR3*			24V/250mA		
VRB2403S-6WR3*	6W	18-36 (24VDC)	3.3V/1350mA	1600VDC (SIP)	CE RoHS
VRB2405S-6WR3*			5V/1200mA		
VRB2409S-6WR3*			9V/667mA		

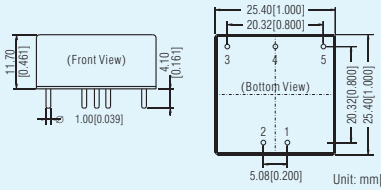
Product Program 2:1 Input series

Model Number	Power	Input Voltage (Nominal)	Output Voltage/ Current(Vo/Io)	Isolation (Package)	Certification
VRB2412S-6WR3*	6W	18-36 (24VDC)	12V/500mA	1600VDC (SIP)	CE RoHS
VRB2415S-6WR3*			15V/400mA		
VRB2424S-6WR3*			24V/250mA		

Note: 1. Series with suffix "ZP" are standard DIP24 packaged with aluminum alloy casing, with suffix "YMD" are 1*1 packaged with aluminum alloy casing. And detailed dimension please refer to illustration;
2. If the application requires higher performance for EMC, our matching EMC auxiliary devices such as FC-AX3D, FC-B02D, FI-B03D and FT-BX1D are available. For more information, please contact our sales department.
3.Products marked with " * " feature -40°C to +105°C operating temperature.

Package Dimension

VRA/B_YMD-6WR3 Series LxWxH: 25.40x25.40x11.70(mm)

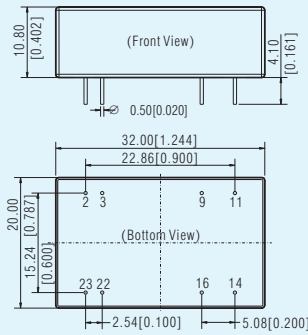


Pin-Out

Pin	Single	Dual
1	GND	GND
2	Vin	Vin
3	+Vo	+Vo
4	No Pin	0V
5	0V	-Vo

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

VRA/B_ZP-6WR3 Series LxWxH: 32.00x20.00x10.80(mm)



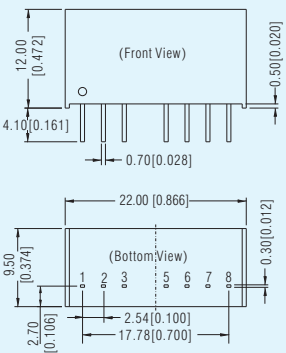
Pin-Out

Pin	Single	Dual
2,3	GND	GND
9	No Pin	0V
11	NC	-Vo
14	+Vo	+Vo
16	0V	0V
22,23	Vin	Vin

NC: No connection.

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

VRB_S-6WR3 Series LxWxH: 22.00x9.50x12.00(mm)



Pin-Out

Pin	Function
1	GND
2	Vin
3	Ctrl
5	NC
6	+Vo
7	0V
8	CS

NC: No connection.

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

- This catalog is for reference only, please visit our website for detailed datasheets: www.mornsun-power.com

6W ultra-thin wide input voltage, isolated&regulated SMD/DIP DC/DC converter

RoHS

Features

- Suitable for industrial control, electric power, instrumentation and communication applications
- Operating temperature: -40℃ to +85℃
- Isolation: 500VAC/1500VDC
- Standby power consumption as low as 0.12W
- Efficiency up to 86%
- Input under-voltage, output over-voltage, over-current and short-circuit protections
- DIP/SMD package available

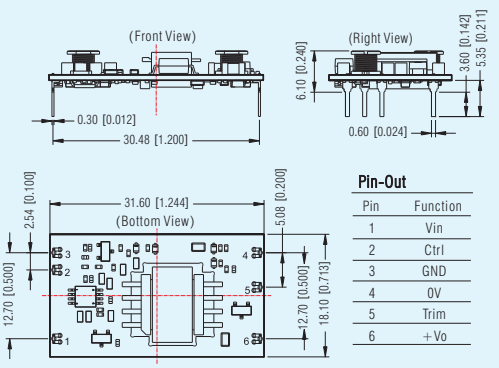
Product Program 2:1 Input series

Model Number	Power	Input Voltage (Nominal)	Output Voltage/ Current(Vo/Io)	Isolation (Package)	Certification
VRB1205J(M)D/T-6W	6W	9-18 (12VDC)	5V/1200mA	1500VDC (DIP/SMD)	RoHS
VRB1212J(M)D/T-6W			12V/500mA		
VRB1215J(M)D/T-6W			15V/400mA		
VRB2403J(M)D/T-6W		18-36 (24VDC)	3.3V/1500mA		
VRB2405J(M)D/T-6W			5V/1200mA		
VRB2412J(M)D/T-6W			12V/500mA		
VRB2415J(M)D/T-6W			15V/400mA		

Note:
1.VRB_J(M)D/T-6W includes 4 types: VRB_JD-6W (DIP package without shell), VRB_JMD-6W(DIP package with shell) ,VRB_JT-6W (SMD package without shell) and VRB_JT-6W(SMD package without shell)
2.Once input voltage exceeds the limit, it may cause irreversible damage
3.The above efficiency value is tested in the case of nominal input voltage and rated output load

Package Dimension

VRB_JD-6W (Open frame, DIP package) LxWxH: 31.60x18.10x6.10(mm)

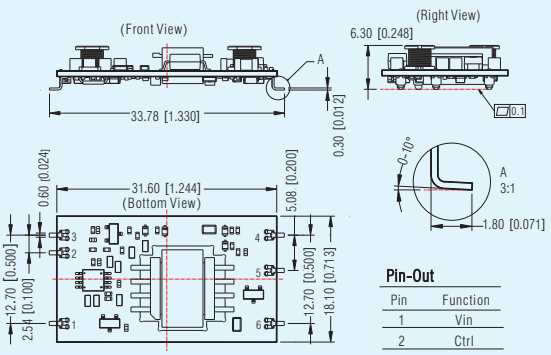


Pin-Out

Pin	Function
1	Vin
2	Ctrl
3	GND
4	0V
5	Trim
6	+Vo

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

VRB_JT-6W (Open frame, SMD package) LxWxH: 31.60x18.10x6.30(mm)

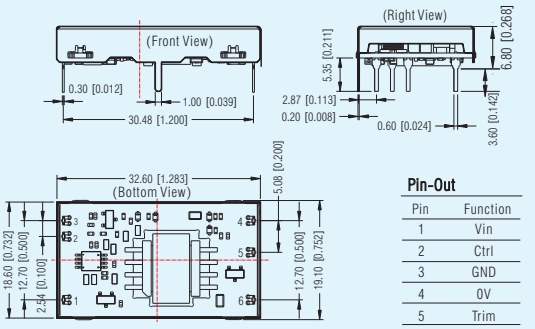


Pin-Out

Pin	Function
1	Vin
2	Ctrl
3	GND
4	0V
5	Trim
6	+Vo

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

VRB_JMD-6W (DIP package with shell) LxWxH: 32.60x19.10x6.80(mm)

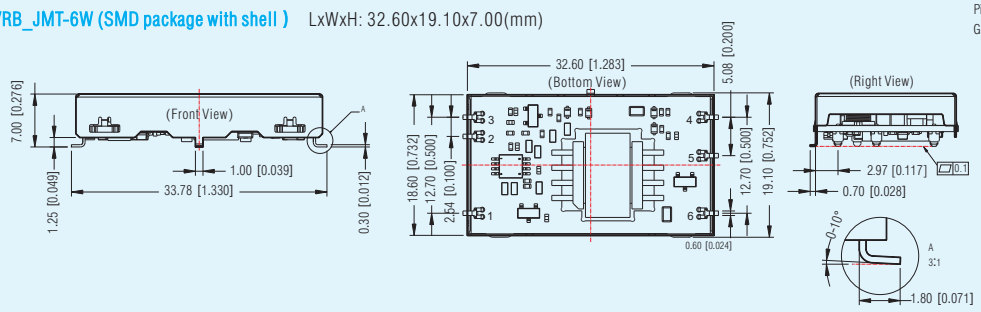


Pin-Out

Pin	Function
1	Vin
2	Ctrl
3	GND
4	0V
5	Trim
6	+Vo

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

VRB_JMT-6W (SMD package with shell) LxWxH: 32.60x19.10x7.00(mm)



Pin-Out

Pin	Function
1	Vin
2	Ctrl
3	GND
4	0V
5	Trim
6	+Vo

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

• This catalog is used to introduce our latest products, for more information, please contact our sales department

6W 4:1 wide input voltage, isolated & regulated output series

Features

- Suitable for industrial control, electric power, instrumentation and communication applications
- Operating temperature: -40℃ to +85℃/-40℃ to +105℃
- Standby power consumption as low as 0.12W
- International standard pin-out
- Meet CISPR22/EN55022 CLASS A
- Input under-voltage, output over-voltage, over-current and short-circuit protections
- IEC/EN/UL60950 approval

A2S Chassis Mounting

A4S DIN-Rail Mounting

Product Program 4:1 Input series

Model Number	Power	Input Voltage (Nominal)	Output Voltage/ Current(Vo/Io)	Isolation (Package)	Certification
URA2405YMD-6WR3	6W	9-36 (24VDC)	±5V/±600mA	1500VDC (DIP)	
URA2412YMD-6WR3			±12V/±250mA		
URA2415YMD-6WR3			±15V/±200mA		
URA2424YMD-6WR3			±24V/±125mA		
URB2403YMD-6WR3			3.3V/1500mA		
URB2405YMD-6WR3			5V/1200mA		
URB2409YMD-6WR3			9V/667mA		
URB2412YMD-6WR3			12V/500mA		
URB2415YMD-6WR3			15V/400mA		
URB2424YMD-6WR3			24V/250mA		
URA4805YMD-6WR3	6W	18-75 (48VDC)	±5V/±600mA	1500VDC (DIP)	
URA4812YMD-6WR3			±12V/±250mA		
URA4815YMD-6WR3			±15V/±200mA		
URB4803YMD-6WR3			3.3V/1500mA		
URB4805YMD-6WR3			5V/1200mA		
URB4812YMD-6WR3			12V/500mA		
URB4815YMD-6WR3			15V/400mA		
URB4824YMD-6WR3			24V/250mA		
URA2405ZP-6WR3	6W	9-36 (24VDC)	±5V/±600mA	1500VDC (DIP)	
URA2409ZP-6WR3			± 9V/±333mA		
URA2412ZP-6WR3			±12V/±250mA		
URA2415ZP-6WR3			±15V/±200mA		
URA2424ZP-6WR3			±24V/±125mA		
URB2403ZP-6WR3			3.3V/1500mA		
URB2405ZP-6WR3			5V/1200mA		
URB2409ZP-6WR3			9V/667mA		
URB2412ZP-6WR3			12V/500mA		
URB2415ZP-6WR3			15V/400mA		
URB2424ZP-6WR3			24V/250mA		
URA4805ZP-6WR3	6W	18-75 (48VDC)	±5V/±600mA	1500VDC (DIP)	
URA4812ZP-6WR3			±12V/±250mA		
URA4815ZP-6WR3			±15V/±200mA		
URB4803ZP-6WR3			3.3V/1500mA		
URB4805ZP-6WR3			5V/1200mA		
URB4809ZP-6WR3			9V/667mA		
URB4812ZP-6WR3			12V/500mA		
URB4815ZP-6WR3			15V/400mA		
URB4824ZP-6WR3			24V/250mA		
URE2405P-6WR3	6W	9-36 (24VDC)	±5V/±600mA	3000VDC (DIP)	
URE2412P-6WR3			±12V/±250mA		
URE2415P-6WR3			±15V/±200mA		
URF2403P-6WR3			3.3V/1500mA		
URF2405P-6WR3			5V/1200mA		
URF2409P-6WR3			9V/667mA		
URF2412P-6WR3			12V/500mA		
URF2415P-6WR3			15V/400mA		
URF2424P-6WR3			24V/250mA		
URF4803P-6WR3	6W	18-75 (48VDC)	3.3V/1500mA	3000VDC (DIP)	
URF4805P-6WR3			5V/1200mA		
URF4812P-6WR3			12V/500mA		
URF4815P-6WR3			15V/400mA		
URF4824P-6WR3			24V/250mA		

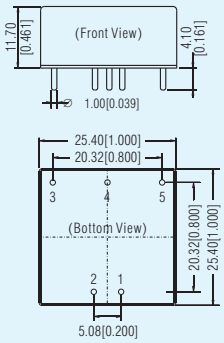
Note: 1. Series with suffix"P" are standard DIP24 packaged with plastic casing, with suffix "ZP" are standard DIP24 packaged with aluminum alloy casing, with suffix "YMD" are 1*1 packaged with aluminum alloy casing. And detailed dimension please refer to illustration;
2. If the application requires higher performance for EMC, our matching EMC auxiliary devices such as FC-AX3D, FC-B02D, FI-B03D and FT-BX1D are available. For more information, please contact our sales department.
3.Products marked with " * " feature -40℃ to +105℃ operating temperature

Product Program 4:1 Input series

Model Number	Power	Input Voltage (Nominal)	Output Voltage/ Current(Vo/Io)	Isolation (Package)	Certification
URB2403S-6WR3*	6W	9-36 (24VDC)	3.3V/1350mA	1600VDC (SIP)	
URB2405S-6WR3*			5V/1200mA		
URB2409S-6WR3*			9V/667mA		
URB2412S-6WR3*			12V/500mA		
URB2415S-6WR3*			15V/400mA		
URB2424S-6WR3*			24V/250mA		

Package Dimension

URA/B_YMD-6WR3 Series LxWxH: 25.40x25.40x11.70(mm)

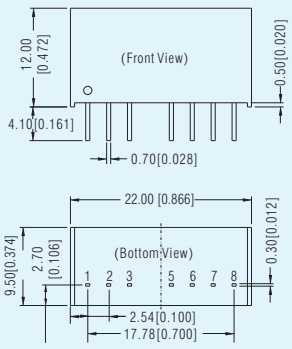


Pin-Out

Pin	Single	Dual
1	GND	GND
2	Vin	Vin
3	+Vo	+Vo
4	No Pin	0V
5	0V	-Vo

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

URB-S-6WR3 Series LxWxH: 22.00x9.50x12.00(mm)



Pin-Out

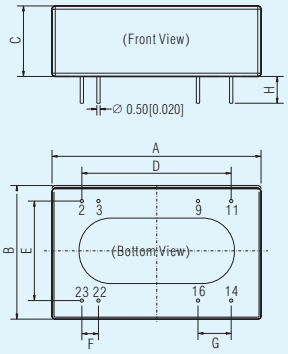
Pin	Function
1	GND
2	Vin
3	Ctrl
5	NC
6	+Vo
7	0V
8	NC

NC: No connection.

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

• This catalog is for reference only, please visit our website for detailed datasheets: www.mornsun-power.com

URA/B_ZP–6WR3, URE/F_P–6WR3 Series



Pin-Out

	URA/B_ZP-6WR3	
Pin	Single	Dual
2,3	GND	GND
9	No Pin	0V
11	NC	-Vo
14	+Vo	+Vo
16	0V	0V
22,23	Vin	Vin

NC: No connection.

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

Outline & Dimensions

NO.	URA/B_ZP–6WR3	URE/F_P–6WR3
A	32.00	31.60
B	20.00	20.30
C	10.80	10.20
D	22.86	22.86
E	15.24	15.24
F	2.54	2.54
G	5.08	5.08
H	4.10	4.10

Pin-Out

	URE_P-6WR3	URF_P-6WR3
Pin	Function	Function
2,3	GND	GND
9	0V	No Pin
11	-Vo	NC
14	+Vo	+Vo
16	0V	0V
22,23	Vin	Vin

DC/DC converter specialized for super-capacitor and lithium battery-powered

RoHS

Features

- Suitable for super-capacitor and lithium battery-powered applications
- Constant voltage & current output
- Adjustable output voltage
- Internal SMD construction
- Remote ON/OFF
- Output short-circuit protections

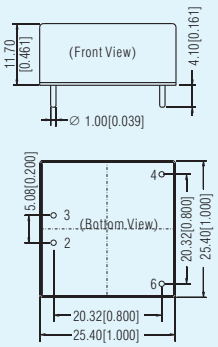
Product Program

Series	Input Voltage (VDC) Nominal (Range)	Output		Effi(%) (typ)	Certification
		Output Voltage (VDC)	Constant Current (mA)		
URF2428LP-700 series	9-36 (24VDC)	0-28.5	700	88	RoHS
URB24A5YMD-1000 series	9-36 (24VDC)	0-5.06	1000	78	

Note: Special input, output and package customization is acceptable.

Package Dimension

URB24A5YMD-1000 Series LxWxH: 25.40x25.40x11.70(mm)

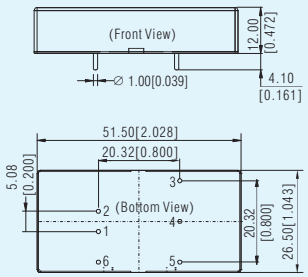


Pin-Out

Pin	Function
2	GND
3	Vin
4	+Vo
6	0V

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

URF2428LP–700 Series LxWxH: 51.50x26.50x12.00(mm)



Pin-Out

Pin	Function
1	GND
2	Vin
3	+Vo
4	Trim
5	0V
6	Ctrl

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

10W 2:1/4:1wide input voltage, isolated & regulated output series

A2S Chassis Mounting

A4S DIN-Rail Mounting

Features

- Suitable for industrial control, electric power, instrumentation and communication applications
- Operating temperature: -40℃ to +85℃
- Standby power consumption as low as 0.11W
- International standard pin-out
- Meet CISPR22/EN55022 CLASS A
- Input under-voltage, output over-voltage, over-current and short-circuit protections
- IEC/UL/EN60950 approval

Product Program 4:1 Input series

Model Number	Power	Input Voltage (Nominal)	Output Voltage/Current (Vo/Io)	Isolation (Package)	Certification
URA2405YMD-10WR3	10W	9-36 (24VDC)	±5V/±1000mA	1500VDC (DIP)	cULus CB CE RoHS
URA2409YMD-10WR3			±9V/±555mA		
URA2412YMD-10WR3			±12V/±416mA		
URA2415YMD-10WR3			±15V/±333mA		
URA2424YMD-10WR3			±24V/±208mA		
URB2403YMD-10WR3			3.3V/2400mA		
URB2405YMD-10WR3			5V/2000mA		
URB2409YMD-10WR3			9V/1111mA		
URB2412YMD-10WR3			12V/833mA		
URB2415YMD-10WR3			15V/667mA		
URB2424YMD-10WR3			24V/416mA		
URA4805YMD-10WR3	10W	18-75 (48VDC)	±5V/±1000mA	1500VDC (DIP)	cULus CB CE RoHS
URA4812YMD-10WR3			±12V/±416mA		
URA4815YMD-10WR3			±15V/±333mA		
URA4824YMD-10WR3			±24V/±208mA		
URB4803YMD-10WR3			3.3V/2400mA		
URB4805YMD-10WR3			5V/2000mA		
URB4812YMD-10WR3			12V/833mA		
URB4815YMD-10WR3			15V/667mA		
URB4824YMD-10WR3			24V/416mA		
URE2405LP-10WR3	10W	9-36 (24VDC)	±5V/±1000mA	3000VDC (DIP)	cULus CB CE RoHS
URE2412LP-10WR3			±12V/±416mA		
URE2415LP-10WR3			±15V/±333mA		
URF2403LP-10WR3			3.3V/2400mA		
URF2405LP-10WR3			5V/2000mA		
URF2409LP-10WR3			9V/1111mA		
URF2412LP-10WR3			12V/833mA		
URF2415LP-10WR3			15V/667mA		
URF2424LP-10WR3			24V/416mA		
URE4805LP-10WR3	10W	18-75 (48VDC)	±5V/±1000mA	3000VDC (DIP)	cULus CB CE RoHS
URE4812LP-10WR3			±12V/±416mA		
URE4815LP-10WR3			±15V/±333mA		
URF4803LP-10WR3			3.3V/2400mA		
URF4805LP-10WR3			5V/2000mA		
URF4812LP-10WR3			12V/833mA		
URF4815LP-10WR3			15V/667mA		
URF4824LP-10WR3			24V/416mA		
URA2405ZP-10WR3	10W	9-36 (24VDC)	±5V/±1000mA	1500VDC (DIP)	RoHS
URA2412ZP-10WR3			±12V/±416mA		
URA2415ZP-10WR3			±15V/±333mA		
URB2403ZP-10WR3			3.3V/2400mA		
URB2412ZP-10WR3			12V/833mA		
URB2415ZP-10WR3			15V/667mA		
URB2424ZP-10WR3			24V/416mA		
URA4805ZP-10WR3	10W	18-75 (48VDC)	±5V/±1000mA	1500VDC (DIP)	RoHS
URA4812ZP-10WR3			±12V/±416mA		
URA4815ZP-10WR3			±15V/±333mA		
URB4803ZP-10WR3			3.3V/2400mA		
URB4805ZP-10WR3			5V/2000mA		
URB4812ZP-10WR3			12V/833mA		
URB4815ZP-10WR3			15V/667mA		
URB4824ZP-10WR3			24V/416mA		
URB2403S-10WR3*	10W	9-36 (24VDC)	3.3V/2400mA	1500VDC (SIP)	CE (pending) RoHS
URB2405S-10WR3*			5V/2000mA		
URB2409S-10WR3*			9V/1111mA		
URB2412S-10WR3*			12V/833mA		
URB2415S-10WR3*			15V/667mA		
URB2424S-10WR3*			24V/417mA		

Product Program 2:1 Input series

Model Number	Power	Input Voltage (Nominal)	Output Voltage/Current (Vo/Io)	Isolation (Package)	Certification
VRA0505YMD-10WR3	10W	4.5-9 (5VDC)	±5V/±1000mA	1500VDC (DIP)	RoHS
VRA0512YMD-10WR3			±12V/±417mA		
VRA0515YMD-10WR3			±15V/±334mA		
VRA0524YMD-10WR3			±24V/±209mA		
VRB0512YMD-10WR3			12V/834mA		
VRB0515YMD-10WR3			15V/667mA		
VRB0524YMD-10WR3			24V/417mA		
VRB1205YMD-10WR3	10W	9-18(12VDC)	5V/2000mA	1500VDC (DIP)	RoHS
VRB2405YMD-10WR3		18-36 (24VDC)	5V/2000mA		CE RoHS
VRB2412YMD-10WR3			12V/833mA		
VRB2415YMD-10WR3			15V/667mA		
VRB2424YMD-10WR3			24V/416mA		
VRB4803YMD-10WR3		36-75 (48VDC)	3.3V/2400mA		RoHS
VRB4805YMD-10WR3			5V/2000mA		
VRB4812YMD-10WR3			12V/833mA		
VRB4815YMD-10WR3			15V/667mA		
VRB4824YMD-10WR3			24V/416mA		
VRA1205ZP-10WR3	10W	9-18 (12VDC)	±5V/±1000mA	1500VDC (DIP)	RoHS
VRA1212ZP-10WR3			±12V/±416mA		
VRA1215ZP-10WR3			±15V/±333mA		
VRB1203ZP-10WR3			3.3V/2400mA		
VRB1205ZP-10WR3			5V/2000mA		
VRB1212ZP-10WR3			12V/833mA		
VRB1215ZP-10WR3			15V/667mA		
VRB1224ZP-10WR3			24V/416mA		
VRA2405ZP-10WR3	10W	18-36 (24VDC)	±5V/±1000mA	1500VDC (DIP)	
VRA2412ZP-10WR3			±12V/±416mA		
VRA2415ZP-10WR3			±15V/±333mA		
VRB2403ZP-10WR3			3.3V/2400mA		
VRB2405ZP-10WR3			5V/2000mA		
VRB2412ZP-10WR3			12V/833mA		
VRB2415ZP-10WR3			15V/667mA		
VRB2424ZP-10WR3			24V/416mA		
VRA4805ZP-10WR3	10W	36-75 (48VDC)	±5V/±1000mA	1500VDC (DIP)	
VRA4812ZP-10WR3			±12V/±416mA		
VRA4815ZP-10WR3			±15V/±333mA		
VRB4803ZP-10WR3			3.3V/2400mA		
VRB4805ZP-10WR3			5V/2000mA		
VRB4812ZP-10WR3			12V/833mA		
VRB4815ZP-10WR3			15V/667mA		
VRB4824ZP-10WR3			24V/416mA		
VRB1203S-10WR3	10W	9-18 (12VDC)	3.3V/2400mA	1500VDC (SIP)	CE (pending) RoHS
VRB1205S-10WR3			5V/2000mA		
VRB1209S-10WR3			9V/1111mA		
VRB1212S-10WR3			12V/833mA		
VRB1215S-10WR3			15V/667mA		
VRB1224S-10WR3			24V/417mA		
VRB2403S-10WR3	10W	18-36 (24VDC)	3.3V/2400mA	1500VDC (SIP)	
VRB2405S-10WR3			5V/2000mA		
VRB2409S-10WR3			9V/1111mA		
VRB2412S-10WR3			12V/833mA		
VRB2415S-10WR3			15V/667mA		
VRB2424S-10WR3			24V/417mA		

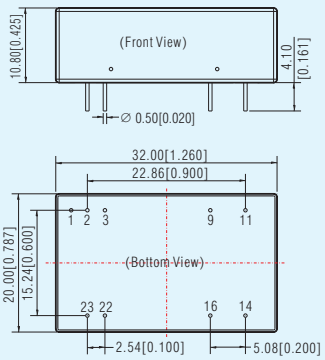
Note: 1. Chassis mounting and DIN-Rail mounting are available and please contact our sales department or refer to datasheet for details. Series have input reverse voltage protection;
2. Series with suffix "LP" are 2 * 1 packaged with plastic casing, with suffix "YMD" are 1*1 packaged with aluminum alloy casing. And detailed dimension please refer to illustration;
3. If the application requires higher performance for EMC, our matching EMC auxiliary devices such as FC-AX3D, FC-B02D, FI-B03D and FT-BX1D are available. For more information, please contact our sales department.
4.Products marked with " * " feature -40℃ to +105℃ operating temperature.

- This catalog is for reference only, please visit our website for detailed datasheets: www.mornsun-power.com

Package Dimension

VRA/B_ZP-10WR3 & URA/B_ZP-10WR3 Series

LxWxH: 32.00x20.00x10.80(mm)



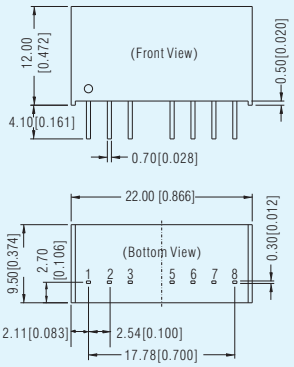
Pin-Out

Pin	Single	Dual
1	Ctrl	Ctrl
2,3	GND	GND
9	No Pin	0V
11	NC	-Vo
14	+Vo	+Vo
16	0V	0V
22,23	Vin	Vin

NC: No connection.

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

VRB-S-10WR3、URB-S-10WR3 Series LxWxH: 22.00x9.50x12.00(mm)



Pin-Out

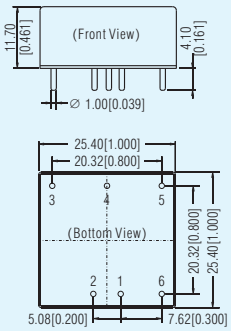
Pin	Function
1	GND
2	Vin
3	Ctrl
5	NC
6	+Vo
7	0V
8	NC

NC: No connection.

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

URA/B_YMD–10WR3, VRB_YMD-10WR3 Series

LxWxH: 25.40x25.40x11.70(mm)

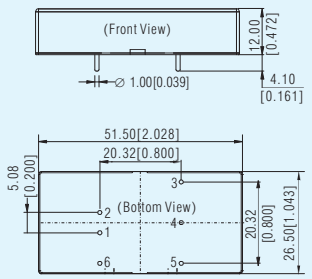


Pin-Out

Pin	Single	Dual
1	GND	GND
2	Vin	Vin
3	+Vo	+Vo
4	No Pin	0V
5	0V	-Vo
6	Ctrl	Ctrl

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

URE/F_LP–10WR3 Series LxWxH: 51.50x26.50x12.00(mm)



Pin-Out

Pin	Single	Dual
1	GND	GND
2	Vin	Vin
3	+Vo	+Vo
4	No Pin	0V
5	0V	-Vo
6	Ctrl	Ctrl

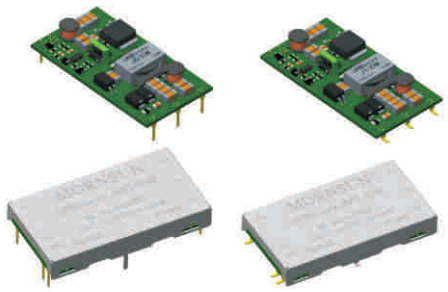
Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

10W ultra-thin wide input voltage, isolated&regulated SMD/DIP DC/DC converter

RoHS

Features

- 4:1 wide input voltage range
- Efficiency up to 88%
- Standby power consumption as low as 0.096W
- Isolation: 500VAC / 1500VDC
- Operating temperature: –40℃ to +85℃
- Input under-voltage, output over-voltage, over-current and short-circuit protections
- DIP/SMD package available



Product Program 4:1 Input series

Model Number	Power	Input Voltage (Nominal)	Output Voltage/ Current(Vo/Io)	Isolation (Package)	Certification
URB2405J(M)D/T-10W	10W	9-36 (24VDC)	5V/2000mA	1500VDC (DIP/SMD)	RoHS
URB2412J(M)D/T-10W			12V/833mA		
URB2415J(M)D/T-10W			15V/667mA		

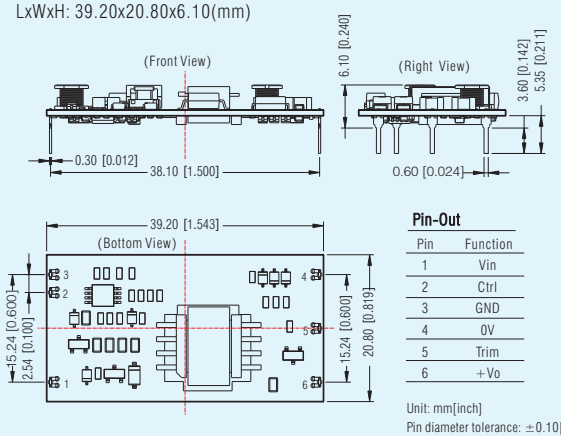
Note :

1. URBxxxxJ(M)D/T-10W includes 4 types: VRB_JD-6W(DIP package without shell), URBxxxxJMD-10W(DIP package with shell), URBxxxxJT-10W(SMD package without shell) and URBxxxxJMT-10W(SMD package with shell)
2. Once input voltage exceeds the limit, it may cause irreversible damage
3. The above efficiency value is tested in the case of nominal input voltage and rated output load

Package Dimension

URB_JD-10W (Open frame, DIP package)

LxWxH: 39.20x20.80x6.10(mm)

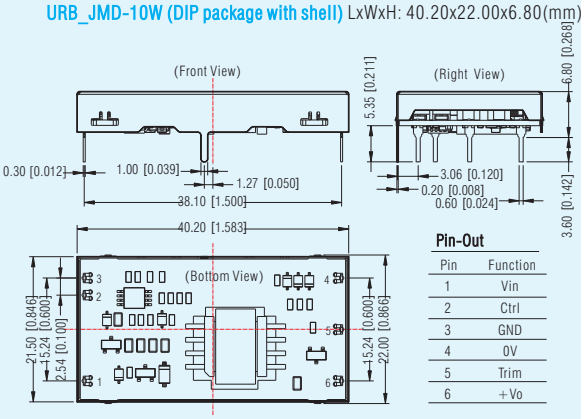


Pin-Out

Pin	Function
1	Vin
2	Ctrl
3	GND
4	0V
5	Trim
6	+Vo

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

URB_JMD-10W (DIP package with shell) LxWxH: 40.20x22.00x6.80(mm)



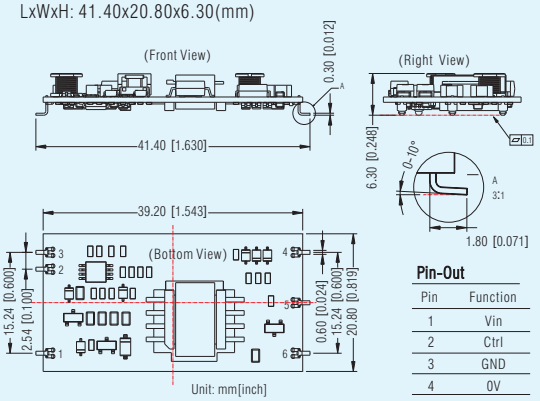
Pin-Out

Pin	Function
1	Vin
2	Ctrl
3	GND
4	0V
5	Trim
6	+Vo

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

URB_JT-10W (Open frame, SMD package)

LxWxH: 41.40x20.80x6.30(mm)

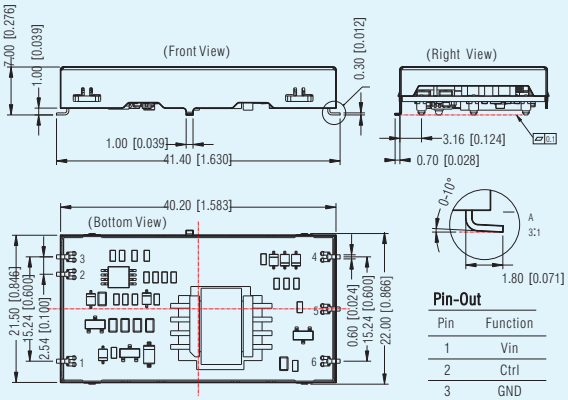


Pin-Out

Pin	Function
1	Vin
2	Ctrl
3	GND
4	0V
5	Trim
6	+Vo

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

URB_JMT-10W (SMD package with shell) LxWxH: 41.40x22.00x7.00(mm)



Pin-Out

Pin	Function
1	Vin
2	Ctrl
3	GND
4	0V
5	Trim
6	+Vo

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

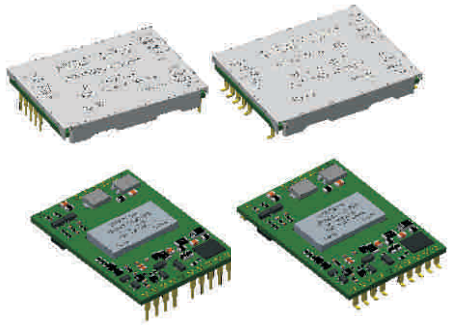
• This catalog is for reference only, please visit our website for detailed datasheets: www.mornsun-power.com

15W ultra-thin wide input voltage, isolated&regulated SMD/DIP DC/DC converter

RoHS

Features

- 4:1 wide input voltage range
- Efficiency up to 89%
- Isolation: 1500VDC
- Operating temperature: –40℃ to +85℃
- Input under-voltage, output over-voltage, over-current and short-circuit protections
- DIP/SMD package available



Product Program

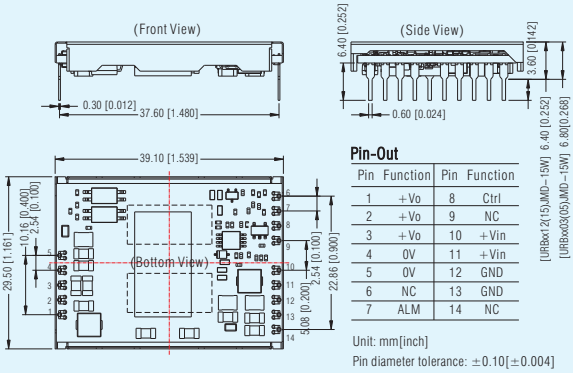
Model Number	Power	Input Voltage (Nominal)	Output Voltage/ Current(Vo/Io)	Isolation (VDC)	Certification
URB2403J(M)D/T-15W	15W	9-36(24VDC)	3.3V/4500mA	1500	RoHS
URB2405J(M)D/T-15W		9-36(24VDC)	5V/3000mA		
URB2412J(M)D/T-15W		9-36(24VDC)	12V/1250mA		
URB2415J(M)D/T-15W		9-36(24VDC)	15V/1000mA		
URB4803J(M)D/T-15W		18-75(24VDC)	3.3V/4500mA		
URB4805J(M)D/T-15W		18-75(24VDC)	5V/3000mA		
URB4812J(M)D/T-15W		18-75(24VDC)	12V/1250mA		
URB4815J(M)D/T-15W		18-75(24VDC)	15V/1000mA		

Note :

1. URBxxxxJ(M)D/T-15W includes 4 types: VRB_JD-15W(DIP package without shell), URBxxxxJMD-15W(DIP package with shell), URBxxxxJT-15W(SMD package without shell) and URBxxxxJMT-15W(SMD package with shell)
2. Once input voltage exceeds the limit, it may cause irreversible damage
3. The above efficiency value is tested in the case of nominal input voltage and rated output load

Package Dimension

URB_JMD-15W (DIP package with shell) LxWxH: 39.10x29.50x10.40(mm)

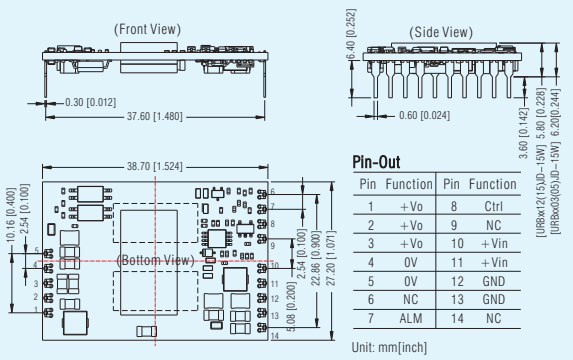


Pin-Out

Pin	Function	Pin	Function
1	+Vo	8	Ctrl
2	+Vo	9	NC
3	+Vo	10	+Vin
4	0V	11	+Vin
5	0V	12	GND
6	NC	13	GND
7	ALM	14	NC

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]
The layout of devices is for reference only, specific please in kind prevail

URB_JD-15W (Open frame, DIP package) LxWxH: 38.70x27.20x9.80(mm)

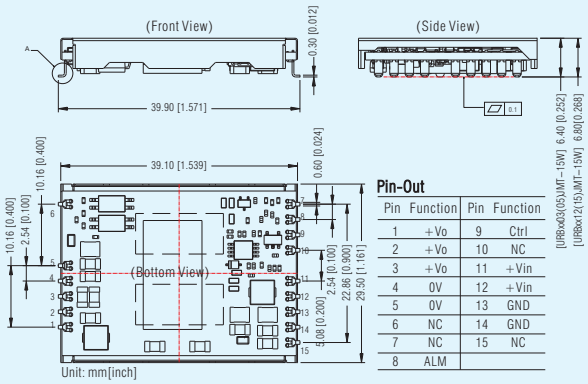


Pin-Out

Pin	Function	Pin	Function
1	+Vo	8	Ctrl
2	+Vo	9	NC
3	+Vo	10	+Vin
4	0V	11	+Vin
5	0V	12	GND
6	NC	13	GND
7	ALM	14	NC

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]
The layout of devices is for reference only, specific please in kind prevail

URB_JMT-15W (SMD package with shell) LxWxH: 39.10x29.50x6.80(mm)

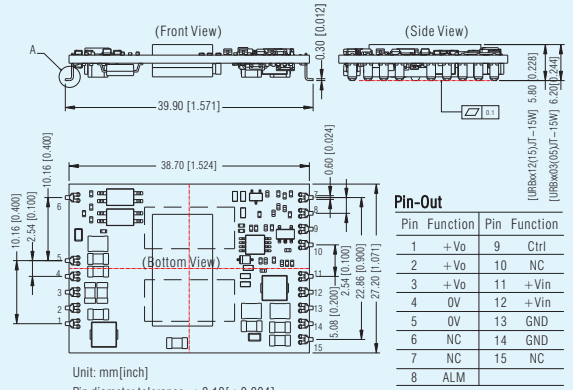


Pin-Out

Pin	Function	Pin	Function
1	+Vo	9	Ctrl
2	+Vo	10	NC
3	+Vo	11	+Vin
4	0V	12	+Vin
5	0V	13	GND
6	NC	14	GND
7	NC	15	NC
8	ALM		

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]
The layout of devices is for reference only,specific please in kind prevail

URB_JT-15W (Open frame, SMD package) LxWxH: 38.70x27.20x6.20(mm)



Pin-Out

Pin	Function	Pin	Function
1	+Vo	9	Ctrl
2	+Vo	10	NC
3	+Vo	11	+Vin
4	0V	12	+Vin
5	0V	13	GND
6	NC	14	GND
7	NC	15	NC
8	ALM		

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]
The layout of devices is for reference only,specific please in kind prevail

• This catalog is used to introduce our latest products, for more information, please contact our sales department

15-20W 2:1/4:1wide input voltage, isolated & regulated output series

Features

- Suitable for DCS, battery-powered device, communication, distributed power system, D/A hybrid system, RTU and industrial robot system applications
- Operating temperature: -40℃ to +85℃/-40℃ to +105℃
- Standby power consumption as low as 0.15W
- International standard pin-out
- Input under-voltage, output over-voltage, over-current and short-circuit protections
- IEC/EN/UL60950 approval

"H"Horizontal package with heat sink

A2S Chassis Mounting

A4S DIN-Rail Mounting

Product Program 4:1 Input series

Model Number	Power	Input Voltage (Nominal)	Output Voltage/ Current(Vo/Io)	Isolation (Package)	Certification
URA2405LD-20WR3	20W	9-36 (24VDC)	±5V/±2000mA	1500VDC (DIP)	cULus CB CE RoHS
URA2409LD-20WR3			±9V/±1111mA		
URA2412LD-20WR3			±12V/±834mA		
URA2415LD-20WR3			±15V/±667mA		
URB2403LD-20WR3			3.3V/5000mA		
URB2405LD-20WR3			5V/4000mA		
URB2409LD-20WR3			9V/2222mA		
URB2412LD-20WR3			12V/1667mA		
URB2415LD-20WR3			15V/1333mA		
URB2424LD-20WR3			24V/834mA		
URA4805LD-20WR3	20W	18-75 (48VDC)	±5V/±2000mA	1500VDC (DIP)	cULus CB CE RoHS
URA4812LD-20WR3			±12V/±834mA		
URA4815LD-20WR3			±15V/±667mA		
URB4803LD-20WR3			3.3V/5000mA		
URB4805LD-20WR3			5V/4000mA		
URB4809LD-20WR3			9V/2222mA		
URB4812LD-20WR3			12V/1667mA		
URB4815LD-20WR3			15V/1333mA		
URB4824LD-20WR3			24V/834mA		
URF2403LP-20WR3	20W	9-36 (24VDC)	3.3V/5000mA	3000VDC (DIP)	cULus CB CE RoHS
URF2405LP-20WR3			5V/4000mA		
URF2409LP-20WR3			9V/2222mA		
URF2412LP-20WR3			12V/1667mA		
URF2415LP-20WR3			15V/1334mA		
URF2424LP-20WR3			24V/833mA		
URF4803LP-20WR3	20W	18-75 (48VDC)	3.3V/5000mA	3000VDC (DIP)	cULus CB CE RoHS
URF4805LP-20WR3			5V/4000mA		
URF4812LP-20WR3			12V/1667mA		
URF4815LP-20WR3			15V/1334mA		
URF4824LP-20WR3			24V/833mA		
URA2405YMD-15WR3*	15W	9-36 (24VDC)	±5V/±1500mA	1500VDC (DIP)	CE (Pending) RoHS
URA2412YMD-15WR3*			±12V/±625mA		
URA2415YMD-15WR3*			±15V/±500mA		
URA2424YMD-15WR3*			±24V/±312mA		
URA4805YMD-15WR3*		18-75 (48VDC)	±5V/±1500mA		
URA4812YMD-15WR3*			±12V/±625mA		
URA4815YMD-15WR3*			±15V/±500mA		
URA4824YMD-15WR3*			±24V/±312mA		
URB2403YMD-15WR3*	15W	9-36 (24VDC)	3.3V/4000mA	1500VDC (DIP)	cULus CE RoHS
URB2405YMD-15WR3*			5V/3000mA		
URB2412YMD-15WR3*			12V/1250mA		
URB2415YMD-15WR3*			15V/1000mA		
URB2424YMD-15WR3*			24V/625mA		
URB4803YMD-15WR3*		18-75 (48VDC)	3.3V/4000mA		
URB4805YMD-15WR3*			5V/3000mA		
URB4812YMD-15WR3*			12V/1250mA		
URB4815YMD-15WR3*			15V/1000mA		
URB4824YMD-15WR3*			24V/625mA		

Product Program 4:1 Input series

Model Number	Power	Input Voltage (Nominal)	Output Voltage/ Current(Vo/Io)	Isolation (Package)	Certification
URB2403YMD-20WR3*	20W	9-36 (24VDC)	3.3V/5000mA	1500VDC (DIP)	cULus CE RoHS
URB2405YMD-20WR3*			5V/4000mA		
URB2412YMD-20WR3*			12V/1667mA		
URB2415YMD-20WR3*			15V/1334mA		
URB2424YMD-20WR3*			24V/833mA		
URB4803YMD-20WR3*		18-75 (48VDC)	3.3V/5000mA		
URB4805YMD-20WR3*			5V/4000mA		
URB4812YMD-20WR3*			12V/1667mA		
URB4815YMD-20WR3*			15V/1334mA		
URB4824YMD-20WR3*			24V/833mA		
URA2405YMD-20WR3*	20W	9-36 (24VDC)	±5V/±2000mA	1500VDC (DIP)	CE (Pending) RoHS
URA2412YMD-20WR3*			±12V/±833mA		
URA2415YMD-20WR3*			±15V/±667mA		
URA2424YMD-20WR3*			±24V/±417mA		
URA4805YMD-20WR3*		18-75 (48VDC)	±5V/±2000mA		
URA4812YMD-20WR3*			±12V/±833mA		
URA4815YMD-20WR3*			±15V/±667mA		
URA4824YMD-20WR3*			±24V/±417mA		

Product Program 2:1 Input series

Model Number	Power	Input Voltage (Nominal)	Output Voltage/ Current(Vo/Io)	Isolation (Package)	Certification
VRB2405LD-15WR3	15W	18-36 (24VDC)	5V/3000mA	1500VDC (DIP)	cULus CB CE RoHS
VRB2412LD-15WR3			12V/1250mA		
VRB2415LD-15WR3			15V/1000mA		
VRB2424LD-15WR3			24V/625mA		
VRB4803LD-15WR3		36-75 (48VDC)	3.3V/5000mA		RoHS
VRB4805LD-15WR3			5V/3000mA		
VRB4812LD-15WR3			12V/1250mA		cULus CB CE RoHS
VRB4815LD-15WR3			15V/1000mA		
VRB4824LD-15WR3			24V/625mA		
VRB121DLD-20WR3	20W	9-18(12VDC)	110V/182mA	1500VDC (DIP)	RoHS
VRA2405LD-20WR3		18-36 (24VDC)	±5V/±2000mA		CE RoHS
VRA2409LD-20WR3			±9V/±1111mA		
VRA2412LD-20WR3			±12V/±834mA		
VRA2415LD-20WR3			±15V/±667mA		
VRA2424LD-20WR3			±24V/±417mA		RoHS
VRB2403LD-20WR3			3.3V/5000mA		CE RoHS
VRB2405LD-20WR3			5V/4000mA		
VRB2409LD-20WR3			9V/2222mA		
VRB2412LD-20WR3			12V/1667mA		
VRB2415LD-20WR3			15V/1333mA		
VRB2424LD-20WR3			24V/834mA		
VRA4805LD-20WR3	20W	36-75 (48VDC)	±5V/±2000mA	1500VDC (DIP)	CE RoHS
VRA4812LD-20WR3			±12V/±834mA		
VRA4815LD-20WR3			±15V/±667mA		
VRB4803LD-20WR3			3.3V/5000mA		
VRB4805LD-20WR3			5V/4000mA		
VRB4809LD-20WR3			9V/2222mA		
VRB4812LD-20WR3			12V/1667mA		
VRB4815LD-20WR3			15V/1333mA		
VRB4824LD-20WR3			24V/834mA		

- This catalog is for reference only, please visit our website for detailed datasheets: www.mornsun-power.com

Product Program 2:1 Input series

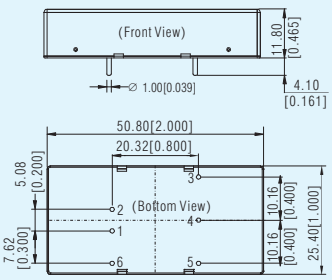
Model Number	Power	Input Voltage (Nominal)	Output Voltage/ Current(Vo/Io)	Isolation (Package)	Certification
VRB1203YMD-15WR3*	15W	9-18 (12VDC)	3.3V/4000mA	1500VDC (DIP)	CE (Pending) RoHS
VRB1205YMD-15WR3*			5V/3000mA		
VRB1212YMD-15WR3*			12V/1250mA		
VRB1215YMD-15WR3*			15V/1000mA		
VRB1224YMD-15WR3*			24V/625mA		
VRB2403YMD-15WR3*		18-36 (24VDC)	3.3V/4000mA		
VRB2405YMD-15WR3*			5V/3000mA		
VRB2412YMD-15WR3*			12V/1250mA		
VRB2415YMD-15WR3*			15V/1000mA		
VRB2424YMD-15WR3*			24V/625mA		
VRB4803YMD-15WR3*		36-75 (48VDC)	3.3V/4000mA		
VRB4805YMD-15WR3*			5V/3000mA		
VRB4812YMD-15WR3*			12V/1250mA		
VRB4815YMD-15WR3*			15V/1000mA		
VRB4824YMD-15WR3*			24V/625mA		
VRB1203YMD-20WR3*	20W	9-18 (12VDC)	3.3V/5000mA	1500VDC (DIP)	CE (Pending) RoHS
VRB1205YMD-20WR3*			5V/4000mA		
VRB1212YMD-20WR3*			12V/1667mA		
VRB1215YMD-20WR3*			15V/1333mA		
VRB1224YMD-20WR3*			24V/833mA		
VRB2403YMD-20WR3*		18-36 (24VDC)	3.3V/5000mA		
VRB2405YMD-20WR3*			5V/4000mA		
VRB2412YMD-20WR3*			12V/1667mA		
VRB2415YMD-20WR3*			15V/1333mA		
VRB2424YMD-20WR3*			24V/833mA		
VRB4803YMD-20WR3*		36-75 (48VDC)	3.3V/5000mA		
VRB4805YMD-20WR3*			5V/4000mA		
VRB4812YMD-20WR3*			12V/1667mA		
VRB4815YMD-20WR3*			15V/1333mA		
VRB4824YMD-20WR3*			24V/833mA		

Note: 1. Chassis mounting and DIN-Rail mounting are available and please contact our sales department or refer to datasheet for details. Series have input reverse voltage protection;
2. Series with suffix "LD" are 2*1 packaged with aluminum alloy casing, with suffix "LP" are 2*x1" packaged with plastic casing. And detailed dimension please refer to illustration;
3. If the application requires higher performance for EMC, our matching EMC auxiliary devices such as FC-AX3D, FC-B02D, FI-B03D and FT-BX1D are available. For more information, please contact our sales department.
4. Products marked with " * " feature -40℃ to +105℃ operating temperature

Package Dimension

VRB_LD-15WR3, VRA/B_LD-20WR3, URA/B_LD-20WR3 Series

LxWxH: 50.80x25.40x11.80(mm)



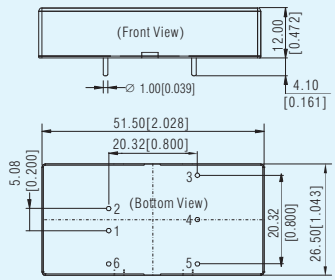
Pin-Out

Pin	Single	Dual
1	GND	GND
2	Vin	Vin
3	+Vo	+Vo
4	Trim	0V
5	0V	-Vo
6	Ctrl	Ctrl

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

URF_LP-20WR3 Series

LxWxH: 51.50x26.50x12.00(mm)



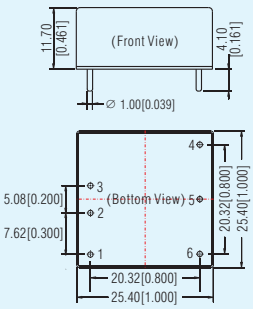
Pin-Out

Pin	Function
1	GND
2	Vin
3	+Vo
4	Trim
5	0V
6	Ctrl

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

VRB-YMD-15WR3、URB-YMD-15WR3、VRB-YMD-20WR3、URB-YMD-20WR3 Series

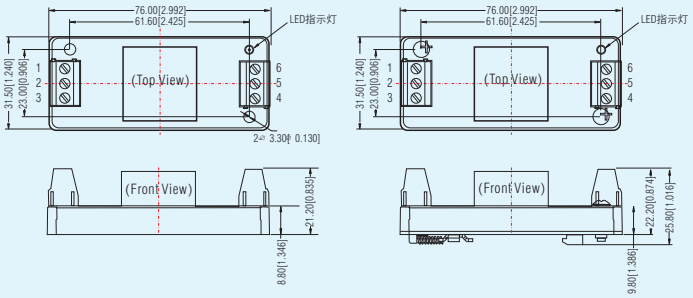
LxWxH: 25.40x25.40x11.70(mm)



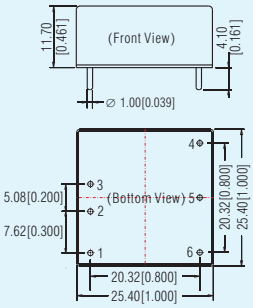
Pin-Out

Pin	Function
1	Ctrl
2	GND
3	Vin
4	+Vo
5	Trim
6	0V

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]



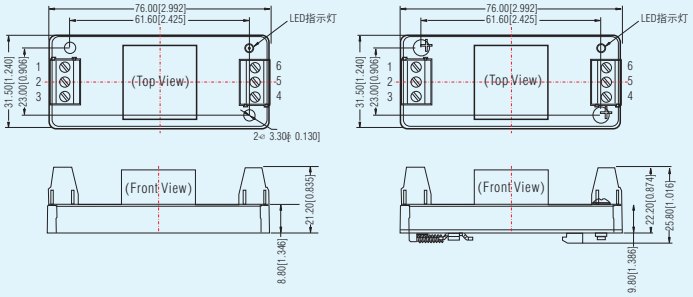
URA-YMD-15WR3、URA-YMD-20WR3 Series LxWxH: 25.40x25.40x11.70(mm)



Pin-Out

Pin	Dual
1	Ctrl
2	GND
3	Vin
4	+Vo
5	0V
6	-Vo

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]



• This catalog is used to introduce our latest products, for more information, please contact our sales department

30-50W 2:1/4:1 wide input voltage, 1500VDC isolated & regulated output series

Features

- Suitable for DCS, battery-powered device, communication, distributed power system, D/A hybrid system, RTU and industrial robot system applications
- Operating temperature: -40℃ to +80℃
- Standby power consumption as low as 0.14W
- International standard pin-out
- Meet CISPR22/EN55022 CLASS A
- Input under-voltage, output over-voltage, over-current and short-circuit protections
- IEC/EN/UL60950 approval

"H"Horizontal package with heat sink

Horizontal package

A2S Chassis Mounting

A4S DIN-Rail Mounting

Product Program 2:1 Input series

Model Number	Power	Input Voltage (Nominal)	Output Voltage/Current (Vo/Io)	Isolation (Package)	Certification
VRB2403LD-30WR3	30W	18-36 (24VDC)	3.3V/6000mA	1500VDC (DIP)	CE RoHS
VRB2405LD-30WR3			5V/6000mA		
VRB2409LD-30WR3			9V/3333mA		
VRB2412LD-30WR3			12V/2500mA		
VRB2415LD-30WR3			15V/2000mA		
VRB2424LD-30WR3			24V/1250mA		
VRB4803LD-30WR3	30W	36-75 (48VDC)	3.3V/6000mA	1500VDC (DIP)	CE RoHS
VRB4805LD-30WR3			5V/6000mA		
VRB4812LD-30WR3			12V/2500mA		
VRB4815LD-30WR3			15V/2000mA		
VRB4824LD-30WR3			24V/1250mA		
VRB2412LD-40WHR3	40W	18-36 (24VDC)	12V/3333mA	1500VDC (DIP)	CE RoHS
VRB2415LD-40WHR3			15V/2667mA		
VRB2424LD-40WHR3			24V/1667mA		
VRB4812LD-40WHR3		36-75 (48VDC)	12V/3333mA		
VRB4815LD-40WHR3			15V/2667mA		
VRB4824LD-40WHR3			24V/1667mA		
VRB2403LD-50W	50W	18-36 (24VDC)	3.3V/10000mA	1500VDC (DIP)	CE RoHS
VRB2405LD-50W			5V/10000mA		
VRB2412LD-50W			12V/4167mA		
VRB2415LD-50W			15V/3333mA		
VRB2424LD-50W			24V/2083mA		
VRB4803LD-50W	50W	36-75 (48VDC)	3.3V/10000mA	1500VDC (DIP)	CE RoHS
VRB4805LD-50W			5V/10000mA		
VRB4812LD-50W			12V/4167mA		
VRB4815LD-50W			15V/3333mA		
VRB4824LD-50W			24V/2083mA		

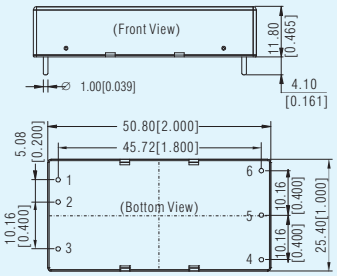
Product Program 4:1 Input series

Model Number	Power	Input Voltage (Nominal)	Output Voltage/Current (Vo/Io)	Isolation (Package)	Certification
URA2405LD-30WR3	30W	9-36 (24VDC)	±5V/±3000mA	1500VDC (DIP)	CE RoHS
URA2412LD-30WR3			±12V/±1250mA		
URA2415LD-30WR3			±15V/±1000mA		
URA2424LD-30WR3			±24V/±625mA		
URB2403LD-30WR3			3.3V/6000mA	1500VDC (DIP)	cULus CB CE RoHS
URB2405LD-30WR3			5V/6000mA		
URB2409LD-30WR3			9V/3333mA		
URB2412LD-30WR3			12V/2500mA		
URB2415LD-30WR3			15V/2000mA		
URB2424LD-30WR3			24V/1250mA		
URA4805LD-30WR3	30W	18-75 (48VDC)	±5V/±3000mA	1500VDC (DIP)	RoHS CE
URA4812LD-30WR3			±12V/±1250mA		
URA4815LD-30WR3			±15V/±1000mA		
URB4803LD-30WR3			3.3V/6000mA	1500VDC (DIP)	cULus CB CE RoHS
URB4805LD-30WR3			5V/6000mA		
URB4812LD-30WR3			12V/2500mA		
URB4815LD-30WR3			15V/2000mA		
URB4824LD-30WR3			24V/1250mA		

Note: 1. Chassis mounting and DIN-Rail mounting are available and please contact our sales department or refer to datasheet for details. Series have input reverse voltage protection;
2. Series with suffix "LD" are 2*1 packaged with aluminum alloy casing, and detail dimension please refer to illustration;
3. If the application requires higher performance for EMC, our matching EMC auxiliary devices such as FC-AX3D, FC-B02D, FI-B03D and FT-BX1D are available. For more information, please contact our sales department.

Package Dimension

URA_LD-30WR3 Series LxWxH: 50.80x25.40x11.80(mm)



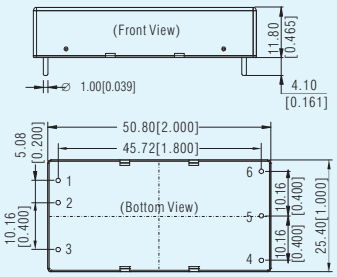
Pin-Out

Pin	Function
1	Vin
2	GND
3	Ctrl
4	-Vo
5	0V
6	+Vo

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

URB_LD-30WR3, VRB_LD-30WR3,VRB_LD-50W Series

LxWxH: 50.80x25.40x11.80(mm)

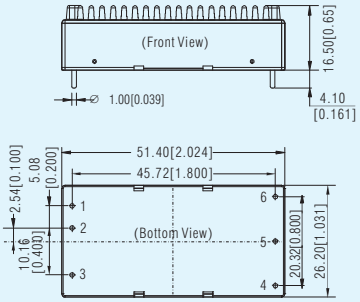


Pin-Out

Pin	Function
1	Vin
2	GND
3	Ctrl
4	Trim
5	0V
6	+Vo

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

VRB_LD-40WHR3 Series LxWxH: 51.40x26.20x16.50(mm)



Pin-Out

Pin	Function
1	Vin
2	GND
3	Ctrl
4	Trim
5	0V
6	+Vo

Unit: mm[inch]
General tolerance: ±0.50[±0.020]

• This catalog is for reference only, please visit our website for detailed datasheets: www.mornsun-power.com

75-200W 4:1 wide input voltage, 2250VDC isolated & regulated output series

RoHS

Features

- 4:1 wide input voltage range
- Efficiency up to 94%
- Isolation: 2250VDC
- Input under-voltage, output over-voltage, over short-circuit, over-temperature and over -current protections
- Operating temperature: -40℃ to +85℃
- Metal mask, international standard package

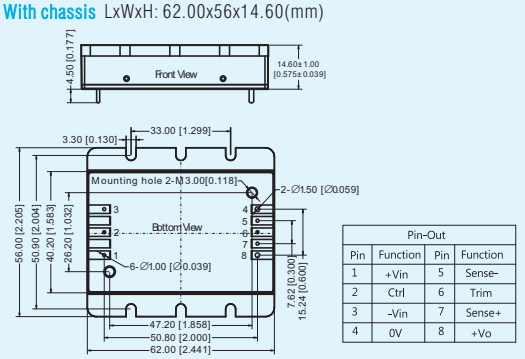
Product Program

Series	power	Input Voltage (VDC)	Outpu Voltaget/current (Vo/Io)	Isolation voltage	Certification
URF4805QB-75WR3	75W	18-75(48VDC)	5V/15000mA	2250VDC	RoHS
URF4812QB-75WR3			12V/6250mA		
URF4815QB-75WR3			15V/5000mA		
URF4824QB-75WR3			24V/3125mA		
URF4848QB-75WR3			48V/1563mA		
URF2405QB-100WR3	100W	9-36(24VDC)	5V/20000mA	2250VDC	RoHS
URF2412QB-100WR3			12V/8300mA		
URF2415QB-100WR3			15V/6700mA		
URF2424QB-100WR3			24V/4200mA		
URF2428QB-100WR3			28V/3600mA		
URF2448QB-100WR3			48V/2100mA		
URF4805QB-100WR3	100W	18-75(48VDC)	5V/20000mA	2250VDC	RoHS
URF4812QB-100WR3			12V/8300mA		
URF4815QB-100WR3			15V/6700mA		
URF4824QB-100WR3			24V/4200mA		
URF4848QB-100WR3			48V/2100mA		
URF4805QB-150WR3	150W	18-75(48VDC)	5V/30000mA	2250VDC	RoHS
URF4812QB-150WR3			12V/12500mA		
URF4815QB-150WR3			15V/10000mA		
URF4824QB-150WR3			24V/6250mA		
URF4848QB-150WR3			48V/3130mA		
URF4805QB-200WR3	200W	18-75(48VDC)	5V/40000mA	2250VDC	RoHS
URF4812QB-200WR3			12V/16700mA		
URF4815QB-200WR3			15V/13300mA		
URF4824QB-200WR3			24V/8400mA		
URF4848QB-200WR3			48V/4200mA		

Note : series with suffix"F" are packaged with aluminum alloy casing, with suffix"H" are packaged with heat sink

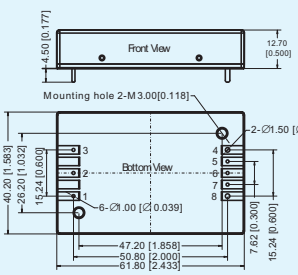
Package Dimension

With chassis LxWxH: 62.00x56x14.60(mm)



Pin-Out			
Pin	Function	Pin	Function
1	+Vin	5	Sense-
2	Ctrl	6	Trim
3	-Vin	7	Sense+
4	0V	8	+Vo

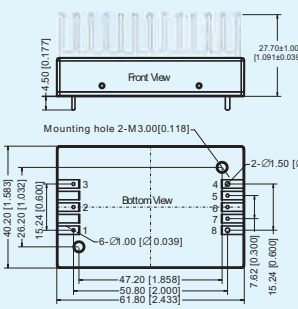
Without chassis and heat sink LxWxH: 61.80x40.20x12.70(mm)



Note:
Unit: mm[inch]
Pin1, 2, 3, 5, 6, 7's diameter: 1.00[0.039]
Pin4, 8's diameter: 1.50[0.059]
Pin diameter tolerances: ±0.10[±0.004]
General tolerances: ±0.50[±0.020]
Mounting hole screwing torque: Max 0.4 N·m

Pin-Out			
Pin	Function	Pin	Function
1	+Vin	5	Sense-
2	Ctrl	6	Trim
3	-Vin	7	Sense+
4	0V	8	+Vo

Packaged with heat sink LxWxH: 61.80x40.20x27.7±1.00(mm)



Note:
Unit: mm[inch]
Pin1, 2, 3, 5, 6, 7's diameter: 1.00[0.039]
Pin4, 8's diameter: 1.50[0.059]
Pin diameter tolerances: ±0.10[±0.004]
General tolerances: ±0.50[±0.020]
Mounting hole screwing torque: Max 0.4 N·m

Pin-Out			
Pin	Function	Pin	Function
1	+Vin	5	Sense-
2	Ctrl	6	Trim
3	-Vin	7	Sense+
4	0V	8	+Vo

• This catalog is used to introduce our latest products, for more information, please contact our sales department

6-40W 4:1 wide input voltage, 2250VDC isolated & regulated output series for railway

CE RoHS

Features

- Suitable for railway application
- Wide input voltage range: 40-160VDC
- Operating temperature: -40℃ to +85℃
- Isolation: 2250VDC/ 3000VDC
- International standard brick package
- Input under-voltage, output over-voltage, over-current and short-circuit protections
- Meet railway standard EN50155

Product Program

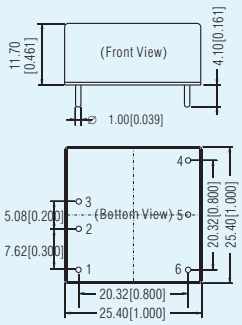
Model Number	Power	Input Voltage (Nominal)	Output Voltage/Current (Vo/Io)	Isolation	Certification
URA1D05YMD-6WR3	6W	40-160 (110VDC)	±5V/±600mA	2250VDC	CE RoHS
URA1D12YMD-6WR3			±12V/±250mA		
URA1D15YMD-6WR3			±15V/±200mA		
URB1D05YMD-6WR3			5V/1200mA		
URB1D12YMD-6WR3			12V/500mA		
URB1D15YMD-6WR3			15V/400mA		
URB1D24YMD-6WR3			24V/250mA		
URB1D03LMD-10WR3	10W	40-160 (110VDC)	3.3V/2400mA	2250VDC	CE RoHS
URB1D05LMD-10WR3			5V/2000mA		
URB1D12LMD-10WR3			12V/833mA		
URB1D15LMD-10WR3			15V/667mA		
URB1D24LMD-10WR3			24V/417mA		
URB1D03LMD-15WR3	15W	40-160 (110VDC)	3.3V/4000mA	2250VDC	
URB1D05LMD-15WR3			5V/3000mA		
URB1D12LMD-15WR3			12V/1250mA		
URB1D15LMD-15WR3			15V/1000mA		
URB1D24LMD-15WR3			24V/625mA		
URB1D03LMD-20WR3	20W	40-160 (110VDC)	3.3V/5000mA	2250VDC	
URB1D05LMD-20WR3			5V/4000mA		
URB1D12LMD-20WR3			12V/1667mA		
URB1D15LMD-20WR3			15V/1333mA		
URB1D24LMD-20WR3			24V/833mA		
URB1D03LD-20WR3	20W	40-160 (110VDC)	3.3V/5000mA	2250VDC	RoHS
URB1D05LD-20WR3			5V/4000mA		
URB1D12LD-20WR3			12V/1667mA		
URB1D15LD-20WR3			15V/1333mA		
URB1D24LD-20WR3			24V/833mA		
URE1D12LD-20WR3	20W	40-160 (110VDC)	±12V/±833mA	3000VDC	
URE1D15LD-20WR3			±15V/±667mA		
URE1D24LD-20WR3			±24V/±417mA		
URF1D03LD-40WR3	40W	40-160 (110VDC)	3.3V/5000mA	3000VDC	
URF1D05LD-40WR3			5V/4000mA		
URF1D12LD-40WR3			12V/1667mA		
URF1D15LD-40WR3			15V/1333mA		
URF1D24LD-40WR3			24V/833mA		
URF1D48LD-40WR3			48V/833mA		

Note： series with suffix H" are packaged with heat sink, and detail dimension please .

Package Dimension

URA1D_YMD-6WR3 、URB1D_YMD-6WR3 Series

LxWxH: 25.40x25.40x11.70(mm)

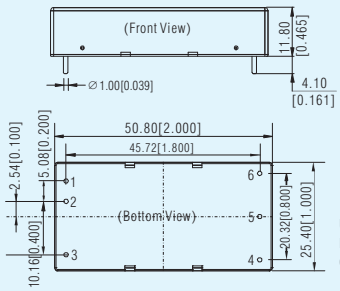


Pin-Out

Pin	Single	Dual
1	No pin	Ctrl
2	GND	GND
3	Vin	Vin
4	+Vo	+Vo
5	No pin	0V
6	0V	-Vo

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

URE1D_LD-20WR3 Series LxWxH: 50.80x25.40x11.80(mm)



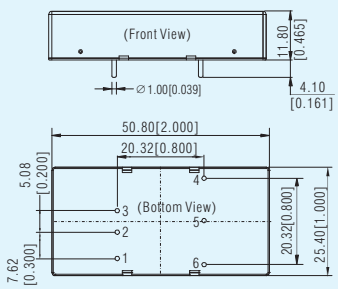
Pin-Out

Pin	Function
1	Vin
2	GND
3	Ctrl
4	-Vo
5	0V
6	+Vo

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

URB1D-LMD-15WR3\URB1D-LMD-20WR3

LxWxH: 50.80x25.40x11.80(mm)



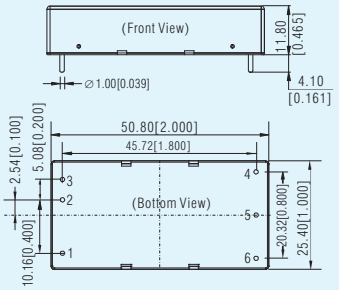
Pin-Out

Pin	Function
1	Ctrl
2	GND
3	Vin
4	+Vo
5	Trim
6	0V

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]
Note: URB1D-LMD-10WR3non pin1、5

URF1D_LD-40WR3、URB1D_LD-20WR3 Series

LxWxH: 50.80x25.40x11.80(mm)



Pin-Out

Pin	Function
1	Ctrl
2	GND
3	Vin
4	+Vo
5	0V
6	Trim

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

DC/DC Converter

50-150W wide input voltage, 3000VDC isolated & regulated output series for railway

RoHS

Features

- Suitable for railway application
- Wide input voltage range: 66-160VDC
- Operating temperature: -40℃ to +100℃
- Isolation: 3000VDC
- International standard brick package
- Input under-voltage, output over-voltage, over-current and short-circuit protections
- Meet railway standard EN50155

Product Program

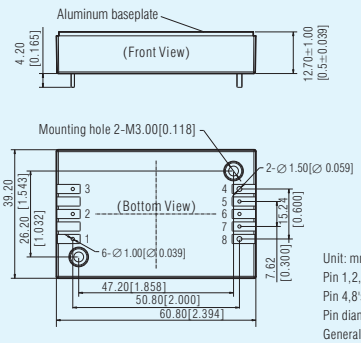
Model Number	Power	Input Voltage (Nominal)	Output Voltage/Current (Vo/Io)	Isolation	Certification
URF1D03QB-50W	50W	66-160 (110VDC)	3.3V/15000mA	3000VDC	RoHS
URF1D05QB-50W			5V/10000mA		
URF1D12QB-50W			12V/4167mA		
URF1D15QB-50W			15V/3333mA		
URF1D24QB-50W			24V/2083mA		
URF1D05QB-75W	75W	66-160 (110VDC)	5V/15000mA	3000VDC	RoHS
URF1D12QB-75W			12V/6250mA		
URF1D15QB-75W			15V/5000mA		
URF1D24QB-75W			24V/3125mA		
URF1D12QB-100W	100W	66-160 (110VDC)	12V/8333mA	3000VDC	RoHS
URF1D15QB-100W			15V/6667mA		
URF1D24QB-100W			24V/4167mA		
URF1D12HB-150W	150W	66-160(110VDC)	12V/12500mA	3000VDC	RoHS
		50-66	12V/10000mA		
URF1D15HB-150W		66-160(110VDC)	15V/10000mA		
		50-66	15V/8000mA		
URF1D24HB-150W		66-160(110VDC)	24V/6250mA		
		50-66	24V/5000mA		

Note: 1. Heat sink is available;

2. If the application requires higher performance for EMC, our matching EMC auxiliary devices such as FC-AX3D, FC-B02D, FI-B03D and FT-BX1D are available. For more information, please contact our sales department.

URF1DxxQB Series Package Dimension

Without heat sink LxWxH: 60.80x39.20x12.70(mm)

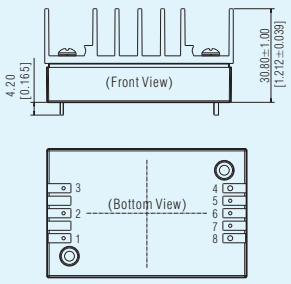


Pin-Out

Pin	Function
1	+Vin
2	Ctrl
3	-Vin
4	0V
5	Sense-
6	Trim
7	Sense+
8	+Vo

Unit: mm[inch]
Pin 1,2,3,5,6,7's diameter:1.00[0.039]
Pin 4,8's diameter:1.50[0.059]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]
Mounting hole screwing torque:Max 0.4 N.m

With heat sink LxWxH: 62.00x39.20x30.80(mm)

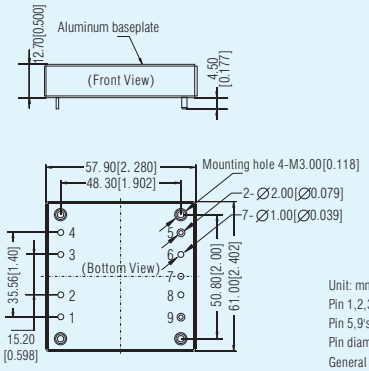


Pin-Out

Pin	Function
1	+Vin
2	Ctrl
3	-Vin
4	0V
5	Sense-
6	Trim
7	Sense+
8	+Vo

URF1DxxHB Series Package Dimension

Without heat sink LxWxH: 57.90x61.00x12.70(mm)

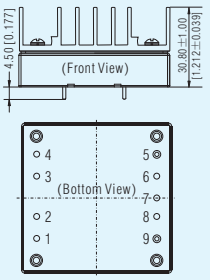


Pin-Out

Pin	Function
1	+Vin
2	Ctrl
3	Case
4	-Vin
5	0V
6	Sense-
7	Trim
8	Sense+
9	+0V

Unit: mm[inch]
Pin 1,2,3,4,6,7,8's diameter:1.00[0.039]
Pin 5,9's diameter:2.00[0.079]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]
Mounting hole screwing torque:Max 0.4 N.m

With heat sink 57.90x62.00x30.80(mm)



- This catalog is used to introduce our latest products, for more information, please contact our sales department

3-30W ultra-wide input,dual isolated&regulated output series

Features

RoHS

- 4:1 wide input voltage range
- Dual isolated output
- Operating temperature: −40℃ to +85℃
- Input under-voltage, over-current and short-circuit protections

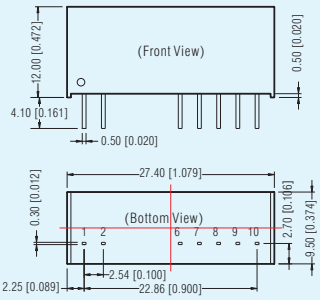
Product Program

Model Number	Power	Input Voltage (Nominal)	Output Voltage/Current (Vo1/Io1)	(Vo2/Io2)	Isolation	Certification
URD480505S-3WR3	3W	18–75 (48VDC)	5V/300mA	5V/300mA	3000VDC	RoHS
URD480512S-3WR3			5V/300mA	12V/125mA		
URD480524S-3WR3			5V/300mA	24V/300mA		
URD480505YMD-10WR3	10W		5V/1000mA	5V/1000mA	1500VDC	
URD480512YMD-10WR3			5V/1000mA	12V/417mA		
URD480524YMD-10WR3			5V/1000mA	24V/290mA		
URD480505LD-20WR3	20W		5V/2000mA	5V/2000mA	3000VDC	
URD480512LD-20WR3			5V/2000mA	12V/833mA		
URD480524LD-20WR3			5V/2000mA	24V/417mA		
URD480524D-30WR3	30W		5V/4000mA	24V/417mA	3000VAC	

Note:1.Absolute maximum rating without damage on the converter, but it isn't recommended;
2.Efficiency is measured in nominal input voltage and rated output load.

Package Dimension

URD-S-3WR3 Series LxWxH: 27.40x9.50x12.00(mm)

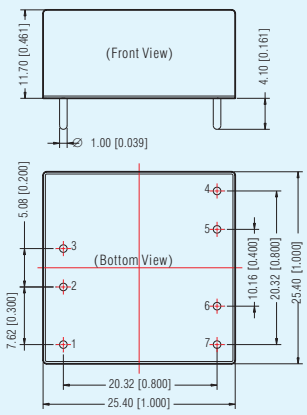


Pin-Out

Pin	Function
1	GND
2	Vin
6	+Vo
7	OV1
8	CS
9	Ov2
10	+Vo2

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

URD-YMD-10WR3 Series LxWxH: 25.40x25.40x11.70(mm)

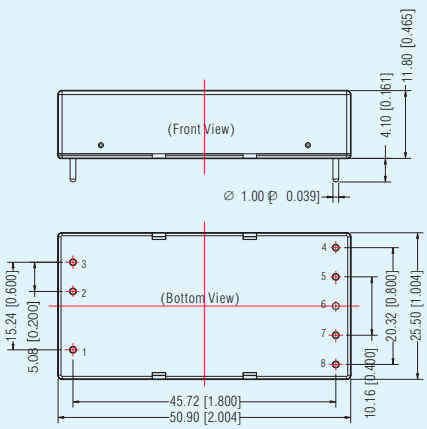


Pin-Out

Pin	Function
1	Ctrl
2	GND
3	Vin
4	+Vo2
5	OV2
6	OV1
7	+Vo1

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

URD-LD-20WR3 Series LxWxH: 25.40x25.40x11.70(mm)



Pin-Out

Pin	Function
1	Ctrl
2	GND
3	Vin
4	+Vo2
5	OV2
6	No Pin
7	OV1
8	+Vo1

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

DC/DC Converter

EMC
Auxiliary Device

1. EMC filter.....96-97
2. EMI filter..... 97
3. Surge suppressor..... 98
4. Pulse group suppressor..... 98
5. 485-AB Bus surge protection module..... 99
6. Common mode filter..... 99

EMC filter specialized for AC/DC converter

RoHS

Features

- Greatly improve EMS performance of LD/LH/LH-ER2/LM30
- Enable EMI performance to meet requirements of CISPR22/EN 55022 Class B standard
- Input voltage range: 85-305VAC
- Operating temperature: -40℃ to＋85℃
- Compact size, cost-effective
- Optional packages: PCB mounting, chassis mounting, DIN-Rail mounting

A2S Chassis Mounting Package

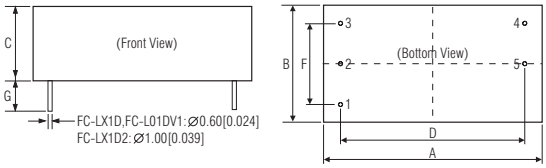
A4S DIN-Rail Mounting Package

Product Program

Model Number	Input Voltage Range (VAC)	Nominal Current (A)(max)	Outstanding Features	Certification
FC-LX1D	85-305	1.5	Surge: ± 2KV/ ± 4KV	RoHS
FC-LX1D2	85-305	1.5	Surge: ± 4KV/ ± 6KV	
FC-L01DV1	85-305	0.3	Surge: ± 1KV/ ± 2KV	

Note: Series with suffix "A2S" are chassis mounting, with suffix "A4S" are DIN-Rail mounting.

PCB Mounting Package Dimension



Outline & Dimensions

NO	FC-LX1D	FC-LX1D2	FC-L01DV1
A	33.70	53.80	33.70
B	22.20	28.80	22.20
C	18.00	19.00	18.00
D	28.00	45.72	28.00
F	15.24	20.32	15.24
G	6.00	6.00	6.00

Pin-Out

Pin	Function
1	⏚
2	IN(N)
3	IN(L)
4	OUT(L)
5	OUT(N)

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
Unmarked Tolerance: ±0.50[±0.020]

EMC filter specialized for DC/DC converter

RoHS

Features

- Greatly improve EMS & EMI performance of 2:1/4:1 wide input voltage DC/DC converter
- Operating temperature: -40℃ to＋85℃
- Compact size, cost-effective
- Slow start-up function
- Optional packages: PCB mounting, chassis mounting, DIN-Rail mounting
- Meet IEC/EN61000-4 series standard and CISPR22/ En55022
- Reverse voltage protection

A2S Chassis Mounting Package

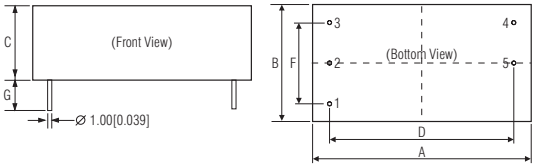
A4S DIN-Rail Mounting Package

Product Program

Model Number	Input Voltage Range (VDC)	Max. Output Power(W)/ Nominal Current(A)	Outstanding Features	Certification
FC-AX3D	10-36	30W	Reverse voltage protection and slow start-up function	RoHS
FC-B02D	18-75	30W		
FC-D03D	18-36	50W		
FC-E03D	36-75	75W		
FC-A01D	9-36	1A	Small volume	
FC-B01D	18-75	1A		

Note: Series with suffix"A2S" are chassis mounting, with suffix"A4S" are DIN-Rail mounting.

PCB Mounting Package Dimension



Outline & Dimensions

No	FC-AX3D	FC-B02D	FC-D03D	FC-E03D	FC-A01D	FC-B01D
A	53.80	53.80	53.80	53.80	37.00	37.00
B	28.80	28.80	28.80	28.80	23.00	23.00
C	19.00	19.00	19.00	19.00	15.00	15.00
D	45.72	45.72	45.72	45.72	30.48	30.48
F	20.32	20.32	20.32	20.32	17.78	17.78
G	6.00	6.0	6.0	6.0	4.10	4.10

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

Pin-Out

Pin	Function
1	⏚
2	–Vin
3	＋Vin
4	＋Vo
5	-Vo

- This catalog is for reference only, please visit our website for detailed datasheets: www.mornsun-power.com

EMC filter specialized for railway power supply

RoHS

Features

- Improve EMI & EMS performance of 10-100W Railway power supply
- Enable the railway power supply to meet requirements of EN50155 standard
- Efficiency up to 98%
- Optional packages: PCB mounting, chassis mounting, DIN-Rail mounting
- Meet railway industry EN50155 standard
- Meet IEC/EN61000-4 series standard and CISPR22/EN55022
- Reverse voltage protection

A2S Chassis Mounting Package

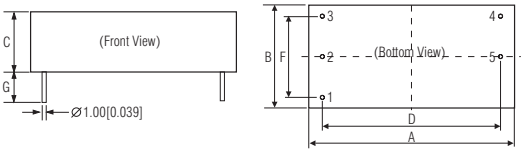
A4S DIN-Rail Mounting Package

Product Program

Model Number	Input Voltage Range (VDC)	Max. Output Power (W)	Outstanding Features	Certification
FC-C01D	40-160	10	Reverse voltage protection	RoHS
FC-CX1D	40-160	30		
FC-C03D	40-160	50		
FC-CX3D	66-160	100	Input over-voltage protection	

Note: 1. Used with DC/DC converter. 2. Series with suffix "A2S" are chassis mounting, with suffix "A4S" are DIN-Rail mounting.

PCB Mounting Package Dimension



Outline & Dimensions

No	FC-C01D	FC-CX1D	FC-C03D	FC-CX3D
A	50.80	53.80	53.80	53.80
B	25.40	28.80	28.80	28.80
C	15.16	19.00	19.00	23.50
D	45.72	45.72	45.72	45.72
F	20.32	20.32	20.32	20.32
G	6.00	6.00	6.00	6.00

Pin-Out

Pin	Function
1	⏚
2	−Vin
3	+Vin
4	+Vo
5	-Vo

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004] General tolerance: ±0.25[±0.010] Unmarked Tolerance: ±0.50[±0.020]

EMI filter specialized for DC/DC converter

RoHS

Features

- Improve EMI performance of 0-80V wide input voltage DC/DC converter with under 3A input current
- Enable MORNSUN DC/DC converter to meet requirements of EN 55022 Class B standard
- Attenuation rate up to 20dB
- Low temperature rise
- Restrain the EMI with DC input circuit
- Compact size, cost-effective
- Optional packages: PCB mounting, chassis mounting, DIN-Rail mounting

A2S Chassis Mounting Package

A4S DIN-Rail Mounting Package

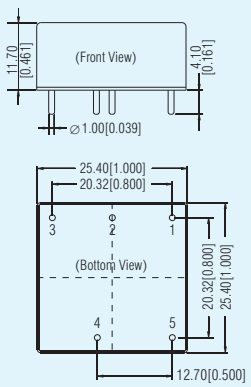
Product Program

Model Number	Input Voltage Range (VDC)	Nominal Current (A)(max)	Outstanding Features	Certification
FI-B03D	0-80	3	Meet EMI requirements of Class B standard	RoHS

Note: Series with suffix"A2S" are chassis mounting, with suffix"A4S" are DIN-Rail mounting.

Package Dimension

LxWxH: 25.40x25.40x11.70(mm)



Pin-Out

Pin	Function
1	+Vin
2	-Vin
3	GND
4	-Vo
5	+Vo

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]
Unmarked Tolerance: ±0.50[±0.020]

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Surge suppressor specialized for DC/DC converter

RoHS

Features

- Improve surge handling capability of 0-40V wide input DC/DC converter
- Enable MORNSUN DC/DC converter to meet ±2KV/±4KV(Level Four) requirements of IEC/EN61000-4-5
- Attenuation rate up to 30dB
- Low temperature rise
- Compact size, cost-effective
- Optional packages: PCB mounting, chassis mounting, DIN-Rail mounting
- Designed to suppress the DC power surge to achieve primary protection

A2S Chassis Mounting Package

A4S DIN-Rail Mounting Package

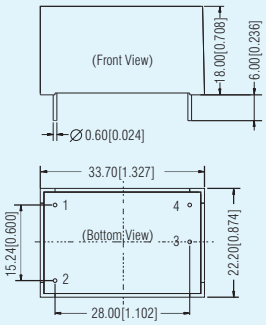
Product Program

Model Number	Input Voltage Range (VDC)	Nominal Current (A)(max)	Outstanding Features	Certification
FS-A01D	0-40	0.6	Surge:±2KV/±4KV	RoHS

Notes: 1. Being used with surge suppressor can meet surge level of IEC/EN61000-4-5 ±2KV (2Ω internal resistance)/±4KV(12Ω internal resistance).
2. Series with suffix "A2S" are chassis mounting, with suffix "A4S" are DIN-Rail mounting.

Package Dimension

LxWxH: 33.70x22.20x18.00(mm)



Pin-Out

Pin	Function
1	-Vin
2	+Vin
3	+Vo
4	-Vo

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]
Unmarked Tolerance: ±0.50[±0.020]

Pulse group suppressor specialized for DC/DC converter

RoHS

Features

- Improve pulse group suppressor performance of 0-80V wide input DC/DC converter
- Enable MORNSUN DC/DC converter to meet meet ±4KV requirements of IEC/EN61000-4-4
- Attenuation rate up to 30dB
- Low temperature rise
- Compact size, cost-effective
- Optional packages: PCB mounting, chassis mounting, DIN-Rail mounting
- Desiged to suppress the DC power interference

A2S Chassis Mounting Package

A4S DIN-Rail Mounting Package

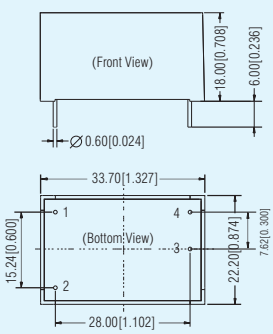
Product Program

Model Number	Input Voltage Range (VDC)	Nominal Current (A)(max)	Outstanding Features	Certification
FT-BX1D	0-80	1.5	meet ±4KV requirements of pulse group suppressor	RoHS

Note: Series with suffix"A2S" are chassis mounting, with suffix"A4S" are DIN-Rail mounting.

Package Dimension

LxWxH: 33.70x22.20x18.00(mm)



Pin-Out

Pin	Function
1	-Vin
2	+Vin
3	+Vo
4	-Vo

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]
Unmarked Tolerance: ±0.50[±0.020]

485-AB bus surge protection module

RoHS

Features

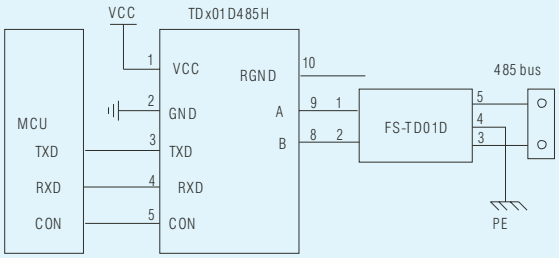
- Suppress signal port lightning surge
- Impact anti - current: ≤1KA (8/20μs simulated lightning waveforms)
- Compact size, cost-effective
- Meet ±2KV/±4KV surge level of IEC/EN61000-4-5

Product Program

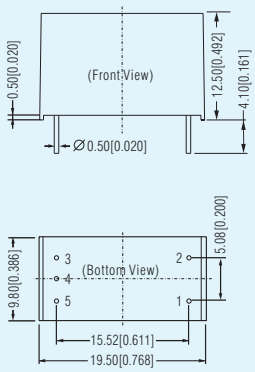
Model Number	Operating Voltage (VDC)	Clamping Voltage (VDC)	Nominal Current (A)	Data Rate (max)	Certification
FS-TD01D	0-5	15	≤0.1	115.2kbps	RoHS

Notes:
1. Enable 485 modules to meet surge level of IEC/EN61000-4-5 ±2KV (2Ω internal resistance)/±4KV(12Ω internal resistance).
2. Customization is acceptable.

Typical application



Package Dimension



Pin-Out

Pin	Designation	Funtion
1	A(out)	Output 485 BUS A
2	B(out)	Output 485 BUS A
3	B(in)	Input 485 BUS A
4	PE	Protective Earth
5	A(in)	Input 485 BUS A

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]
Unmarked Tolerance: ±0.50[±0.020]

Common mode filter

RoHS

Features

- Low temperature rise
- Compact size

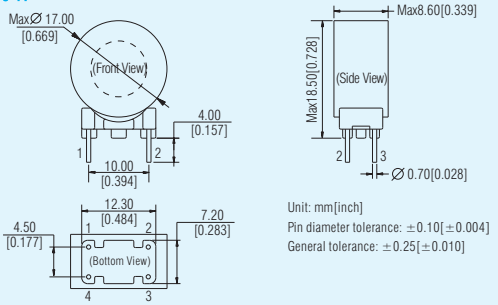
Product Program

Model Number	Inductance (μH)	Nominal Current (A)	DCR (mΩ)	Weight (g)	Certification
FL2D-Z5-103	10000*2	0.5	500*2	4.5	
FL2D-Z5-153	15000*2	0.5	600*2	4.5	
FL2D-Z5-223	22000*2	1	650*2	4.5	
FL2D-10-102	1000*2	1	50*2	4.5	
FL2D-10-222	2200*2	1	60*2	4.5	
FL2D-10-332	3300*2	1	80*2	4.5	RoHS
FL2D-10-472	4700*2	1	140*2	4.5	
FL2D-10-682*	6800*2	1	160*2	6.5	
FL2D-10-822*	8200*2	1	180*2	6.5	
FL2D-30-102	1000*2	3	40*2	4.5	
FL2D-30-222	2200*2	3	42*2	4.5	
FL2D-30-472	4700*2	3	70*2	4.5	

Note: Dimension of model number marked with * please refer to Figure 2.

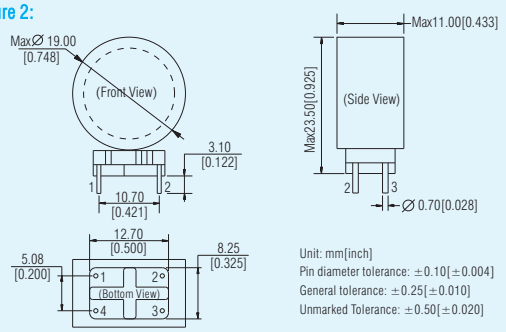
Package Dimension

Figure 1:



Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

Figure 2:



Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]
Unmarked Tolerance: ±0.50[±0.020]

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1、Industrial bus isolation transceiver module..101-107
Compact SMD CAN/RS485/RS232 isolated transceiver module 101
RS485 isolated transceiver.....102-103
CAN isolated transceiver module.....104-105
Integrated isolated 485/CAN AC/DC converter.....106
Single/Dual isolated RS232 transceiver (high-speed) 107
2、Signal conditioning module..... 108-113
3、DC/DC converter for IGBT driver/IGBT driver. 114-117
4、LED driver.....118
5、Isolation transmitter.....119-121

Compact SMD CAN/RS485/RS232 isolated transceiver module CE RoHS

Features

- Operating temperature: –40℃ to +85℃(RS485/RS232)
  –40℃ to +105℃(CAN)
- Isolation: 2500VDC
- Two-terminal isolation (input and output are mutually isolated)
- Baud rate up to 5Mbps
- Isolated voltage output(RS485)
- ESD protection: IEC/EN61000-4-2 Contact ±4KV perf. Criteria B
- Compact size, SMD package

Product Program

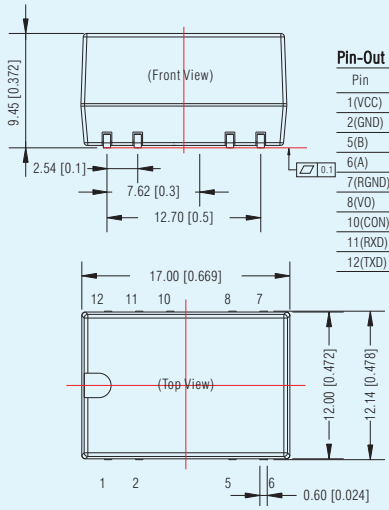
Model Number	Power Supply (VDC)	Baud Rate (max)	Nodes	Characteristics	Certification
TD331S485H	3.15-3.45	150Kbps	128	SMD High-rate	RoHS CE (pending)
TD531S485H	4.75-5.25	150Kbps	128	SMD High-rate	
TD331S485H-A	3.15-3.45	150Kbps	128	SMD High-rate,	
TD531S485H-A	4.75-5.25	150Kbps	128	Auto-switch	
TD331S485H-E	3.15-3.45	500Kbps	256	SMD High-rate,	
TD531S485H-E	4.75-5.25	500Kbps	256	256 nodes	
TD331SCANH	3.15-3.45	40K-1Mbps	110	SMD High-rate	RoHS CE (pending)
TD531SCANH	4.75-5.25	40K-1Mbps	110	SMD High-rate	
TD331SCANFD	3.15-3.45	40K-5Mbps	110	SMD CANFD	
TD531SCANFD	4.75-5.25	40K-5Mbps	110	SMD CANFD	

Product Program

Model Number	Power Supply (VDC)	Baud Rate (max)	Nodes	Characteristics	Certification
TD331S232H	3.15-3.45	0-115.2kbps	1	SMD High-rate	RoHS CE (pending)
TD531S232H	4.75-5.25	0-115.2kbps	1	SMD High-rate	

Package Dimension

TD5(3)31S485x Series：LxWxH: 17.00x12.14x9.45(mm)

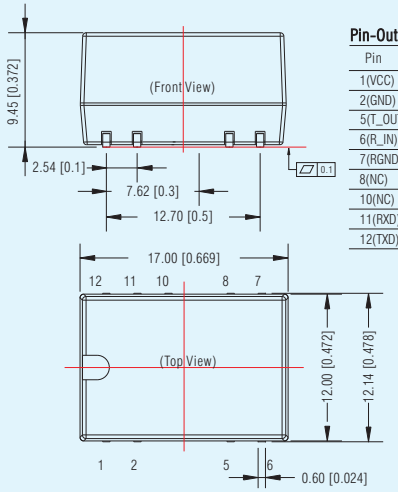


Pin-Out

Pin	Function
1(VCC)	Input Power+
2(GND)	GND
5(B)	B pin
6(A)	A pin
7(RGND)	Isolation Power Output RGND
8(VO)	Isolation Power Output VO
10(CON)	Send&Receiving Control Pin
11(RXD)	Receiving Pin
12(TXD)	Send Pin

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerances: ±0.25[±0.010]

TDx31S232H Series：LxWxH: 17.00x12.14x9.45(mm)

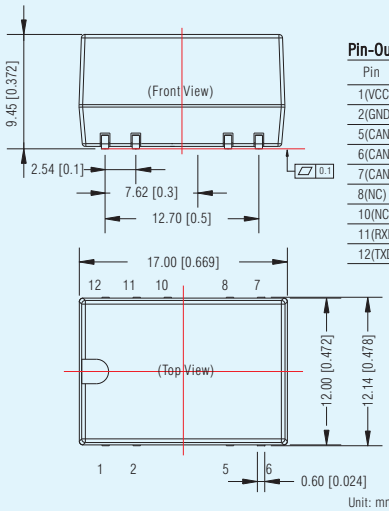


Pin-Out

Pin	Function
1(VCC)	nput Power+
2(GND)	GND
5(T_OUT)	RS–232 Output
6(R_IN)	RS-232 Input
7(RGND)	Isolation Power Output RGND
8(NC)	NC
10(NC)	No electrical connection
11(RXD)	TTL/CMOS Output
12(TXD)	TTL/CMOSInput

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerances: ±0.25[±0.010]

TD5(3)31SCANx Series：LxWxH: 17.00x12.14x9.45(mm)



Pin-Out

Pin	Function
1(VCC)	nput Power+
2(GND)	GND
5(CANL)	CANL pin
6(CANH)	CANH pin
7(CAND)	Isolation Power Output RGND
8(NC)	NC
10(NC)	No electrical connection
11(RXD)	Receiving Pin
12(TXD)	Send Pin

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerances: ±0.25[±0.010]

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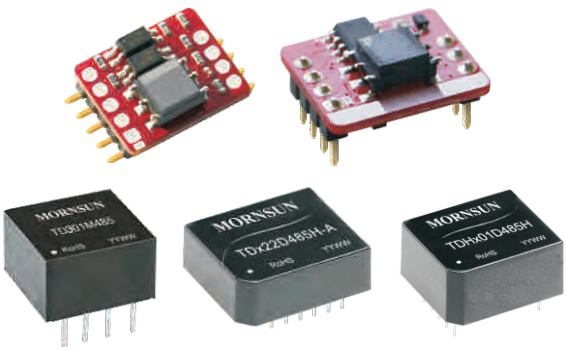
RS485 isolated transceiver

CE RoHS

Features

- Operating temperature: −40℃ to +85℃
- Isolation: 2500VDC(Low-rate)/3000VDC (High-rate)
- Two-terminal isolation (input and output are mutually isolated), built-in isolated power supply bus protection
- TD3xxD485xx compatible with the UART port of +3.3V
  TD5xxD485xx compatible with the UART port of +5V
- Isolated voltage output
- ESD protection: IEC/EN61000-4-2 Contact ±4KV perf. Criteria B
- Compact size, DIP/SMD package

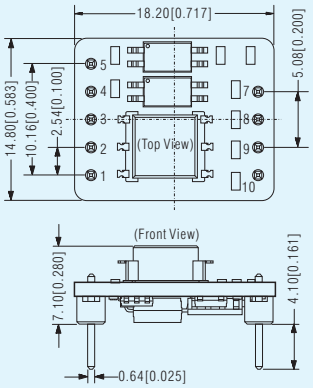


Product Program

Model Number	Power Supply (VDC)	Baud Rate (max)	Nodes	Characteristics	Certification
TD321D485	3.15-3.45	19.2Kbps	64	Universal	RoHS CE
TD521D485	4.75-5.25	19.2Kbps	64	Universal	
TD321D485H	3.15-3.45	200Kbps	64	High-rate	
TD521D485H	4.75-5.25	200Kbps	64	High-rate	
TD1211D485H	11.4-12.6	115200bps	32	High-rate	RoHS
TD2411D485H	22.8-25.2	115200bps	32	High-rate	
TD321D485H-A	3.15-3.45	500Kbps	128	High-rate,	RoHS CE
TD521D485H-A	4.75-5.25	500Kbps	128	Auto-switch	
TD321D485H-E	3.15-3.45	500Kbps	256	High-rate,	
TD521D485H-E	4.75-5.25	500Kbps	256	256 nodes	
TD322D485H-A	3.15-3.45	120Kbps	32	Dual channel isolated type	RoHS CE
TD522D485H-A	4.75-5.25	120Kbps	32	Dual channel isolated type	
TD321S485	3.15-3.45	19.2Kbps	64	SMD Low-rate	RoHS CE
TD521S485	4.75-5.25	19.2Kbps	64	SMD Low-rate	
TD321S485H	3.15-3.45	200Kbps	64	SMD High-rate	
TD521S485H	4.75-5.25	200Kbps	64	SMD High-rate	
TD321S485H-A	3.15-3.45	500Kbps	128	SMD Auto-switch module	
TD521S485H-A	4.75-5.25	500Kbps	128	SMD Auto-switch module	
TD321S485H-E	3.15-3.45	500Kbps	256	SMD High-rate(Enhanced)	
TD521S485H-E	4.75-5.25	500Kbps	256	SMD High-rate(Enhanced)	
TD301M485	3.15-3.45	500kbps	32	Compact Size	RoHS CE (pending)
TD501M485	4.75-5.25	500kbps	32	Compact Size	
TDH301D485H	3.17-3.45	115200bps	32	High isolation 485	RoHS CE
TDH501D485H	4.75-5.25	115200bps	32	High isolation 485	

Package Dimension

TD5(3)21D485x Series：LXWXH: 18.20X14.80X7.10(mm)

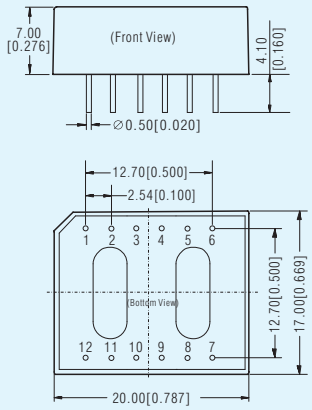


Pin-Out

Pin	Function
1(VCC)	Input Power+
2(GND)	GND
3(TXD)	Send Pin
4(RXD)	Receiving Pin
5(CON)	Send&Receiving Control Pin
7(Vo)	+5V Isolation Power Output
8(B)	TD_D485 B Pin
9(A)	TD_D485 APin
10(GANG)	Isolation Power Output RGND

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerances: ±1.0[±0.039]

TD5(3)22D485H-A Series：LxWxH: 20.00x17.00x7.00(mm)



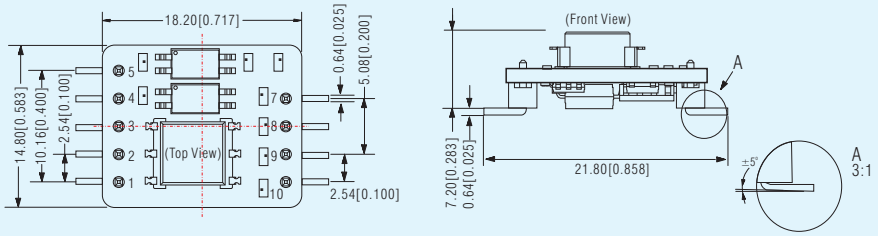
Pin-Out

Pin	Function
1(VCC)	Input Power+
2(GND)	GND
3(TXD1)	Send Pin
4(RXD1)	Receiving Pin
5(TXD2)	TD_D485H-A Send pin 2
6(RXD2)	TD_D485H-A Receiving pin 2
7(A2)	TD_D485H-A A2 pin
8(B2)	TD_D485H-A B2 pin
9(SGND2)	Output GND
10(A1)	TD_D485H-A A2 pin
11(B1)	TD_D485H-A B1 pin
12(SGND1)	Output GND

Unit: mm[inch]
Pin diameter tolerances: ±0.10[±0.004]
General tolerances: ±0.50[±0.020]

Package Dimension

TD5(3)21S485x Series: LXWXH: 18.20X14.80X7.10(mm)

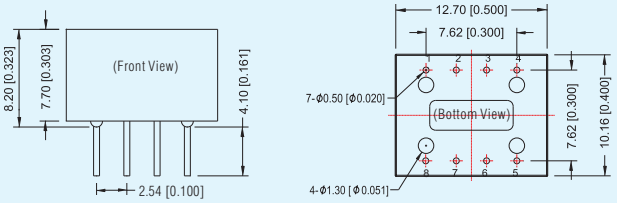


Pin-Out

Pin	Function
1(VCC)	Input Power+
2(GND)	GND
3(TXD)	Send Pin
4(RXD)	Receiving Pin
5(CON)	Send&Receiving Control Pin
7(Vo)	+5V Isolation Power Output
8(B)	TD_D485 B Pin
9(A)	TD_D485 A Pin
10(GANG)	Isolation Power Output RGND

Unit: mm[inch]
Pin diameter tolerances: ±0.10[±0.004]
General tolerances: ±1.0[±0.039]

T5(3)01M485 Series: LxWxH: 17.00x12.14x9.45(mm)

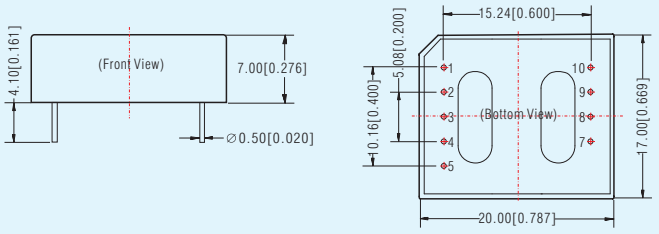


Pin-Out

Pin	Function
1(RXD)	Receiving Pin
2(TXD)	Send Pin
3(GND)	GND
4(VCC)	Input Power+
5(RGND)	Isolation Power Output RGND
6(A)	A Pin
7(B)	B Pin
8(VO)	Isolation Power Output VO

Unit: mm[inch]
Pin diameter tolerances: ±0.10[±0.004]
General tolerances: ±0.25[±0.010]

TDxx11D485H Series: LxWxH: 20.00x17.00x7.00(mm)

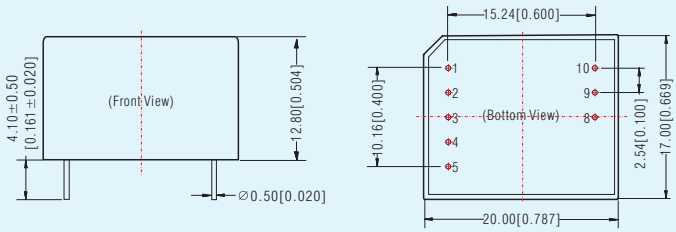


Pin-Out

Pin	Function
1(VCC)	Input Power+
2(GND)	GND
3(TXD)	TD_D485H Send Pin
4(RXD)	TD_D485H Receiving Pin
5(CON)	Send&Receiving Control Pin
7(Vo)	+5V Isolation Power Output
8(B)	TD_D485H B Pin
9(A)	TD_D485H A Pin
10(RGND)	Isolation Power Output RGND

Unit: mm[inch]
Pin diameter tolerances: ±0.10[±0.004]
General tolerances: ±0.25[±0.010]

TDHx01D485H Series: LxWxH: 20.00x17.00x12.80(mm)



Pin-Out

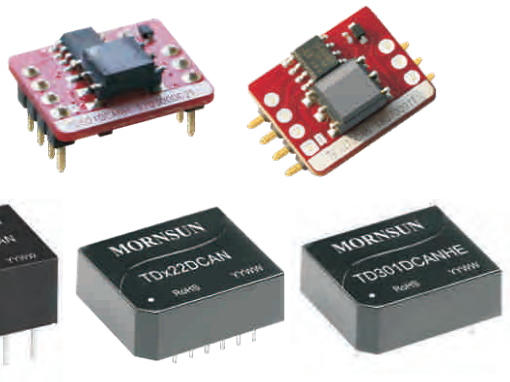
Pin	Function
1(VCC)	Input Power+
2(GND)	GND
3(TXD)	TD_D485H Send Pin
4(RXD)	TD_D485H Receiving Pin
5(CON)	Send&Receiving Control Pin
8(B)	TD_D485H B Pin
9(A)	TD_D485H A Pin
10(RGND)	Isolation Power Output RGND

Unit: mm[inch]
Pin diameter tolerances: ±0.10[±0.004]
General tolerances: ±0.25[±0.010]

CAN isolated transceiver module

Features

- Operating temperature: −40℃ to +105℃
- Isolation: 3000VDC/10KVDC(high-rate high isolation)
  2500VDC(compact size or high surge protective type)
  10000VDC(high-rate high isolation type)
- Two-terminal isolation (input and output are mutually isolated), built-in isolated power supply bus protection
- TD3xxDCANxx compatible with the CAN control port of +3.3V
  TD5xxDCANxx compatible with the CAN control port of +5V
- ESD protection: IEC/EN61000-4-2 Contact ±4KV perf. Criteria B
- Baud rate up to 5Mbps
- Meet ISO11898-2. ISO11898-5 Standards
- Connect up to 110 nodes on one bus
- Compact size, DIP/SMD package

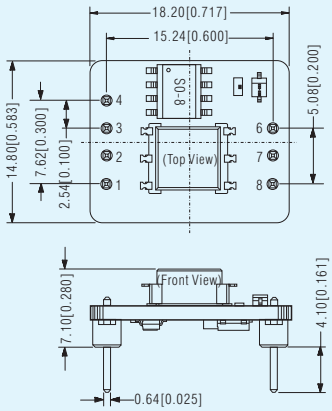


Product Program

Model Number	Power Supply (VDC)	Baud Rate (max)	Nodes	Characteristics	Certification
TD321DCAN	3.15-3.45	5K-1Mbps	110	Universal	RoHS
TD521DCAN	4.75-5.25	5K-1Mbps	110	Universal	
TD321DCANH	3.15-3.45	40K-1Mbps	110	High-rate	
TD521DCANH	4.75-5.25	40K-1Mbps	110	High-rate	
TD321SCAN	3.15-3.45	5K-1Mbps	110	Universal SMD	
TD521SCAN	4.75-5.25	5K-1Mbps	110	Universal SMD	RoHS
TD321SCANH	3.15-3.45	40K-1Mbps	110	SMD High-rate	CE
TD521SCANH	4.75-5.25	40K-1Mbps	110	SMD High-rate	
TD322DCAN	3.15-3.45	40K-1Mbps	110	Dual channel isolated type	
TD522DCAN	4.75-5.25	40K-1Mbps	110	Dual channel isolated type	
TD301MCAN	3.15-3.45	40K-1Mbps	110	Compact Size	
TD501MCAN	4.75-5.25	40K-1Mbps	110	Compact Size	
TD301MCANFD	3.15-3.45	40K-5Mbps	110	Compact Size	
TD501MCANFD	4.75-5.25	40K-5Mbps	110	Compact Size	
TD301DCANHE	3.15-3.45	40K-1Mbps	110	High Surge Protective Type	RoHS
TD501DCANHE	4.75-5.25	40K-1Mbps	110	High Surge Protective Type	CE
TDH501DCAN-ZC	4.5-5.5	40K-1Mbps	110	High-rate high isolation	RoHS

Package Dimension

TD5(3)21DCANx Series: LxWxH: 18.20x14.80x7.10(mm)

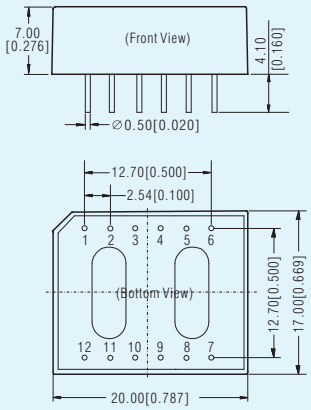


Pin-Out

Pin	Function
1(VCC)	Input Power+
2(GND)	GND
3(TXD)	Send Pin
4(RXD)	Receiving Pin
6(CANH)	CANH Pin
7(CANL)	CANL Pin
8(CANG)	Isolation Power Output RGND

Unit: mm[inch]
Pin section tolerances: ±0.10[±0.004]
General tolerances: ±1.00[±0.039]

TD5(3)22DCAN Series: LXWXH: 20.00X17.00X7.00(mm)



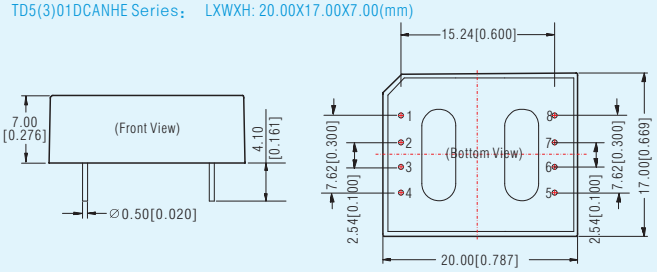
Pin-Out

Pin	Function
1(VCC)	Input Power+
2(GND)	GND
3(RXD1)	TD_DCAN Receiving Pin1
4(TXD1)	TD_DCANSend Pin1
5(RXD2)	TD_DCANReceiving Pin2
6(TXD2)	TD_DCANSend Pin2
7(CANH2)	CANH_Pin2
8(CANL2)	CANL_Pin2
9(CANG2)	Isolation Power Output2
10(CANH1)	CANH_Pin1
11(CANL1)	CANL_Pin1
12(CANG1)	Isolation Power Output RGND

Unit: mm[inch]
Pin section tolerances: ±0.10[±0.004]
General tolerances: ±0.50[±0.020]

Package Dimension

TD5(3)01DCANHE Series： LXWXH: 20.00X17.00X7.00(mm)

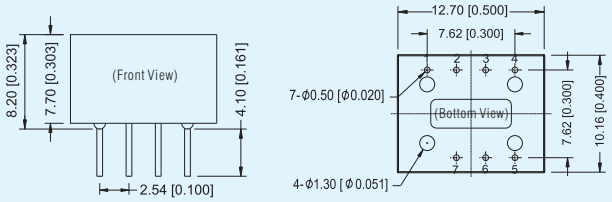


Pin-Out

Pin	Function
1(VCC)	Input Power+
2(GND)	GND
3(TXD)	TD_DCAN Send Pin
4(RXD)	TD_DCAN Receiving Pin
5(PE)	GND
6(CANH)	TD_DCAN H Pin
7(CANL)	TD_DCAN L Pin
8(CANG)	Isolation Power Output CANG

Unit: mm[inch]
Pin diameter tolerances: ±0.10[±0.004]
General tolerances: ±0.25[±0.010]

TD5(3)01MCAN(FD) Series LXWXH: 12.70x10.16x7.70(mm)

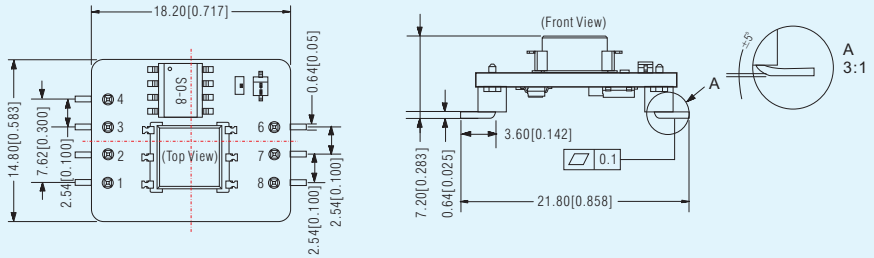


Pin-Out

Pin	Function
1(RXD)	Receiving Pin
2(TXD)	Send Pin
3(GND)	GND
4(VCC)	Input Power+
5(CANG)	Isolation Power Output CANG
6(CANL)	CANL Pin
7(CANH)	CANH Pin

Unit: mm[inch]
Pin section tolerances: ±0.10[±0.004]
General tolerances: ±0.25[±0.010]

TD5(3)21SCANx Series：LXWXH: 18.20X14.80X7.20(mm)

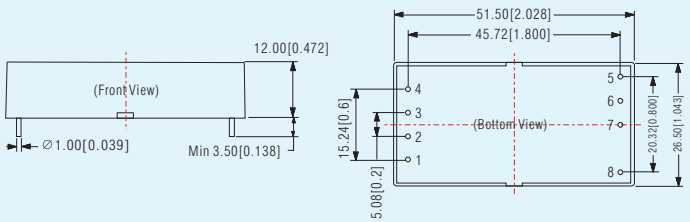


Pin-Out

Pin	Function
1(VCC)	Input Power+
2(GND)	GND
3(TXD)	Send Pin
4(RXD)	Receiving Pin
6(CANH)	CANH Pin
7(CANL)	CANL Pin
8(CANG)	Isolation Power Output RGND

Unit: mm[inch]
Pin section tolerances: ±0.10[±0.004]
General tolerances: ±1.00[±0.039]

TDH501DCAN-ZC Series：LxWxH: 51.5X26.50X12.00(mm)



Pin-Out

Pin	Function
1(VCC1)	Input Power Supply 1 Positive
2(GND2)	Input Power Supply 1 Negative
3(TXD)	Send Pin
4(RXD)	Receiving Pin
5(CANL)	CANL Pin
6(CANH)	CANH Pin
7GND2	Input Power Supply 2 Positive
9(VCC2)	Input Power Supply 2 Negative

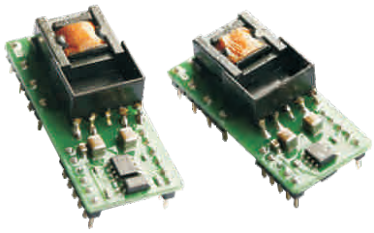
Unit: mm[inch]
Pin section tolerances: ±0.10[±0.004]
General tolerances: ±0.50[±0.020]

Integrated isolated 485/CAN AC/DC converter

CE RoHS

Features

- Wide input voltage range: 85 - 305VAC/100 - 430VDC
- AC and DC dual-use (input from the same terminal)
- Isolation: 4000VAC
- Output short-circuit, over-current protections
- Baud rate up to 1Mbps
- Connect up to 128(485)/110(CAN) nodes on one bus
- Open frame, compact size, high power density
- Flexible peripheral circuit design to get customers rid of layout problem

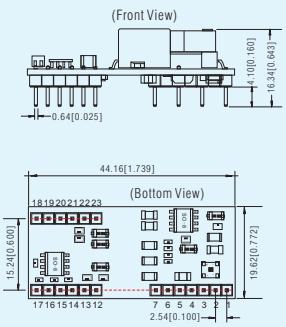


Product Program

Model Number	Power	Rated output voltage (V)	Rated output current Io (mA)	Effi(%) (typ)	Baud Rate (kbps)	Nodes	Certification
TLA03-03K485	3W	3.3V/5V	500/25	62	500	128	CE RoHS
TLA05-03K485		5V/5V	500/25	68		128	
TLA03-03KCAN	3W	3.3V/5V	500/25	62	5-1000	110	
TLA05-03KCAN		5V/5V	500/25	68		110	

Package Dimension

TLAxx-03K485 Series：LxWxH: 44.16x19.62x16.34(mm)

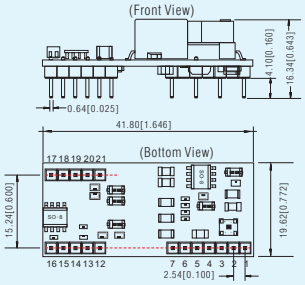


Pin-Out

Pin	Function	Pin	Function
1	AC(L)	13	+Vo2
2	-	14	NC
3	AC(N)	15	A
4	-	16	B
5	+V(cap)	17	NC
6	-	18	CON
7	-V(cap)	19	RXD
8	-	20	TXD
9	-	21	VDD
10	-	22	+Vo1
11	-	23	-Vo1
12	-Vo2		

Unit: mm[inch]
Pin section tolerances: ±0.10[±0.004]
General tolerances: ±1.00[±0.010]

TLAxx-03KCAN Series：LxWxH: 41.80x19.62x16.34(mm)

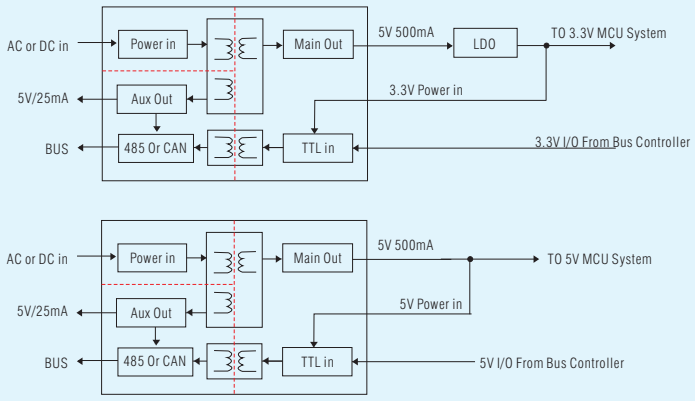


Pin-Out

Pin	Function	Pin	Function
1	AC(L)	12	-Vo2
2	-	13	+Vo2
3	AC(N)	14	NC
4	-	15	CANH
5	+V(cap)	16	CANL
6	-	17	RXD
7	-V(cap)	18	TXD
8	-	19	VDD
9	-	20	+Vo1
10	-	21	-Vo1
11	-	22	–

Unit: mm[inch]
Pin section tolerances: ±0.10[±0.004]
General tolerances: ±1.00[±0.039]

Typical Application Circuit



Single/Dual isolated RS232 transceiver (high-rate)

RoHS

Features

- Operating temperature: -40℃ to +85℃
- Isolation: 2500VDC(meet EIA/TIA-232-F standard)
- Integrated high effciency isolated power supply
- TD30xD232H compatible with the UART port of +3.3V
- TD50xD232H compatible with the UART port of +5V
- Low power consumption, low to 35mA
- ESD protection(human body discharge:±4KV), complete EMC recommended circuit
- Meet EIA/TIA-232-F standard

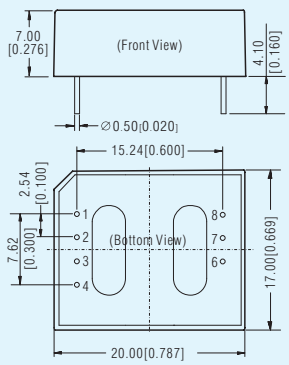
Product Program

Model Number	Power Supply (VDC)	Baud Rate (max)	Nodes	Certification	Certification
TD301D232H	3.0-3.6	0-115.2Kbps	1	High-rate	RoHS
TD501D232H	4.5-5.5	0-115.2Kbps	1	High-rate	
TD302D232H	3.0-3.6	0-115.2Kbps	2	High-rate	RoHS
TD502D232H	4.5-5.5	0-115.2Kbps	2	High-rate	

Note: Customization is acceptable.

Package Dimension

TDx01D232H: LxWxH: 20.00x17.00x7.00(mm)

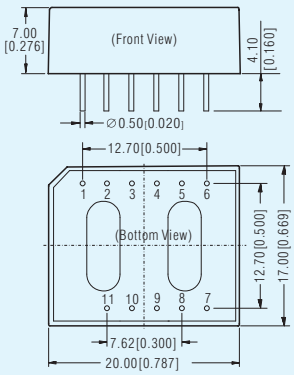


Pin-Out

Pin	Function
1(VCC)	Input Power+
2(GND)	GND
3(TXD)	TTL/CMOS Input
4(RXD)	TTL/CMOS Output
6(RIN)	RS-232 Input
7(TOUT)	RS-232 Output
8(RGND)	Isolation Power Output RGND

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

TDx02D232H: LxWxH: 20.00x17.00x7.00(mm)



Pin-Out

Pin	Function
1(VCC)	Input Power +
2(GND)	GND
3(TXD1)	TTL/CMOS Input
4(RXD1)	TTL/CMOS Output
5(TXD2)	TTL/CMOS Input
6(RXD2)	TTL/CMOS Output
7(R2IN)	Rs-232 Input
8(T2OUT)	Rs-232 Output
9(R1IN)	Rs-232 Input
10(T1OUT)	Rs-232 Output
11(RGND)	Isolation Power Output RGND

Unit: mm[inch]
Pin diameter tolerances: ±0.10[±0.004]
General tolerances: ±0.25[±0.010]

Active high precision positive signal conditioning module

CE RoHS

Features

- Isolation:2000VAC/60s
- Two-terminal isolation (signal input and signal output)
- Frequency response ≥ 2KHZ
- Gain adjustment and zero adjustment function
- High precision & linearity: 0.1%F.S
- Extremely low temperature drift: 50PPM/℃(within -40℃ to +85℃)

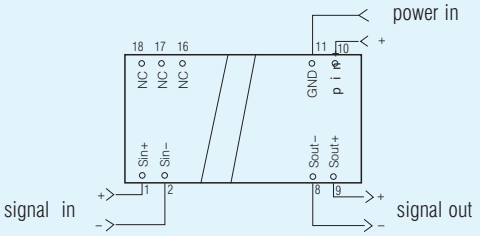
Product Program

Model Number	Power Supply (VDC)	Input Signal	Output Signal	Isolation Power Output	Certification
TE1530N	24	4-20mA	0-10V	None	RoHS CE
TE1533N	24	4-20mA	0-10V	24V	
TE1550N	12	4-20mA	0-10V	None	
TE1630N	24	4-20mA	0-5V	None	
TE1633N	24	4-20mA	0-5V	24V	
TE1660N	5	4-20mA	0-5V	None	
TE5534N	24	0-10V	0-10V	15V	
TE5544N	15	0-10V	0-10V	15V	
TE5554N	12	0-10V	0-10V	15V	
TE5634N	24	0-10V	0-5V	15V	
TE6634N	24	0-5V	0-5V	15V	
TE6644N	15	0-5V	0-5V	15V	
TE6654N	12	0-5V	0-5V	15V	
TE6664N	5	0-5V	0-5V	15V	
TE5530AN	24	±10V	0-10V	None	
TE5650AN	12	±10V	0-5V	None	
TE6630AN	24	±5V	0-5V	None	

Product Program

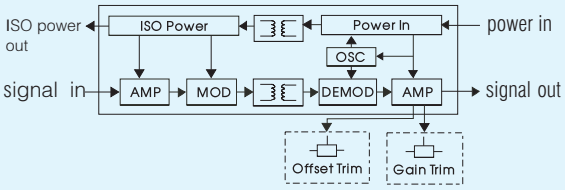
Model Number	Power Supply (VDC)	Input Signal	Output Signal	Isolation Power Output	Certification
TE5540CN	15	±10V	±10V	None	RoHS CE
TE5550CN	12	±10V	±10V	None	
TE6640CN	15	±5V	±5V	None	
TE6650CN	12	±5V	±5V	None	
TEM5630AN	24	±75mV	0-5VDC	None	RoHS CE
TEM6650AN	12	±75mV	0-5VDC	None	
TEM6640AN	15	±100mV	0-5VDC	None	
TEM4540CN	15	±50mV	±10VDC	None	
TEM6540CN	15	±100mV	±10VDC	None	
TEM6640CN	15	±100mV	±5VDC	None	
TEM7650CN	12	±200mV	±5VDC	None	

Wiring Diagram TE_AN/ CN Series

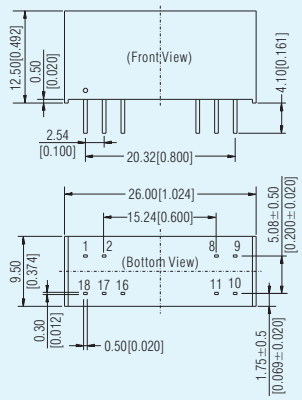


Note:
1. Pin 16, 17 and 18 are internal test ones and cannot have any electrical connection to an external circuit.

Schematic diagram TE_N Series



Package Dimension LxWxH: 26.00x9.50x12.50(mm) TE_AN CN Series

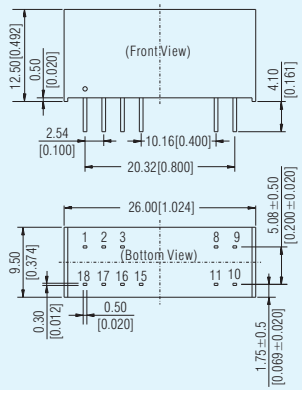


Pin-Out

Designation	Function
1(Sin+)	Signa input(+)
2(Sin-)	Signa intput(-)
8(Sout–)	Signal output(-)
9(Sout+)	Signal output(+)
10(Pin+)	Power supply(+)
11(GND)	Distribution GND
	Others:NC

Unit: mm[inch]
Pin section tolerances: ±0.10[±0.004]
General tolerances: ±0.25[±0.010]

Package Dimension LxWxH: 26.00x9.50x12.50(mm) TE_N Series



Pin-Out

Designation	Function
1(Sout+)	Signa output(+)
2(Sout-)	Signa output(-)
3(SG)	Gain regulation
8(Sin-)	Singnal input(-)
9(Sin+)	Singnal input(+)
10(Pout+)	Isolation power output(+)
11(Pout-)	Isolation power output(-)
*15(ZR)	Zero auxiliary regulation
16(SZ)	Zero regulation
17(Pin-)	Power input(-)
18(Pin+)	Power input(+)

*Note:the power supply of 24V withou 15 Pin
Unit: mm[inch]
Pin section tolerances: ±0.10[±0.004]
General tolerances: ±0.25[±0.010]

• This catalog is for reference only, please visit our website for detailed datasheets: www.mornsun-power.com

Active high precision output signal conditioning module

CE RoHS

Features

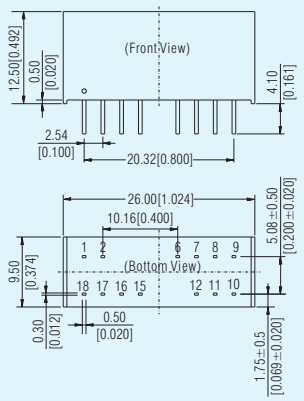
- Isolation: 2000VAC/60s
- Two-terminal isolation (signal input and signal output)
- Frequency response ≥ 2KHZ
- Gain adjustment and zero adjustment function
- High precision & linearity: 0.1%F.S
- Extremely low temperature drift: 50PPM/℃(within -40℃ to +85℃)

Product Program

Model Number	Power Supply (VDC)	Input Signal	Output Signal	Isolation Power Output	Certification
TF5134N	24	0-10V	4-20mA	15V	RoHS CE
TF5234N	24	0-10V	0-20mA	15V	
TF5534N	24	0-10V	0-10V	15V	
TF5554N	12	0-10V	0-10V	15V	
TF5634N	24	0-10V	0-5V	15V	
TF6134N	24	0-5V	4-20mA	15V	
TF6234N	24	0-5V	0-20mA	15V	
TF6250N	12	0-5V	0-20mA	/	
TF6254N	12	0-5V	0-20mA	15V	
TF6664N	5	0-5V	0-5V	15V	
TF6550GN	12	0-5V	-10Vto+10V	/	

Note:customization is acceptable.

Package Dimension LxWxH: 26.00x9.50x12.50(mm)

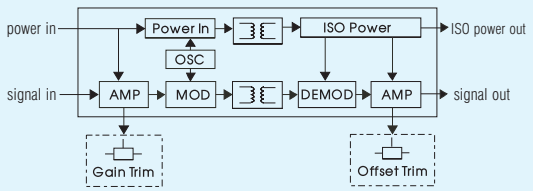


Pin-Out

Pin	Function
1(Sout+)	Signal output(+)
2(Sout-)	Signal output(-)
6(GR)	Gain auxiliary regulation
7(SG)	Gain regulation
8(Sin-)	Singnal input(-)
9(Sin+)	Singnal input(+)
10(Pin+)	Power input(+)
11(Pin-)	Power input(-)
12(NC)	No connection
15(ZR)	Zero auxiliary regulation
16(SZ)	Zero regulation
17(Pout-)	Isolation power output(-)
18(Pout+)	Isolation power output(+)

Unit: mm[inch]
Pin section tolerances: ±0.10[±0.004]
General tolerances: ±0.25[±0.010]

Schematic diagram



Active high precision PWM input signal conditioning module

CE RoHS

Features

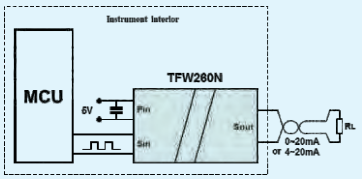
- Two-terminal isolation (signal input and signal output)
- High linearity (0.1% F.S.)
- Isolation voltage (2KVAC/60s)
- Low ripple & noise: (≤30mVpp.TYP, 20MHz)
- Compact size: DIP18 (26*9.5*12.5mm)
- ESD protection (IEC/EN61000-4-2 Contact ±4KVperf. Criteria B)
- PWM signal input

Product Program

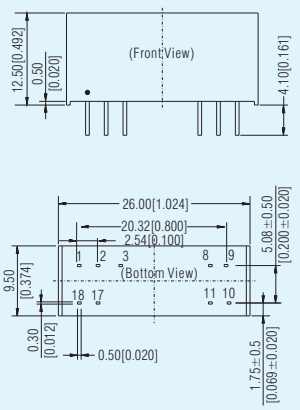
Model Number	Power Supply (VDC)	Input Signal(%)	Output Signal	Isolation Power Output	Certification
TFW260N	5V	0-100	0-20mA	None	RoHS CE
TFW560N	5V	0-100	0-10V	None	
TFW660N	5V	0-100	0-5V	None	

Note: Over nominal loop power voltage may damage modules.

Application Circuit Diagram



Package Dimension LxWxH: 26.00x9.50x12.50(mm)



Pin-Out

Pin	Function
1(Sout+)	Signal output(+)
2(Sout-)	Signal output(-)
3(NC)	No Connection
8(Sin-)	Signal input(-)
9(Sin+)	Signal input(+)
10(Pin+)	Power input(+)
11(Pin-)	Power input(-)
17(NC)	No Connection
18(NC)	No Connection

Unit: mm[inch]
Pin section tolerances: ±0.10[±0.004]
General tolerances: ±0.25[±0.010]

• This catalog is used to introduce our latest products, for more information, please contact our sales department

Active high precision (mV-class input) signal conditioning module

RoHS

Features

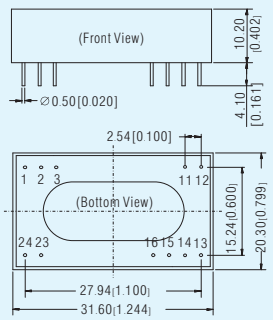
- Three-terminal isolation
- High precision & linearity: 0.1%F.S
- Isolation: 2500VDC
- Extremely low temperature coefficient: 50PPM/℃(within -25℃to+71℃)
- Low cost, compact package, high reliability , convenient to use

Product Program

Model Number	Power Supply (VDC)	Input Signal	Output Signal	Isolation Power Output	Certification
TM1130P	24	0～10mV	4～20mA	None	
TM3130P	24	0～30mV	4～20mA	None	
TM4130P	24	0～50mV	4～20mA	None	
TM4150P	12	0～50mV	4～20mA	None	
TM5230P	24	0～75mV	0～20mA	None	
TM6130P	24	0～100mV	4～20mA	None	
TM2550P	12	0～20mV	0～10V	None	
TM2650P	12	0～20mV	0～5V	None	
TM3650P	12	0～30mV	0～5V	None	
TM4530P	24	0～50mV	0～10V	None	
TM4630P	24	0～50mV	0～5V	None	
TM4650P	12	0～50mV	0～5V	None	
TM4660P	5	0～50mV	0～5V	None	
TM4S50P-2.5	12	0～50mV	0～2.5V	None	
TM5530P	24	0～75mV	0～10V	None	
TM5630P	24	0～75mV	0～5V	None	
TM5650P	12	0～75mV	0～5V	None	RoHS
TM6530P	24	0～100mV	0～10V	None	
TM6630P	24	0～100mV	0～5V	None	
TM6650P	12	0～100mV	0～5V	None	
TM6S50P-3.3	12	0～100mV	0～3.3V	None	
TM2S60P-2.5	5	0～20mV	0～2.5V	None	
TM5130P	24	0～75mV	4～20mA	None	
TM6660P	5	0～100mV	0～5V	None	
TM1630CP	24	±10mV	±5V	None	
TM2630CP	24	±20mV	±5V	None	
TM4530CP	24	±50mV	±10V	None	
TM4630CP	24	±50mV	±5V	None	
TM5530CP	24	±75mV	±10V	None	
TM5630CP	24	±75mV	±5V	None	
TM6530CP	24	±100mV	±10V	None	
TM6630CP	24	±100mV	±5V	None	
TM7650CP	12	±200mV	±5V	None	

Package Dimension

LxWxH: 31.60x20.30x10.20(mm)

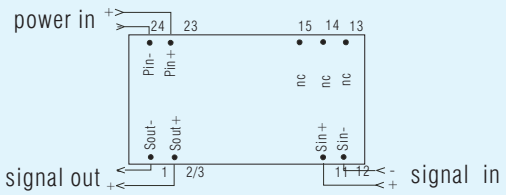


Pin-Out

Pin	Vo	Io	Function
1	Sout-	Sout-	Signal output(-)
2	NC	Sout+	Signal output(+)
3	Sout+	NC	Signal output(+)
11	Sin+	Sin+	Singnal input(+)
12	Sin-	Sin-	Singnal input(-)
13,14	NC	NC	no connection
15,16	NC	NC	no connection
23	Pin+	Pin+	Power supply(+)
24	Pin-	Pin-	Power supply(-)

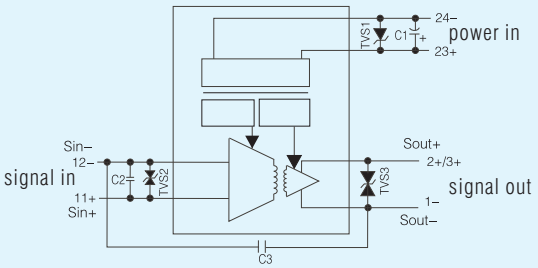
NC: no connection.
Unit: mm[inch]
Pin diameter tolerances: ±0.10[±0.004]
General tolerances: ±0.50[±0.020]

Wiring Diagram



EMC solution-recommended ciruit

TM_P Series



Signal Conditioning Module

Active high precision signal conditioning module

CE RoHS

Features

- Isolation: 2500VDC
- Four-terminal isolation
- High precision & linearity: 0.1%F.S
- Extremely low temperature drift: 50PPM/℃ (within -40℃ to +85℃)
- Low cost, compact package, high reliability , convenient to use

Product Program

Model Number	Power Supply (VDC)	Input Signal	Output Signal	Isolation Power Output	Certification
T1130P	24	4-20mA	4-20mA	None	RoHS
T1133P	24	4-20mA	4-20mA	24V	
T1533P	24	4-20mA	0-10V	24V	
T2233P	24	0-20mA	0-20mA	24V	
T5133P	24	0-10V	4-20mA	24V	
T5530P	24	0-10V	0-10V	None	CE RoHS
T6130P	24	0-5V	4-20mA	None	RoHS
T6235P	24	0-5V	0-20mA	12V	
T6630P	24	0-5V	0-5V	None	
T6650P	12	0-5V	0-5V	None	

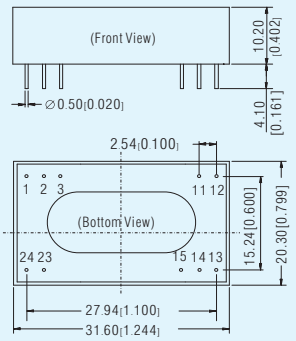
Product Program

Model Number	Power Supply (VDC)	Input Signal	Output Signal	Isolation Power Output	Certification
T5230CP	24	±10V	±20mA	None	RoHS
T5530CP	24	±10V	±10V	None	
T5533CP	24	±10V	±10V	24	
T5540CP	15	±10V	±10V	None	
T6630CP	24	±5V	±5V	None	
T6640CP	15	±5V	±5V	None	
T6650CP	12	±5V	±5V	None	
T6660CP	5	±5V	±5V	None	

Note: Customization is acceptable.

Package Dimension LxWxH: 31.60x20.30x10.20(mm)

TxxxxP Series:LxWxH: 31.60x20.30x10.20(mm)

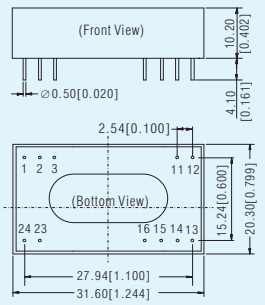


Pin-Out

Pin	Vo	Io	Function
1	Sout-	Sout-	Signal output(-)
2	No Pin	Sout+	Signal output(+)
3	Sout+	No Pin	Signal output(+)
11	Sin+	Sin+	Singnal input(+)
12	Sin-	Sin-	Singnal input(-)
13	Pout-	Pout-	Isolation power output-
14	Pout+	Pout+	Isolation power output+
15	NC	NC	No Connection
23	Pin+	Pin+	Power supply(+)
24	Pin-	Pin-	Power supply(-)

NC: No function pin.
Unit: mm[inch]
Pin diameter tolerances: ±0.10[±0.004]
General tolerances: ±0.50[±0.020]

TxxxxCP Series:LxWxH: 31.60x20.30x10.20(mm)



Pin-Out

Pin	Vo	Io	Function
1	Sout-	Sout-	Signal output(-)
2	NC	Sout+	Signal output(+)
3	Sout+	NC	Signal output (+)
11	Sin+	Sin+	Singnal input(+)
12	Sin-	Sin-	Singnal input(-)
13	NC	NC	No Connection
14	NC	NC	No Connection
15,16	NC	NC	No Connection
23	Pin+	Pin+	Power supply (+)
24	Pin-	Pin-	Power supply (-)

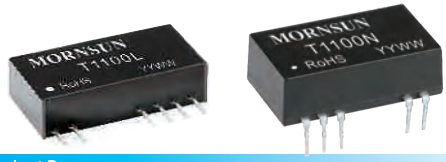
NC: No function pin.
Unit: mm[inch]
Pin diameter tolerances: ±0.10[±0.004]
General tolerances: ±0.50[±0.020]

Passive high precision signal conditioning module

CE RoHS

Features

- Isolation: 3000VDC
- Two-terminal isolation (signal input and signal output)
- High precision & linearity: 0.1%F.S
- Extremely low temperature drift: 35PPM/℃
- Low voltage-drop: 3V typ. (20mA input)
- High reliability(MTBF＞500,000 hours)

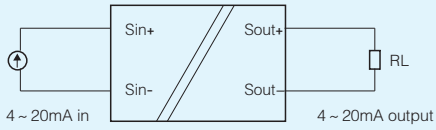


Product Program

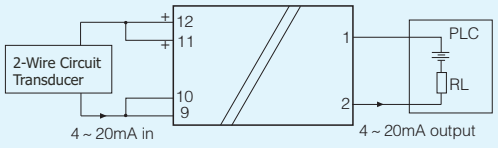
Model Number	Power Supply (VDC)	Input Signal	Output Signal	Isolation Power Output	Channel	Certification
T1100L	None	4-20mA	4-20mA	None	1	CE RoHS
T1100N	None	4-20mA	4-20mA	None	1	
T1100L-F	None	4-20mA	4-20mA	None	1	

Note: Over nominal loop power voltage may damage modules.

Application Circuit Diagram T1100L/ N Series

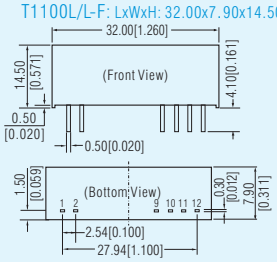


Application Circuit Diagram(Loop Power) T1100L–F Series



Product Program

T1100L/L-F: LxWxH: 32.00x7.90x14.50(mm)

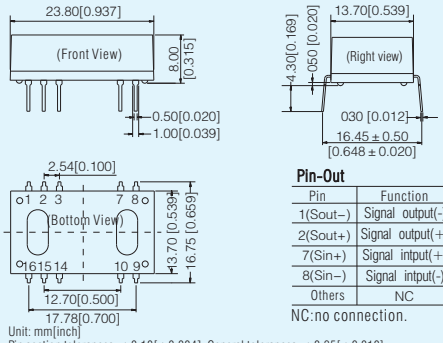


Pin-Out

Pin	Function
1(lin+)	Signal intput(+)
2(lin-)	Signal intput(-)
9,10(Iout-)	Signal output(-)
11,12(Iout+)	Signal output(+)

Unit: mm[inch]
Pin section tolerances: ±0.10[±0.004]
General tolerances: ±0.25[±0.010]

T1100N: LxWxH: 23.80×16.75×8.00((mm)



Pin-Out

Pin	Function
1(Sout–)	Signal output(-)
2(Sout+)	Signal output(+)
7(Sin+)	Signal intput(+)
8(Sin–)	Signal intput(-)
Others	NC

NC:no connection.

Unit: mm[inch]
Pin section tolerances: ±0.10[±0.004] General tolerances: ±0.25[±0.010]

Two-wire loop power supply signal conditioning module(with HART)

CE RoHS

Features

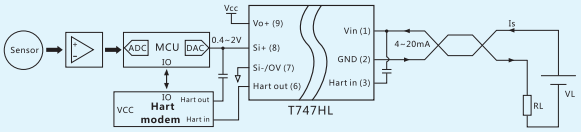
- 4-20mA output loop stealing, 3.3V regulated output(loop power)
- Isolation: 2000VAC/1mA/60s
- Two-terminal isolation (signal input and signal output)
- High precision & linearity: 0.1%F.S
- Extremely low temperature drift: 50PPM/℃
- Convert digital signal(PWM) into 4-20mA
- HART compatible

Product Program

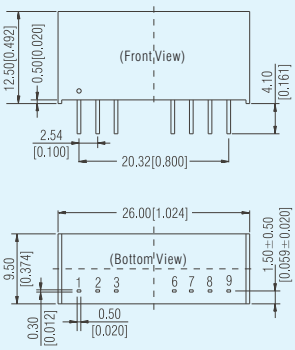
Model Number	Loop Power Supply (VDC)	Input Signal	Output Signal	Isolation Power Output	Certification
T747HL	10-24V	0-2.5V	3.7-22mA	3.3V	CE RoHS
T797HL	15-24V	0-2.5V	3.7-22mA	3.3V	
TW147HL	10-24V	0-100%	4-20mA	3.3V	
T747L	10-24V	0-2.5V	3.7-22mA	3.3V	

Note: Customization is acceptable.T747L is without HART.

Application with HART



Package Dimension LxWxH: 26.00x9.50x12.50(mm)



Pin-Out

Pin	Function
1(Vin)	Power supply+
2(Io)	Current output
3(HART_IN)	HART Signal input
6(HART_OUT)	HART Signal output
7(0V/Si-)	Signal input-/Isolated output-
8(Si+)	Signal input+
9(Vo+)	Isolated output+

Unit: mm[inch]
Pin section tolerances: ±0.10[±0.004]
General tolerances: ±0.25[±0.010]

• This catalog is for reference only, please visit our website for detailed datasheets: www.mornsun-power.com

Active detection type RTD signal conditioning module

CE RoHS

Features

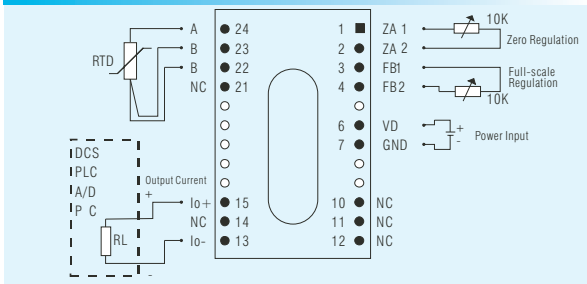
- Two-wire, three-wire, four-wire pt100 RTD signal
- Isolation: 2000VAC
- High precision & linearity: 0.2%F.S
- Extremely low temperature drift: 50PPM/℃(Typ., within -40℃ to +85℃)
- International standard signal output: 4-20mA/0-5V/0-10V etc.
- Low cost, compact package, high reliability,convenient to use

Product Program

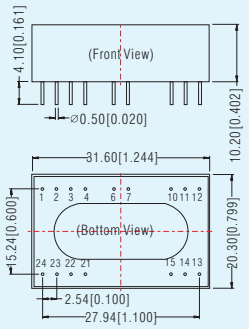
Model Number	Power Supply (VDC)	Input Signal	Output Signal	Isolation Power Output	Certification
TRP16130P	24	Pt100(0-200℃)	4-20mA	None	RoHS CE
TRP15130P	24	Pt100(0-100℃)	4-20mA	None	
TRP18130P	24	Pt100(−50-150℃)	4-20mA	None	
TRP15S30P-2.5	24	Pt100(0-100℃)	0-2.5V	None	
TRP16150P	12	Pt100(0-200℃)	4-20mA	None	
TRP17130P	24	Pt100(0-500℃)	4-20mA	None	

Note: Customization is acceptable.

Application Cricuit Diagram



Package Dimension LxWxH: 31.60×20.30×10.20(mm)



Pin-Out		
Pin	Function	
1	Za1	Zero Adjuistment 1
2	ZA2	Zero Adjuistment 2
3	FB1	Amplitude Adjuistment 1
4	FB2	Amplitude Adjuistment 2
6	VD	Power Supply(+)
7	GND	Power Supply(-)
10	Vo+	Voltage Signal Output(-)
12	Vo-	Voltage Signal Output(-)
13	Io-	Current Signal Output(-)
15	Io+	Current Signal Output(+)
22	B	Thermal Resistance Signal Input B
23	B	Thermal Resistance Signal Input B
24	A	Thermal Resistance Signal Input A
others	NC	Pin to be isolated from circuit

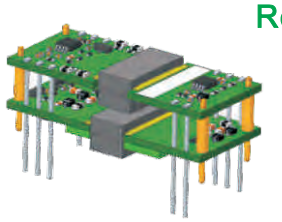
Unit: mm[inch]
Pin diameter tolerances: ±0.10[±0.004]
General tolerances: ±0.50[±0.020]

Active high precision high isolation signal conditioning module

RoHS

Features

- Suitable for eletric power and railway applications
- Planar transformer bare board technology
- Isolation: 4000VAC/60s
- Two-terminal isolation (signal input and signal output)
- Low ripple & noise: ⩽35mVpp (20MHz)
- Extremely low temperature drift: ⩽50PPM/℃(within -40℃ to +85℃)



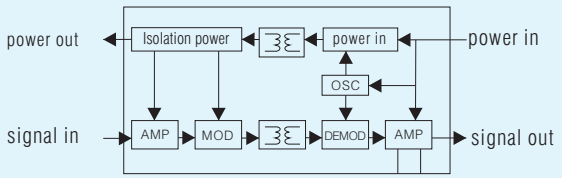
Note:design sketch for your reference.

Product Program

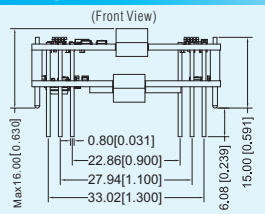
Model Number	Power Supply (VDC)	Input Signal	Output Signal	Isolation Power Output	Certification
TE6650HN	12	0-5V	0-5V	None	RoHS

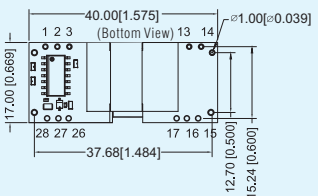
Note: Customization is acceptable.

Schematic diagram



Package Dimension





Unit: mm[inch]
Pin diameter tolerances: ±0.10[±0.004]
General tolerances: ±0.50[±0.020]

Pin-Out			
Pin	Function	Pin	Function
1	Sout-	15	Pout-
2	Sout+	16	Pout+
3	NC	17	NC
13	Sin+	26	NC
14	Sin-	27	Pin+
		28	Pin-

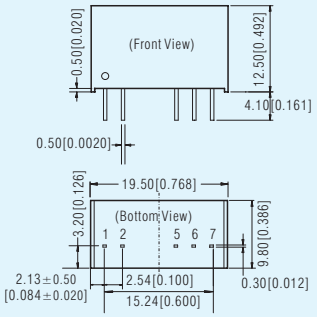
• This catalog is used to introduce our latest products, for more information, please contact our sales department

DC/DC converter for IGBT driver

Features

- Operating temperature:-40℃ to +105℃
- Efficiency up to 81%
- Isolation: 3000VAC
- Low isolation capacitance
- No-load operation allowed
- Ultra-miniature SIP package

Package Dimension LxWxH: 19.50x9.80x12.50(mm)



Pin-Out

Pin	Function
1	Vin
2	GND
*5	-Vo
6	0V
7	+Vo

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

Product Program

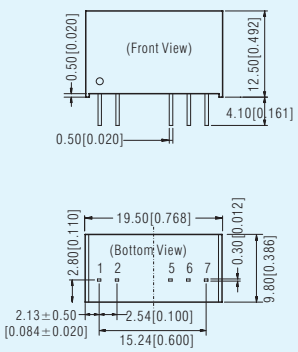
Model Number	Nominal Input Voltage(VDC)	Input Voltage Range (VDC)	Positive Output (VDC)	Negative Output (VDC)	Output current(mA)	Efficiency	Max. Capacitive Load(μF)	Certification
QA01	15	14.5-15.5	+15	-8.7	+80/-40	80%	220	cULus CE CB RoHS
QA01-17	15	14.5-15.5	+17	-8.7	+80/-40	80%	220	
QA02	12	11.6-12.4	+15	-8.7	+80/-40	80%	220	
QA03	24	23.3-24.7	+15	-8.7	+80/-40	80%	220	
QA04	12	9-15	+15	-8	+100/-80	80%	220	
QA121	12	11.4-12.6	+15	-8	+120/-120	81%	1000	RoHS
QA151	15	14.25-15.75	+15	-8	+120/-120	81%	1000	
QA241	24	22.8-25.2	+15	-8	+120/-120	81%	1000	

DC/DC converter specialized for SiC MOSFET driver

Features

- Operating temperature:-40℃ to +105℃
- Isolation: 3500VAC/6000VDC(QA051C:3000VAC/5200VDC, QA151C3:3500VAC/5000VDC)
- Efficiency up to 83%
- Extremely low isolation capacitance: 3.5pF
- Continuous short-circuit protection
- DC/DC converter for SiC MOSFET Driv

Package Dimension LxWxH: 19.50x9.80x12.50(mm)



Pin-Out

Pin	Function
1	Vin
2	GND
5	-Vo
6	0V
7	+Vo

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

Product Program

Model Number	Nominal Input Voltage (VDC)	Nominal(Range)	Positive Output (VDC)	Negative Output (VDC)	Output current(mA)	Efficiency	Isolation(VAC)	Certification
QA01C	15	13.5-16.5	+20	-4	+100/-100	80	3500	cULus CE CB RoHS
QA1201C-20	12	10.8-13.2	+20	-4	+100/-100	80	3500	RoHS
QA2401C-20	24	21.6-26.4	+20	-4	+100/-100	80	3500	
QA15115R2	15	13.5-16.5	+15	-2.5	+100/-100	80	3500	
QA01C-18	15	13.5-16.5	+18	-3	+100/-100	83	3500	
QA121C2	12	10.8-13.2	+15	-3.5	+111/-111	81	3500	
QA151M	15	14.4-15.9	+15	-5	+100/-100	80	3500	
QA051C	5	4.5-5.5	+20	-5	+80/-40	79	3000	
QA151C3	15	13.5-16.5	+15	-4	+100/-100	82	3500	

• This catalog is for reference only, please visit our website for detailed datasheets: www.mornsun-power.com

Great power DC/DC converter specialized for IGBT driver

CE RoHS

Features

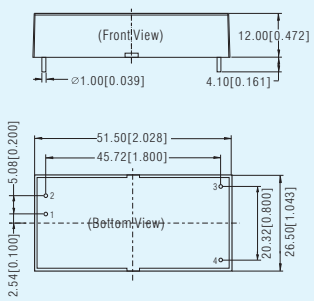
- Operating temperature:-40℃ to +85℃/-40℃ to +105℃(QAU242D2G)
- High isolation:12000VDC
- Extremely low isolation capacitance:3pF
- Efficiency up to 87%
- 2:1Wide input voltage range(QAW series)
- DIP package
- Continuous short-circuit and input under-voltage protection, self-recovery

Product Program

Model Number	Input Voltage(VDC)	Nominal(Range)	Positive Output (VDC)	Negative Output (VDC)	Output current(mA)	Efficiency	Isolation	Certification
QAW01	12	9-18	+15	-9	+200/-200	85%	3000VDC	
QAW02	24	18-36	+15	-9	+200/-200	85%	3000VDC	CE
QA152D	15	13.5-16.5	+15	-9	+200/-200	87%	4000VAC	RoHS
QA156D-24	15	13.5-16.5	+24	/	+150	80%	12000VDC	
QAU242D2G	24	9-36	+24	+24	+150/+150	85%	4200VAC	RoHS

Package Dimension

QA156D-24: LxWxH: 51.50x26.50x12.00(mm)

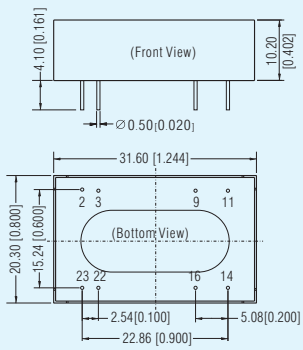


Pin-Out

Pin	Function
1	GND
2	Vin
3	+Vo
4	0V

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

QAW01/QAW02/QA152D: LxWxH: 31.60x20.30x10.20(mm)

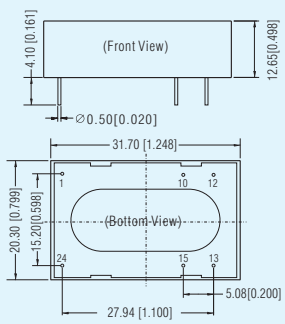


Pin-Out

Pin	Function
2,3	GND
9	0V
11	-Vo
14	+Vo
16	0V
22,23	Vin

Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

QAU242D2G: LxWxH: 31.70x20.30x12.65(mm)



Pin-Out

Pin	Function
1	GND
10	-Vo1
12	+Vo1
13	+Vo2
15	-Vo2
24	Vin

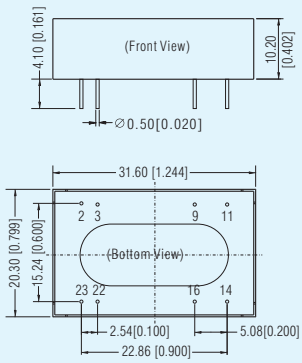
Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

Automotive wide voltage input DC/DC converter specialized for IGBT driver RoHS

Features

- Wide input voltage range
- Efficiency up to 83%
- Isolation: 3000VDC
- Operating temperature: -40℃ to +105℃
- International standard pin output

Product Program LxWxH: 31.60x20.30x10.20(mm)



Pin-Out

Pin	Function
2,3	GND
9	0V
11	-Vo
14	+Vo
16	0V
22,23	Vin

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.50[±0.020]

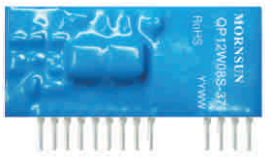
Product Program

Model Number	Nominal Input Voltage (VDC)	Nominal(Range)	Positive Output (VDC)	Negative Output (VDC)	Output current(mA)	Efficiency	Isolation(VAC)	Certification
CQAW01	12	7-18	+15	-9	+200/-200	83%	3000	RoHS

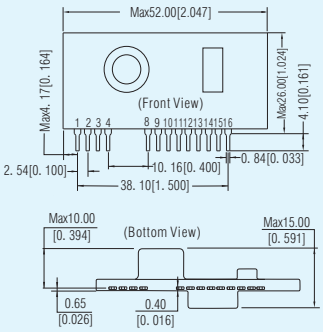
Hybrid integrated IGBT driver (built-in isolated DC/DC converter) CE RoHS

Features

- Built-in DC/DC isolated power supply, single power supply required
- Isolation: 3750VAC
- Switching frequency up to 20KHz
- Short-circuit and fault feedback function
- Output cut-off after short circuit protection occurs and timing reset
- Adjustable fault detection rejection time (dead zone)
- Adjustable soft-off time



Product Program LxWxH: 52.00x26.00x15.00(mm)



Pin-Out

Pin	Function
1	Power supply+
2	Power supply-
3	Drive signal input+
4	Drive signal input-
8	DC/DC converter output+
9	DC/DC converter output(COM)
10	DC/DC converter output-
11	Drive output
12	Collector of internal power tube
13	Detect of short circuit
14	Adjustment of Soft turn-off time
15	Fault signal output
16	Adjustment of short-circuit detection time delay

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]
Unmarked Tolerance: ±0.50[±0.020]

Product Program

Model Number	Nominal Input Voltage (VDC)	Input Voltage Range(VDC)	VOH(VDC)	VOL(VDC)	Output Peak Current(A)	Switching Frequency (Max.) (KHz)	Isolation(VAC)	Certification
QP12W08S-37	15	14.5-15.5	15	-9	±8	20	3750	RoHS CE

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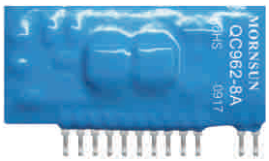
Hybrid integrated IGBT driver

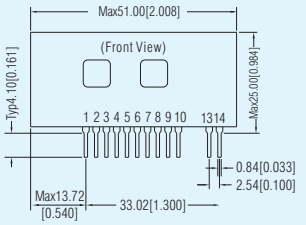
RoHS

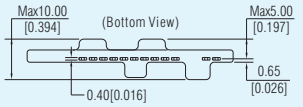
Features

- Built-in high CMRR opto-coupler(CMRR: Typ: 30KV/ μ s, Min.: 15KV/ μ s)
- High isolation (3750VRMS/min)
- Short-circuit and fault out function
- Output soft-off when over current occurs and timing reset
- Adjustable short-circuit detection rejection time (dead zone)
- Switching frequency up to 40KHz
- Suitable for 600V/600A,1200V/400A and 1700V/200A series of IGBT modules
- Pin and characteristics compatible with M57962AL



Product Program LxWxH: 51.00x25.00x10.00(mm)





Pin-Out

Pin	Function
1	Fault detect
2	Reaction time
4	Power supply+
5	Drive output
6	Power supply-
7	Potective threshold adjustment
8	Fault signal output
13	Drive signal input-
14	Drive signal input+
3,9,10	NC

Unit: mm[inch]
Pin section tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]
Unmarked Tolerance: ±0.50[±0.020]

Product Program

Series	Positive input Voltage(VDC)	Negative input Voltage(VDC)	Gate voltage (VDC)	Max. Driving Current (A)	Max.Frequency (KHz)	Drive way	Isolation	Certification
QC962-8A	15	-10	+15/-9	±8	40	1	3750VAC	RoHS

Constant current great power LED driver

RoHS

Features

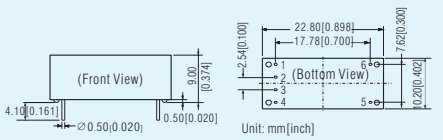
- Operating temperature:-40℃ to +85℃
- Efficiency up to 97%
- Constant current mode, great power output
- Analogue dimming+PWM dimming
- Remote ON/OFF
- Continusous short-circuit protection

KC24H-R Series

Product Program

Model Number	Input Voltage (Nominal)	Output Voltage (VDC)	Output Current (mA)	Efficiency(%, Typ), Full Load
KC24H-300R(X1/X2/X3)	5.5-46 (24VDC)	3.3-36	0-300	95%
KC24H-350R(X1/X2/X3)			0-350	95%
KC24H-500R(X1/X2/X3)			0-500	95%
KC24H-600R(X1/X2/X3)			0-600	95%
KC24H-700R(X1/X2/X3)			0-700	95%

Package Dimension LxWxH: 22.80x10.20x9.00(mm)



Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

PIN CONNECTION

Pin	Function	Comment
1	GND	Do not connect to-Vout
2	ON/OFF/PWM	Leave open if not use
3	Analog dimming	Leave open if not use
4	Vin	DC Supply
5	+Vout	LED Anode connection
6	-Vout	LED Cathode connection

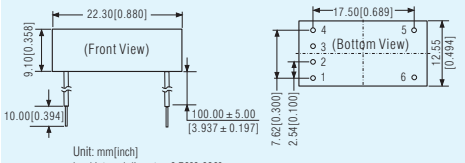
Notes:1. Series without a suffix such as KC24H-300R, this product is a four-pin product without the functions of analogue dimming and PWM dimming.
2. Series with a suffix X1 such as KC24H-300RX1, this product is a five-pin product only with the function of analogue dimming.
3. Series with a suffix X2 such as KC24H-300R X2, this product is a five-pin product only with the function of PWM dimming.
4. Series with a suffix X3 such as KC24H-300R X3, this product is a six-pin product with the functions of analogue dimming and PWM dimming.

KC24W Series

Product Program

Model Number	Input Voltage (Nominal)	Output Voltage (VDC)	Output Current (mA)	Efficiency(%, Typ), Full Load
KC24W-300 (X1/X2/X3)	5.5-48 (24VDC)	3.3-36	0-300	96
KC24W-350 (X1/X2/X3)			0-350	96
KC24W-500 (X1/X2/X3)			0-500	96
KC24W-600 (X1/X2/X3)			0-600	96
KC24W-700 (X1/X2/X3)			0-700	96

Package Dimension LxWxH: 22.30x12.55x9.10(mm)



Unit: mm[inch]
Lead internal diameter: 0.76[0.030];
Lead external diameter: 1.60[0.063];
Lead wire spec: UL1569 300V 105℃
Unmarked Tolerance: ±0.50[±0.020]

PIN CONNECTION

Pin	Function	Comment
1(red)	+Vin	DC Supply
2(yellow)	AnalogDimming	Leave open if nou use
3(white)	ON/OFF/PWM	Leave open if nou use
4(black)	GND	Do not commect to-Vout
5(white)	-Vout	LED Cathode connection
6(yellow)	+Vout	LED Anode connection

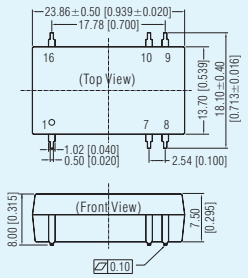
Note:1.Series without suffix such as KC24W-300 are four-wire products without analogue dimming+PWM dimming.
2.Series with suffix X1 such as KC24W-300X1 are five-wire products with analogue dimming only.
3.Series with suffix X2 such as KC24W-300X2 are five-wire products with PWM dimming only.
4.Series with suffix X3 such as KC24W-300X3 are six-wire products with analogue dimming+PWM dimming.

KC24RT Series

Product Program

Model Number	Input Voltage Range (Nominal)	Output Voltage (VDC)	Output Current (mA)	Effi(%) (Max)
KC24RT-300	5.5-48 (24VDC)	3.3-36	0-300	96
KC24RT-350			0-350	96
KC24RT-500			0-500	96
KC24RT-600			0-600	96
KC24RT-700			0-700	96

Package Dimension LxWxH: 23.86x18.10x8.00(mm)



Pin-Out

Pin	Function	Comment
1	GND	Do not connect to -Vout
7	ON/OFF/PWM	Leave open if not use
8	-Vout	LED Cathode connection
9	+Vout	LED Anode connection
10	Analogue dimming	Leave open if not use
16	Vin	DC Supply

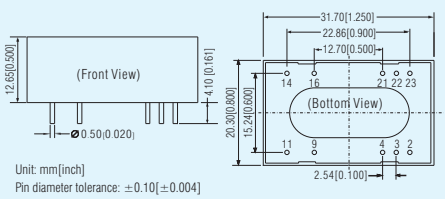
Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]

KC24H-1000 & KC24H-1200 Series

Product Program

Model Number	Input Voltage Range (Nominal)	Output Voltage (VDC)	Output Current (mA)	Effi(%) (Max)
KC24H-1000(X1/X2/X3)	5.5-48 (24VDC)	3.3-36	1000	97
KC24H-1200(X1/X2/X3)			1200	97

Package Dimension LxWxH: 31.70x20.30x12.65(mm)



Unit: mm[inch]
Pin diameter tolerance: ±0.10[±0.004]
General tolerance: ±0.25[±0.010]
Unmarked Tolerance: ±0.50[±0.020]

Pin-Out

Pin	Function	Comment
2,3	GND	Do not connect to -LED
4	ON/OFF/PWM	Leave open if not use
9,11	-LED	LED Cathode connection
14,16	+LED	LED Anode connection
21	Analogue dimming	Leave open if not use
22,23	+Vin	DC Supply

Note:
1. Series without suffix, such as KC24H-1000 are eight-pin products without analogue dimming+PWM dimming function.
2. Series with suffix X1,such as KC24H-1000X1 are nine-pin products with analogue dimming function only.
3. Series with suffix X2,such as KC24H-1000X2 are nine-pin products with PWM dimming function only.
4. Series with suffix X3,such as KC24H-1000X3 are ten-pin products with analogue dimming+PWM dimming function.

• This catalog is for reference only, please visit our website for detailed datasheets: www.mornsun-power.com

Ultra-thin analog signal isolator

Features

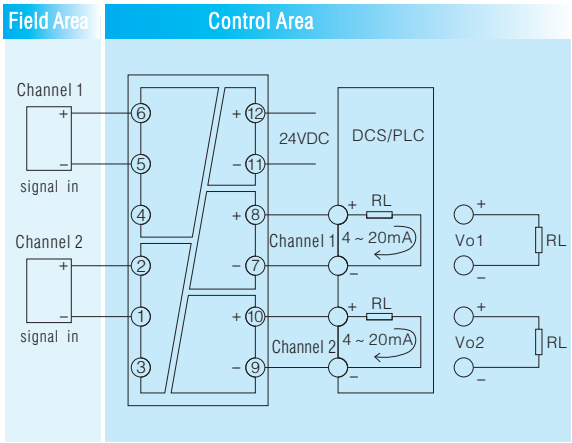
- Operating temperature:-25℃ to +71℃
- Precision: 0.1% F.S.
- Isolation: 2000VAC(testing for 1Min, humidity<70%, leakage current <1mA)
- Input, output and power supply are mutually isolated from each other
- Temperature drift: 35PPM/℃(within -25℃ to +71℃)
- Radiated immunity: 10V/m

Bottom power supply port

Product Program

Model Number	Input Voltage Range(VDC)	Input Signal	Output Signal	Channel
TA100W-XX	18-30VDC	4-20mA	4-20mA; 0-10V	1 in 1 out
TA140W-XX		0-10V	0/4-20mA; 0-10V	
TA600W-XX	18-30VDC	4-20mA	4-20mA; 0-10V	1 in 2 out
TA640W-XX		0-10V	4-20mA; 0-10V	
TA200W-XX	18-30VDC	4-20mA	4-20mA; 0-10V	2 in 2 out
TA240W-XX		0-10V	0/4-20mA; 0-10V	

Wiring Diagram



Note: above is wiring diagram of 2-wire circuit. Series with 1 in 2 out only connect input terminal with Channel 1, with 1 in 1 out connect input terminal and output terminal with Channel 1.

Ultra-thin analog signal isolator

Features

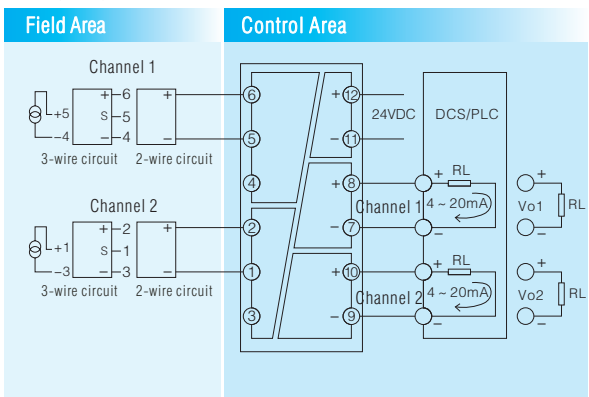
- Operating temperature: -25℃ to +71℃
- Input, output and power supply are mutually isolated from each other
- Precision: 0.1% F.S.
- Isolation: 2000VAC(testing for 1Min, humidity <70%, leakage current<1mA)
- Temperature drift: 35PPM/℃(within -25℃ to +71℃)
- Radiated immunity: 10V/m

Bottom power supply port

Product Program

Model Number	Input Voltage Range(VDC)	Input Signal	Output Signal	Channel
TA105W-XX	18-30VDC	4-20mA	4-20mA, 1-5V; 0-10V	1 in 1 out
TA605W-XX	18-30VDC	4-20mA	4-20mA, 0-10V	1 in 2 out
TA205W-XX	18-30VDC	4-20mA	4-20mA, 0-10V	2 in 2 out

Wiring Diagram



Note: above is wiring diagram of 2-wire circuit. Series with 1 in 2 out only connect input terminal with Channel 1, with 1 in 1 out connect input terminal and output terminal with Channel 1.

- This catalog is used to introduce our latest products, for more information, please contact our sales department

Ultra-thin passive signal isolator

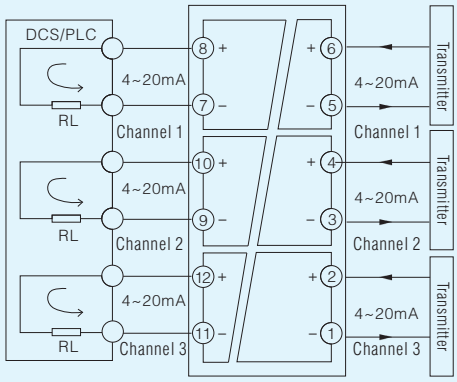
Features

- Operating temperature:-25℃ to +71℃
- Isolation: 2000VAC/3000VDC(testing for 1Min, humidity<70%, leakage current<5mA)
- Precision: 0.1% F.S.
- Temperature drift: 35PPM/℃(within -25℃ to +71℃)
- Radiated immunity: 10V/m

Product Program

Model Number	Input Signal	Output Signal	Channel
TA106W-11	4-20mA	4-20mA	1 in 1 out
TA206W-11	4-20mA	4-20mA	2 in 2 out
TA306W-11	4-20mA	4-20mA	3 in 3 out

Wiring Diagram for Current Source Application



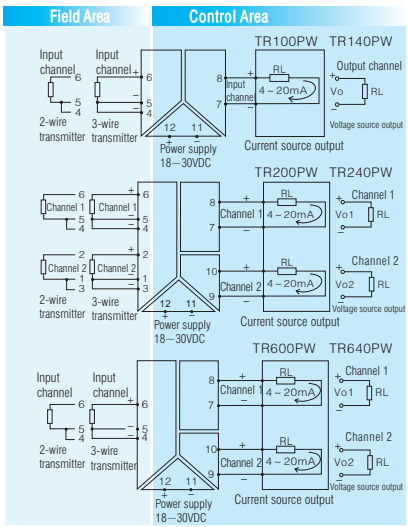
Ultra-thin programmable RTD signal isolator

Bottom power supply port

Features

- Operating temperature: -25℃ to +71℃
- Isolation: 2000VAC(testing for 1Min, humidity<70%,leakage current <5mA)
- Input,output and power supply are mutually isolated from each other
- Precision: 0.1% F.S./Max.(0.5℃)
- Temperature drift: 50PPM/℃(within -25℃ to +71℃)
- Radiated immunity: 10V/m

Wiring Diagram



Product Program

TR1x0PW TR6x0PW TR2x0PW	Descriptions		
	Type of Signal	Measuring Range	Measuring(Min.)
Input Signal	Pt100	-200 to +850℃	50℃
	Cu50	-50 to+150℃	50℃
	Cu100	-50 to+150℃	50℃
output signal	Output Current	0/4 to 20mA(Programmable)	
	Output Voltage	0/1 to 5V; 0/2 to 10V(Programmable)	

Note:
1. Customers need to determine the type of input signal, measuring range and form of output signal while placing an order. Customization is acceptable.
2. The ancillary USB adapter model is T-01, please contact our sales department.

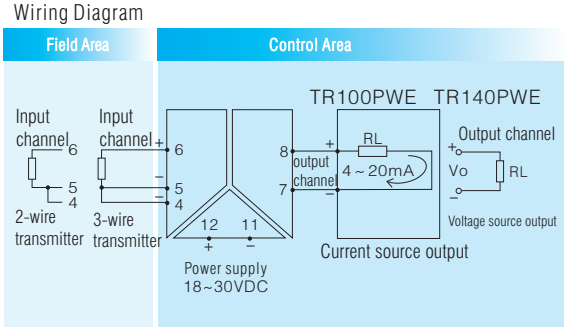
• This catalog is for reference only, please visit our website for detailed datasheets: www.mornsun-power.com

Ultra-thin programmable RTD signal isolator with perfect EMC performance

Features

- Operating temperature:-25℃ to +71℃
- Isolation: 2000VAC(testing for 1Min, humidity<70%,leakage current <1mA)
- Precision: 0.1% F.S.
- Temperature drift: 50PPM/℃ (within -25℃ to +71℃)
- Radiated immunity: 10V/m

Wiring Diagram



Product Program

TR100PWE TR140PWE	Descriptions		
	Type of Signal	Measuring Range	Measuring(Min.)
Input Signal	Pt100	-200 to +850℃	50℃
	Cu50	-50 to +150℃	50℃
	Cu100	-50 to +150℃	50℃
output signal	Output Current	0/4-20mA(Programmable)	
	Output Voltage	0/1–5V; 0/2–10V(Programmable)	

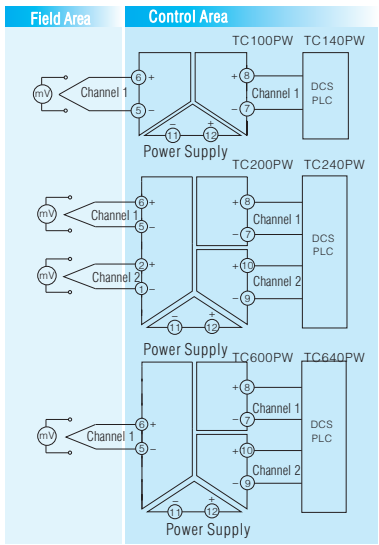
Note:
1. Customers need to determine the type of input signal, measuring range and form of output signal while placing an order. Customization is acceptable.
2. The ancillary USB adapter model is T-01, please contact our sales department.

Ultra-thin programmable thermocouple signal isolator

Features

- Operating temperature: -25℃ to +71℃
- Isolation: 2000VAC(testing for 1Min, humidity<70%,leakage current <5mA)
- Input,output and power supply are mutually isolated from each other
- Precision: 0.1% F.S.
- Temperature drift: 50PPM/℃(within -25℃ to +71℃)
- Radiated immunity: 10V/m

Wiring Diagram Bottom power supply port



Product Program

Type of Output	1 in 1 out	2 in 2 out	1 in 2 out
Model Number	TC100PW	TC200PW	TC600PW
	TC140PW	TC240PW	TC640PW
Input Signal	Type of Signal	Measuring Range	Measuring(Min.)
	R	-40 to +1700℃	600℃
	S	-40 to +1700℃	600℃
	K	-150 to +1370℃	120℃
	J	-80 to +900℃	100℃
	T	-160 to +390℃	100℃
	B	320 to +1820℃	780℃
	E	-80 to +700℃	500℃
	mV	-60 to +60mV	10mV
output signal	Output Current	0/4-20mA(Programmable)	
	Output Voltage	0/1-5V;0/2-10V(Programmable)	

Note:
1. Customers need to determine the type of input signal, measuring range and form of output signal while placing an order. Customization is acceptable.
2. The ancillary USB adapter model is T-01, please contact our sales department.

Purpose:

To prevent potential safety problems while using the products.

Scope:

AC/DC, DC/DC, EMC Auxiliary Device, Isolation Transmitter, LED Driver and IGBT Driver manufactured by Mornsun Guangzhou Science & Technology Co., Ltd.

Contents:

Users should comply to all the contents of Product Datasheet carefully before selection, design, or production, and design and use the products according the requirements of Product Datasheet.

Material requirements

- To avoid wrong phase, input and output wires should be in different colors.
- The input ground and protection ground must be firmly connected;The grounding resistance must meet the requirements of safety standards.
- Protect the device from electric shock and lightning. If the device is not lightning-proof, additional lightning protections must be taken.

Marking requirements

- The fuses, protection grounds and switches should be marked with distinct specs and symbols according to safety standards. Touchable dangerous high voltage and high temperature products should be marked with "Caution".

Input requirements

- If the input capacitor is large, connect a discharge circuit such as resistor to meet the requirements of safety standards.
- Voltage of input source must meet the requirements of "Product Datasheet" or "Technical Specification".

CAUTION

Safety guide for users

- Do not refit, disassemble or remove the outer case in case of electric shock or other damages. Improper use may cause short circuit, electric shock or other failures.

Isolation requirements between input, output and metal case (or ground)

- The clearance and creepage between the two wires of input and output must meet the requirements of safety standards.
- The clearance and creepage of input, output and metal case(or ground) must meet the requirements of safety standards.

Cautions

- Do not touch heat sinks or cases, as they might be hot.
- Do not touch input terminals and internal components of the products, in case of high temperature and high voltage.
- When the product is operating, keep your hand and face away from it to avoid any potential hurts.

Hot-plugging requirements

- If the product is not allowed for hot plug, please cut off the power before operation.

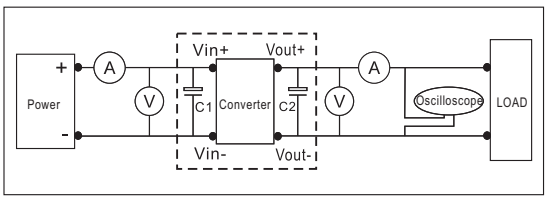
More information about application, please contact us.

Tel: 020-38601850 E-mail: fae800@mornsun.cn

DC/DC Converter testing suggestions

After selecting the right converter based on input and output requirements, the correct testing method must be used to ensure and verify specified performance parameters. The following are suggested test methods and test equipment requirements.

Test conditions: ambient temperature TA=25℃ humidity<75%, rated input and rated load.



The model contains:

a) DC adjustable regulated power supply : output voltage range is suitable for DC/DC converter under testing.

b) current meter A : accuracy 0.001A

c) voltage meter V: accuracy 0.001V

d) load resistance: rated load: U*U/P
light load: 10*U*U/P

e) wire: less wire loss is required. It is recommended to use 1mm multistand copper wire, which avoids over voltage drop.

Test:

A: Wire

The proper wire shall be selected as described above. Smaller wire will result in potential errors in the test of efficiency and regulation parameters. Ensure all mechanical and solder connections are sound as this will also result in errors.

B: Grounding

Improper grounding may cause unintended noise to the circuit. When testing ripple and noise, it is recommended to use a single pole test method to measure.

C: Load

To ensure valid test data, the testing load of unregulated products should be within 10～100% of the rated output current/power. It can test unregulated products at no load, but should be aware that the voltage accuracy is not specified at this load level.

1) Input voltage accuracy:

Set input voltage at nominal value and output at rated load, then mark the testing output voltage as Vout and the nominal output voltage as Vnom. The formula:

$$\frac{V_{OUT}-V_{NOM}}{V_{NOM}} X100\%$$

e.g: For regulated products IB1212LS-1W, the nominal input voltage is 12V, and rated load is 144 Ω . The output voltage reads 12.039V.

$$\frac{12.039VDC-12.000VDC}{12.000VDC} X100\%=0.325\%$$

2) Line regulation:

Isolated regulated series:

Line regulation equals difference ratio between max. and min. output voltage, when adjusting input voltage within its limitation at full load:

$$\text{Line regulation}=\frac{V_{OUTN}-V_{MDEV}}{V_{OUTN}} X100\%$$

V_{OUTN}-- output voltage at nominal input voltage and rated load

V_{OUTH}-- output voltage when input voltage at its upper limit

V_{OUTL}-- output voltage when input voltage at its lower limit

V_{MDEV}-- V_{OUTH} or V_{OUTL} Which is deviated from V_{OUTN} more

Fixed input, isolated unregulated series:

$$\text{Line regulation}=\left|\frac{\Delta V_{OUT}}{\Delta V_{IN}}\right|$$

$$\Delta V_{OUT}=\frac{V_{OUT+10\%}-V_{OUT-10\%}}{V_{OUTNOM}} X100\%$$

$$\Delta V_{IN}=\frac{V_{IN+10\%}-V_{IN-10\%}}{V_{INNOM}} X100\%$$

In the formula:

$V_{IN+10\%}$--nominal input voltage and add 10% as its upper limit

$V_{IN-10\%}$--nominal input voltage and minus 10% as its lower limit

$V_{OUT+10\%}$--output voltage at full load when input voltage at its upper limit

$V_{OUT-10\%}$--output voltage at full load when input voltage at its lower limit

V_{INNOM}--nominal input voltage

V_{OUTNOM}--output voltage at full load and nominal input voltage

e.g.: If B0505LS-1W connects a 25 Ω resistive load, input voltage range will be±10% (4.5V～5.5V).

$V_{IN+10\%}$=5.5 V; $V_{IN-10\%}$=4.5 V ; V_{INNOM}=5V

$V_{OUT+10\%}$=5.32V; $V_{OUT-10\%}$=4.2V; V_{OUTNOM}=4.77V

Then: $\Delta V_{OUT}=\frac{5.32VDC-4.2VDC}{4.77VDC} X100\%=23.5\%$

$$\Delta V_{IN}=\frac{5.5VDC-4.5VDC}{5VDC} X100\%=20\%$$

$$\text{Line regulation}=\left|\frac{\Delta V_{OUT}}{\Delta V_{IN}}\right|=1.174$$

3) Load regulation:

Isolated regulated series:

As the input voltage is rated, connect 10% and 100% constant resistance load and then test the values at 10% load and full load. Next, compare the two values with the rated value and calculate the differences.

$$\text{Load regulation} = \frac{V_{b1}(V_{b2})\text{-}V_{bo}}{V_{bo}} \times 100\%$$

V_{bo}--setting value of output voltage;
V_{b1}--output voltage at minimum output current;
V_{b2}--output voltage at nominal output current;

Fixed input, isolated unregulated series:

$$\text{Load regulation} = \frac{V_{OUTNL} - V_{OUTFL}}{V_{OUTFL}} \times 100\%$$

V_{OUTNL}--output voltage at 10% load
V_{OUTFL}--output voltage at full load

e.g: Fxed input product B0505XD-1W offers rated load $U^2/P = 25\ \Omega$. At 10%~100% load, they read

V_{OUTNL}= 5.29 V; V_{OUTFL}= 4.77 V

$$\text{load regulation} = \frac{5.29\text{VDC} - 4.77\text{VDC}}{4.77\text{VDC}} \times 100\% = 10.9\%$$

4)Efficiency:

The ratio between input power and output power at rated input and rated load.

$$\text{Efficiency} = \frac{I_{OUT} \times V_{OUT}}{I_{IN} \times V_{IN}} \times 100\%$$

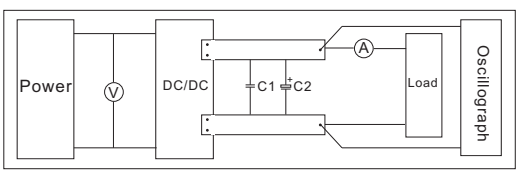
e.g.: IB1212LS-1W offers 12V rated input and 12.039V output at full load. When current is 83.3mA, input current is 115.0mA.

$$\text{Efficiency} = \frac{0.0833\text{A} \times 12.039\text{V}}{0.1150\text{A} \times 12.000\text{V}} \times 100\% = 73\%$$

5)Ripple and noise:

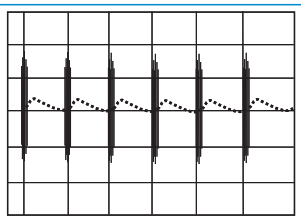
Ripple and noise is the AC component at the DC output, which affects output accuracy. We usually measure the peak to peak value(mVp-p) of ripple and noise with parellel method.

As the figure shows:



Notes: 1. C1 is a ceramic capacitor.
2. C2 is a capacitor suitable for the fixed input product. Please refer to datasheet for details. For wide input product, C2 should be 10uF electrolytic capacitor that has a higher withstanding voltage than module's output voltage.

As the DC/DC converter output end/side may contain high-frequency harmonics, and the common mode rejection ratio of most scopes is not so good, it is best to not use the ground wire provided on most probes. Attach the ground sleeve as shown in the figure above.



Tall, high frequency spikes are normally noise, and smaller lower frequency plots are generally ripple.

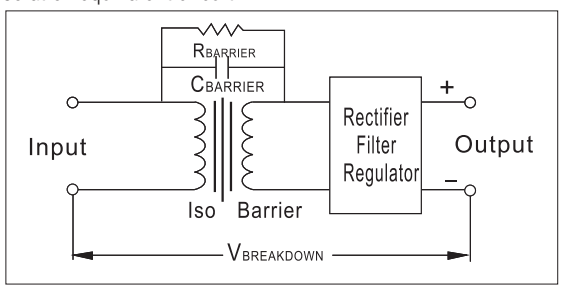
6)Start-up time:

Start-up time is the time once the input voltage is present and within the specified range, the time it takes for the output of the converter to rise between 10% and 90% of its nominal value. This is usually tested and specified with a resistive load only. Other factors such as additional output capacitance added by the customer may effect this time.

7)Isolation and insulation characters:

Isolation is one of the most important parameters of a DC/DC converter. Depending on the application, isolation are typically between 1KV and 6KV depending on the DC/DC converter series. Here is isolation circuit drawing.

Isolation equivalent circuit:



$$I_{LEAKAGE} = \frac{V_{BREAKDOWN}}{R_{BARRIER}} = 2\pi(60\text{Hz})(C_{BARRIER})(240\text{V})$$

$C_{BARRIER}$: Isolation capacitance; coupled between primary and secondary windings

$R_{BARRIER}$: Isolation resistance: DC resistance between input and output.

$I_{LEAKAGE}$: Leakage current; the current as a result of the input/output capacitance.

$V_{BREAKDOWN}$: Test voltage. It is usually 240VAC/60HZ.

$$Z_f = \frac{1}{J\,2\,\pi\,f\,C_{IS}} \qquad I_L = \frac{V_{test}}{Z_f}$$

C_{IS}: Isolation capacitance f: frequency Vtest: test signal voltage

In general, DC/DC converters are constructed to minimize Isolation Capacitance, and therefore minimize Leakage Current. For isolation testing,

Isolation, dielectric strength test: test 1 min., input/output (at AC/DC specified peak value)

Insulation resistance test: the value should be above 1GOhm when applying 500VDC from input/output

Note: MORNSUN's G and H series products offer extremely low isolation capacitance (TYP: 10PF) and they are suitable for medical application.

AC/DC Converter Application Guidelines

1.Foreword

The following guidelines should be carefully read before using the converter. Improper use may result in the risk of electric shock, damaging the converter, or catching fire.

1) Risk of Injury

A. Do not touch the heat sink or the converter's case to avoid the risk of burns,

B. Do not touch the input terminals or the internal components, which may result in electric shock or burns.

C. keep hands and face away to avoid potential injury during improper operation, when the converter is in operation.

2)Installation Advice

A. Please make sure the input terminals and signal terminals are properly connected in accordance with the instruction in the datasheet.

B. Install a slow blow fuse at input of the converter to ensure safe operation and meet safety standard requirements.

C: Installation and use of AC/DC converters should be handled by well trained operator.

D: AC/DC converters should be installed in compliance with safety standard in the primary transmission stage of a design.

E: Please ensure that the input and output of the converter are incorporated into the design out of the reach of the end user. The end product manufacturer should also ensure that the converter is protected from being shorted by any service en gineer or any metal filings.

F: The application circuits and parameters shown are for reference only. All parameters and circuits should be verified before completing the circuit design.

G: These guidelines are subject to change without notice; please visit our website for details.

H: It is a normal phenomenon if there is slight noise when the module operates under no-load and light-load conditions.

I: Please refer to AC/DC Converter Common Faults Analysis for other questions.

2. Selection guide of AC/DC converter

Firstly confirm the specifications of power supply, select the module according to the required parameters, and determine to use standard module or require customization.

Step 1: Confirm the type of power supply input.

Check that the input is AC source or DC source; AC source should use AC/DC converters, and DC source should use DC/DC converters.

Step 2: Select the standard module voltage according to the input voltage range.

Step 3: Select the power and package type of the product according to the load.

Optional packages: Single in-line (SIP), double in-line (DIP),common chassis mounting, mini-type chassis mounting and DIN-Rail (DIN). LD/LB/LH series (except for LH40,LH60) suffixed with A2 indicates the chassis mounting, and with A4 indicates the Din-Rail mounting. For example, LH15-10B05A2 is in chassis mounting package .

Step 4: Select the suitable output voltage according to the load type.

The output voltages of MORNSUN products are usually 3.3 V, 5 V, 9 V, 12 V, 15 V, 24 V, ±5 V, ±12 V and ±15 V.

Step 5: Select the isolation voltage.

The isolation of the module requires the input and output to be separated into two isolated circuits (separate ground connection).

In industrial power bus system, isolation ensures the safety in harsh circumstances (lightning, arc interference), also eliminate ground loops. In hybrid circuits, the noise isolation between sensitive analog circuit and digital circuit can be achieved. In the multi-voltage power supply system, the voltage conversion can be implemented. The isolated voltage of MORNSUN AC/DC converters are 2500VAC, 3000VAC and 4000VAC.

In conclusion, standard converters are suitable for cost-effective, mature technology, less development difficulty and shorter development period, etc. For high isolation, extra wide voltage input range, high temperature environment, EMC certification, UL certification and other special requirements, it would be better to consult the technicians.

3.General AC/DC Converter Applications

Basic Application Circuit

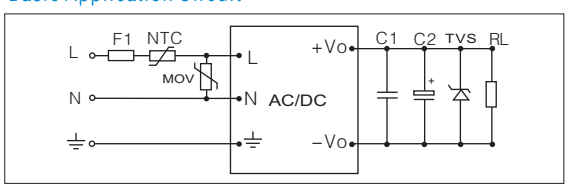


Figure 1. General AC/DC converter applications circuit

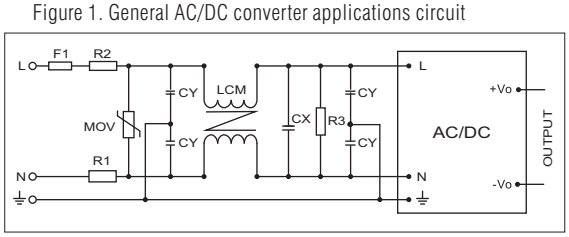


Figure 2. Typical input EMC filtering circuit

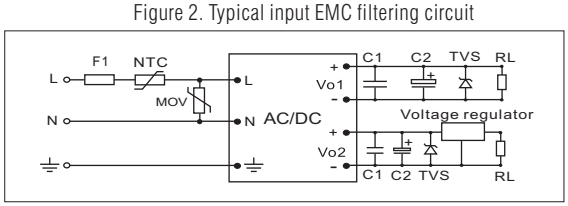


Figure 3. Typical application circuit

1)F1: refers to the input fuse. Proper fuse selection should be a safety agency approved, slow blow fuse. Selection of the proper fuse rating is necessary to ensure power converter and system protection (potential failure if the rating is too high) and prevent false fuse blowing (which could happen if the rating is too low). Below is the formula to calculate the proper rating:

$$I = 3 \times Vo1 \times Io1 / \eta / Vin(min.)$$

Vo1--output voltage; Io1--output current;

η--efficiency of the converter ;

Vin(min)--the minimum input voltage.

2) NTC: a thermistor. It is suitable for AC/DC converter modules, and is optional. If the application is sensitive to surge current, a winding resistor at 5～10Ω is recommended.

3) R1 & R2: 2Ω/3W winding resistance is applied to the power modules under 25W,2Ω/5W winding resistance is applied to the power modules more than 25W.; R3: 1MΩ/3W winding resistor.

4) MOV: protects the converter from damage of lighting or surge current.

5) CX & CY: safety capacitors.

6) LCM: common-mode inductor, is recommended to 10mH～30mH.

7) C1: a high frequency ceramic capacitor or polyester capacitor, 0.1μF/50V.

8) C2: an output filtering high frequency electrolytic capacitor. Output-filtration high-frequency aluminum electrolytic capacitor, please refer to datasheet for details.

9) TVS: is recommended to protect back-end circuit in case of the module abnormality.

For dual or triple outputs converters, the circuit of input side remains the same and the outputs should be considered independently in component selection. The application circuit shown in Figure 1 is typical application circuit. If the place that is strict with EMC, such as electricity or outdoor applications, more filtering measures are needed. Therefore, the product in Figure 2 (for your reference) is suitable for a typical input EMC filtering circuit.

For multi-output converters, the main output is typically a fully regulated output. If the end application requires critical regulation on the auxiliary output, a linear regulator or other regular should be added after the converters. As shown in Figure 3.

(Note: MORNSUN partial products have built-in linear regulators, please contact our technical department for details)

4. Safety design for application of AC/DC converter

1) Marking requirements

The fuse, protection ground terminal and switch shall be marked symbols in accordance with SAFETY REQUIREMENT, and the danger warning signs shall be affixed to the accessible dangerous voltage and energy.

2)Material requirements

The L, N and ⏚ wires of input shall be in brown, blue and chartreuse respectively. For the equipment which prevents the electric shock through basic insulation and protection ground terminal (Class I equipment), the ground wire in chartreuse must be grounded well, and the grounding resistance shall be lower than 0.1 Ω.

3) Clearance and Creepage distance

Make sure that in Class I and Class II application environment, the clearance of L and N before fuse must be in accordance with the reinforced insulation requirement of SAFETY REQUIREMENT; and after fuse, it must meet the basic insulation requirement of SAFETY REQUIREMENT.

4) Capacitance on the input terminal

If CX capacitance of input terminal is too high, the discharge resistor shall be connected to make sure when the plugs or the connectors disconnected, the retention voltage between L and N input terminal shall drop to less than 37% of the maximum within 1s.

5. Common questions

1) Grounding – input and output

Input grounding: Normally there are three pins on the input terminal of AC/DC Converter: Live wire L, neutral wire N and protection ground terminal ⏚; ⏚ is usually connected to the equipment casing or the ground wire in the power grid.

Output grounding: In the actual application, some customers connect the output ground terminal with the protection ground terminal directly, as shown in Fig. 4 below. Such connection may result in abnormal output or damage of the module because of lightning, surge and group pulse, etc., so it is recommended to connect the output ground terminal with the protection ground terminal through a Y capacitor (1000 pF/400 V is normally recommended), as shown in Figure. 1.

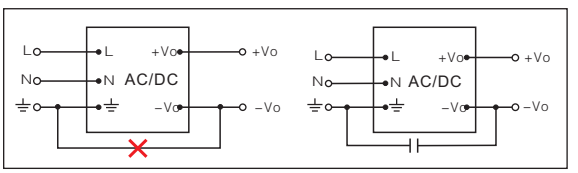


Figure. 1. Connecting method of output and protection grounding

2) Surge current

The surge current is classified into the spike current at start time and the current formed by the high surge voltage sensed during operation. For the spike current, we mainly add protective apparatus as thermistor or wire wound resistor on the input terminal to reduce the surge current; for the surge current produced by the high voltage, we mainly use the piezoresistor for protection and to release

the energy.

3) Leakage current

There are two kinds of leakage currents: 1. the leakage current between the input terminal and the protection ground terminal when the product operates normally; 2. the leakage current between the isolation belts when the product is in the pressure withstanding test.

4)AC/DC input

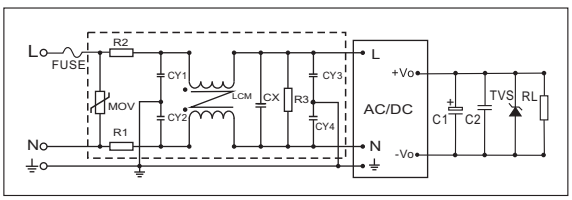
Usually the full-bridge rectifier is used on the input terminal of AC/DC power supply to meet the AC and DC power supply requirements.

5) Relations between the Class I, II equipments and the protection ground terminal FG

EN60950 clearly defines the Class I and II equipments:
Class I equipment is provided with the basic insulation and a connecting device capable of connecting the conductive part with dangerous voltage to the protection grounding conductor in case of the basic insulation failure. Class I equipment is also equipped with the protection ground terminal FG pin, such as LH-series product.
Class II equipment means the equipment which electric shock prevention depends on both the basic insulation and the additional safety protection measure (for example the equipment with dual insulation or enhanced insulation). Such equipment does not rely on the protection grounding or the protection measures of mounting condition. Class II equipment has no protection ground terminal FG pin, such as LS/LD-series product.

6)Transient change of input

The transient voltage change of the input power wire may destroy the power converter. If the transient voltage change on the input terminal is higher than the limit of the input of the module, the protection circuit as shown in fig. 5 must be connected at the input terminal.



7)No-load use of output

For the multi-output product, output voltage may be 20% or more higher than the nominal at no-load. In actual application, it is recommended to ensure the minimum load (10% load).

8)Operating temperature

When the product operates in a high temperature environment, the temperature of its internal components will be much higher than the ambient temperature. In order to ensure the reliable operation of the module, the maximum operating ambient temperature of the conventional product is 70℃, and derating is required when the ambient temperature is higher than 55℃. When the product operates in a low temperature environment, the power derating is also required because of the low-temperature characteristics of internal electrolytic capacitor and other components. .Moreover, the output ripple and the noise are higher than that of constant-temperature value. For the specific contents of derating curve, please refer to datasheet for details.

9) Voltage marked on product's screen print

The mark on the product's screen print is 100VAC-240VAC. But why it is 85VAC-264VAC on the datasheet? It is mainly because of the consideration of safety certification. During test, the certification authority usually tests the product performance according to the input voltage on the product's screen print ±10% and ±15%. So in this industry, the input voltage on the screen print usually is 100VAC-240VAC.

1.Selection guide of DC/DC Converter

1) Confirmation of specifications of power supply module

Firstly confirm the specifications of power supply, select the module according to the required parameters, and determine to use standard module or require customization.

Step 1: Confirm the demission

Sufficient space is required for power module's radiating, which affects the interference of signal acquisition and performances of other circuit components. The volume, cost, and reliability of the modules should be taken into overall consideration.

Step 2: Select the isolation voltage.

The isolation of the module requires the input and output to be separated into two isolated circuits (separate ground connection). In industrial power bus system, isolation ensures the safety in harsh circumstances (lightning, arc interference), and eliminates ground loops; in hybrid circuits, the noise isolation between sensitive analog circuit and digital circuit can be achieved; in the multi-voltage power supply system, the voltage conversion can be implemented. Selecting proper isolation products according to different applications ensures the operation and avoids the budget waste in over-design.

Step 3: Confirm the type of power supply input

Identigythe input source is AC or DC ; AC source should use AC/DC converters, and DC source should use DC/DC converters.

Step 4: Confirm the output current

After the load is selected, the output current is basically determined; the magnitude of load current is the key to the determination of power and directly affects the reliability and price of the module. The power converter is preferably applied under 30%-80% of the full load; selecting appropriate output current is one of the key factors for successful design, excessively large and small current will result in low reliability and high cost.

In general application, it is to be noted that: if the application is for supplying power to optical coupler and relay or for voltage reference of RS232/485 and CAN (Controller Area Network) buses, light load or no load application may exist, in such case, it is recommended to add appropriate dummy load. In case the load is extremely unstable or the load variation , the selection of dummy load shall be within the range of 10%-100%, in order to avoid under-load or over-load application. Under high temperature condition, the power converters shall be used in derating. Please refer to the Temperature Derating Curve. As for the application under high temperature condition or poor heat dissipation condition, the converter with large volume is preferred; as for the case of long term operation above 70℃, please consult our technicians to select the suitable power converters for the exact operation.

Step 5: Confirm the input voltage range

1) As for input voltages 3.3V, 5V, 9V, 12V, 15V and 24V with variation range of ±10%, A, B, D, E, F, G and H series products with unregulated voltage outputs are available. As for input voltages with variation range of ±5%, IA, IB, IE and IF series products with regulated voltage outputs are available. Others are switching power supplies, LDO, voltage stabilizing diodes and other power supplies with relatively stable outputs.

2) As for input voltages 5V (4.5-9V), 12V (9-18V), 24V (18-36V) and 48V (36-75V) with variation range of 2:1, WR and VR series products are available. As for input voltages of 24V (9-36V), 48V (18-75V) and 110V (40-160V) with variation range of 4:1, PW and UR series products are available. For example, in the cases of 24V industrial bus power supply, 48V communication bus power supply, 110V railway power supply, 220V transformer rectifier output and various types of storage battery, accumulator, lithium battery, dry battery, remote transmission, etc. with large output voltage variations, PW and UR series modules with wide voltage outputs are available. As for the output powers above 3W, it is recommended to select VR or UR input series power converters in order to improve the overall efficiency.

Step6: Confirm the load type

1) The output voltage depends on the type of load circuit, for example: in the cases of ordinary digital circuits, amplified direct current or low-frequency signal operational amplifiers, RS232/485 and CAN buses, etc. which without high requirements on accuracy of power supplies, the converters with unregulated voltage outputs are available. (e.g. A, B, D, E, F, G and H series modules). As for the sensors, high-accuracy operational amplifiers, A/D and D/A chips and other devices which are more sensitive to the accuracy and ripple of power supplies, the products with regulated voltage outputs (e.g. IA, IB, IE and IF series products, or VR, WR, PW and UR series products) are available.

2) In the case where both the cost and efficiency shall be taken into consideration, combined use of unregulated voltage output converters (e.g. A, B, D, E, F, G and H series modules) and linear regulator can be considered; when the load has positive/negative voltage or multi-voltage supply demand, the module with positive/negative voltage or using dual-circuit/multi-circuit outputs can be considered; the number of circuits shall be minimized; in the application, the circuit with large output power and high accuracy requirement shall be used as main output, and the secondary voltage accuracy requirement shall be determined, in order to allow the converter design to meet the requirements more

reliably.
3) The common specifications of output voltage are 3.3V, 5V, 9V, 12V, 15V, 24V, ±5V, ±12V and ±15V, etc.
4) Excessively high requirements on output accuracy and ripple may cause significant rise of the cost of converters.
In conclusion, standard converters are suitable for cost-effective, mature technology, lower development resistance and less development time, etc. For high isolation, extra wide voltage input range, high temperature environment, EMC certification, UL certification and other special requirements, it would be better to consult the technicians.

2) System Power Distribution Design

The design of system power distribution usually has to be optimized for several times according to product characteristics and circuit demands. Accurate measurement of actual circuit operation parameter and environment change range is helpful for us to select the most suitable power converter.

Step 1: External factors

Ambient temperature has certain effects on power converters and the external components. In the application, the power converters may be in an environment with high temperature, low temperature or temperature cycle (e.g. engine room, cabin, etc.). Therefore, we shall have a detailed understanding of the changes of relevant parameters of power converters during changes of environmental conditions, in order to ensure that the requirements of power converters are available in actual environment. It is to be noted the ambient temperature for operation of power converters is not the air temperature at that time but the spatial temperature in the casing of equipment. As there are many heating devices, the temperature in the casing is usually higher than the air temperature. The temperature range is required to be 0～70℃ for commercial products, -40～85℃ for industrial products, -40～105℃ for vehicle onboard equipment , -55～85℃ for field operation equipment and -55～125℃ for military domain. Sufficient margin shall be considered in design, especially for the converter which is greatly derated in high temperature. And it is preferred to select the electrolytic capacitor with better high/low temperature characteristics. Under high temperature condition, the withstanding voltage of capacitor will reduce significantly, and the capacitor shall be used correctly according to its Specification Manual.
In the environment with interferences such as electric arc, electrostatic discharge, unstabilized alternating current grid, starting switch, relay and lightning stroke, the input voltage and current may far exceed the withstanding capacity of module, causing permanent damage of module and breakdown of load circuit. In this case, protective circuit shall be provided to ensure the safe operation of power supply.
Transmission distance also has effects on the power supply of system, so following points shall be paid attention to during the model selection:
1) Small temperature difference and small interference, non-isolation or small power converter is generally used in the case of short indoor wire,
2) The transmission loss shall be accurately calculated, and the isolation power converter with wide voltage input and sufficient power are available, in addition to considering the lightning-protection isolation, in the case of extramural remote transmission.
3)The power converter must have enough power to ensure its normal operation in the case of excessively long transmission distance and relatively large loss. Considering of the starting current of converter, it is generally recommended that the current provided by power supply shall be 1.3-1.6 times of the starting current of converter.
4) Connect a large capacitor to the pins of the power converter (higher capacitance is suggested) to improve the starting performance.

Step 2: Operating environment

All the power conversion products will have a certain power consumption convert into their own heat energy which make them emit heat and affects the ambient environment by temperature rise, resulting in data interference (thermo-sensitive sensing devices) and device performance reduction, and even causes short circuit and fire. Therefore, there must be sufficient air flow space, or increasing heat radiating area in the layout to reduce the temperature rise to ensure the safety.
As the switching power supply uses switch technology, thus, its switch oscillating circuit and internal magnetic element will produce electromagnetic interference to surrounding devices in conduction and radiation mode. Electromagnetic interference (EMI) is the pollution to environment caused by electromagnetic energies transmitted by electromagnetic radiation and conducted by signal wires and power wires. The electromagnetic interference can't be completely eliminated, but certain methods can be adopted to reduce it to safe level in order to comply with electromagnetic compatibility.

Step 3: Circuit interference

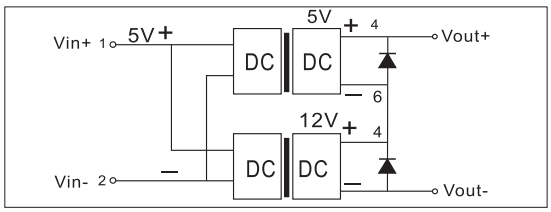
Unreasonable ground connection and power supply layouts always cause instability, high noise and other bad phenomena of system.
In many applications, the digital circuit and analog circuit share the same power supply; in this kind of design, it is very important that the analog circuit and digital circuit are used

separately or the power supply and ground loop are completely isolated, in order to avoid the interferences with sensitive analog circuit caused by digital DC level changes and logical transient processes.
At the same time in high speed or dynamic analog circuit and digital circuit, when the power is distributed to the loads through relatively long line, the distributed resistance and inductance of power distribution wire will become obvious and easy to cause noise spikes due to rapid changes of load In this case, the loads need to be decoupled and the resonances caused by series impedances and distribution parameters on the line shall be eliminated.

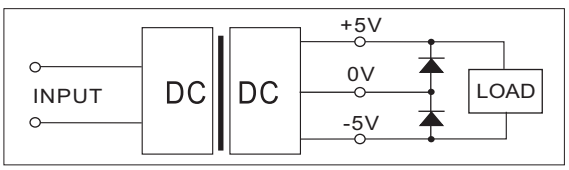
2.Additional converter applications

1) DC/DC converters used in series

Isolated DC/DC converters allow the connections of their outputs in series to create higher voltages if necessary. Please refer to below figure for proper series connection.

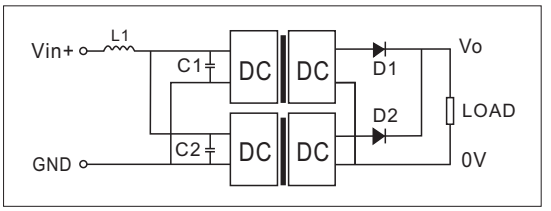


Converter 1 is 5Vout, and Converter 2 is 12Vout. As you can see a unconventional 17VDC voltage can be created by applying the 5V and 12V converters in series. Be careful not to exceed the rated current either of the converters, normally the ripple voltages of two modules will not be synchronized while operation in series results in additional ripples and higher noise. More filtering measures shall be taken in application. In the figure the output of each module is connected to a back biased diode in parallel (generally Schottky diode with voltage drop down to approximately 0.3V is used as excessive voltage drop may cause damage to the products) to prevent reverse voltage being applied to the other.
We can get high output voltage through the dual output products , the following figure shows 10V output.

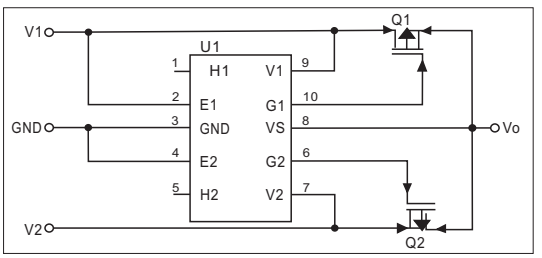


2) DC/DC converters connected in parallel

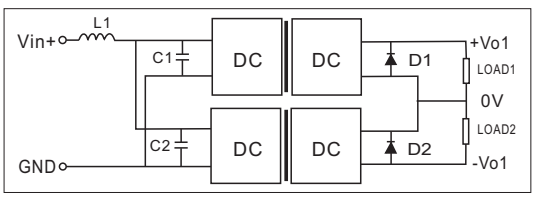
Redundant design can improve the system reliability. Most of the time, engineers connect several same converters in parallel. And if one of the converters fails, the others could operate instead. However, connecting the converters in parallel to improve the efficiency is not advisable, because the output voltage of two converters can not be exactly equal, and the converter with higher output voltage tend to provide all load current. In addition, suppose the output voltage of the two converters is set to the same value, the different output impedance, temperature drift and time drift would cause the unbalance of load current and lead to the damage of one of the converters resulted form over load.
Redundant design:
1)high voltage, low current output converter



Low voltage drop Schottky diode can avoid that one of the converters starts ahead and cause inverse voltage to other convert. At the same time, the withstand voltage of the diode should be higher than the output voltage. This solution will cause extra ripple and noise, thus it needs to connect an external capacitor or filter circuit to reduce the ripple and noise.
When multiple converters are connected to a same input end and the output is connected to different load, the converters might produce a reflect ripple to the input end and lead to an exception of preceding stage power supply. Therefore, it is necessary to connect a π-type filter formed by common mode choke to avoid the ripple. The parameters can be selected based on the customer's system (usually about 0.3mH).
2)Low voltage, large current output converter



As the redundant design of diode produces high power consumption, it is not applicable for low voltage and large current situation. Therefore, we may use high power MOSFET and chip as the alternative solution. The MOSFET lowers the voltage drop and reduces the device loss at large current, which ensures that the converter operates effectively.
3) Single ±output, parallel converter



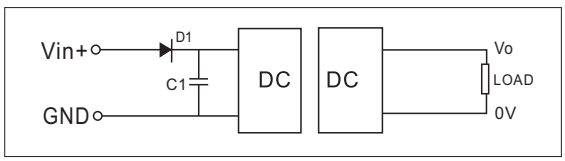
DC/DC Converter Application Guidelines

In applications, if the load difference between the primary output and secondary output is significant, the voltage accuracy will be out of limits and leads to application anomaly. Selecting two converters according to the actual load is advisable (please refer to the diagram). If multiple converters share the same power supply, it is recommended to connect a LC filter circuit at each input of the converters in order to avoid the reflect ripple.

3) Reverse voltage protection

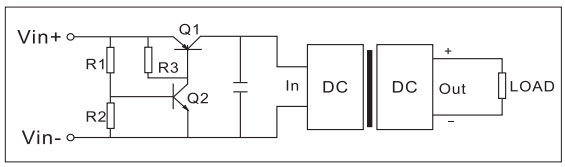
The diagram shows the reverse voltage protection circuit. When connecting a negative voltage power supply (e.g. -48VDC communication power supply), the "0V" is connected to the "Vin+" of the converter; the "-48V" is connected to "GND".

Positive input ensures the normal operation of the converter. In order to avoid the converter damage from mis-connecting the input voltage, it is recommended to apply reverse voltage protection. Simply, connecting a positive-going diode at the input terminal. If the voltage is reversely connected, the diode will be not conducted and protect the converter. The lower voltage drop of diode ensures fewer effects to the application efficiency. In addition, the backward voltage of diode can tolerate must be higher (twice recommended) than power supply voltage.



4) Input under voltage protection

When the DC/DC converter is sharing the same power source with other circuits, a large input voltage drop caused by external circuits or over load may lead to an input voltage that is below the minimum input voltage specified by the converter. So it is recommended to adopt under voltage protection circuit to cut off the DC input when the input voltage drops below the minimum specified for the converter.



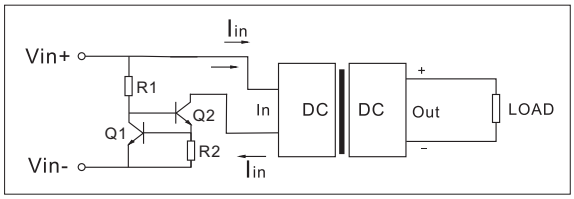
Low voltage turn-off circuit

Where R1,R2 set as low voltage switching limit, PNP transistor can be used, or a p-channel MOSFET. Please contact our sales department.

Note: For low voltage input products, the above circuit will produce a 0.7V voltage drop.

5) Input short circuit protection

Most unregulated DC/DC converters with RCC open loop circuit have no short-circuit protection. The following circuit is recommended to implement short circuit protection.



R2=0.6V / Iin (rated input current)

6) Over current and over voltage protection

The permitted input voltage and input current is restricted to be within the range specified in the datasheet to prevent damage to the DC/DC converter. Here are some techniques to add the additional over voltage protection and over current protection on a standard DC/DC converter. As the figure shown below:

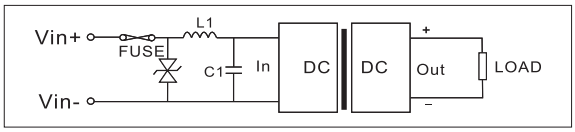


Figure 1: Instant over voltage and over current protection circuit

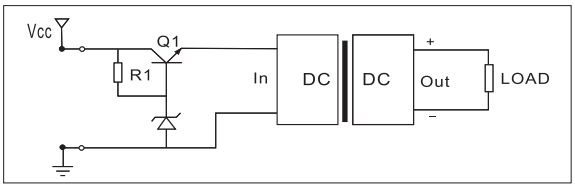


Figure 2: Continuous over voltage protection circuit

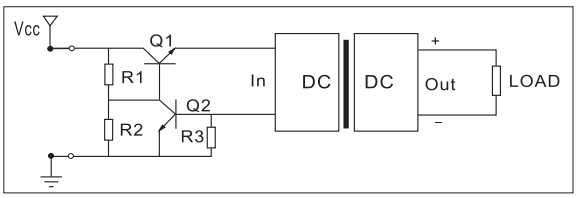


Figure 3: Continuous over current protection circuit

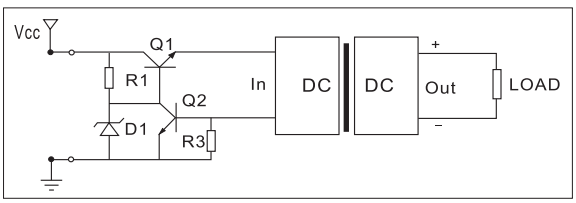
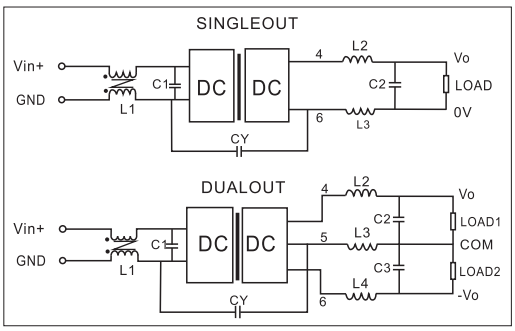


Figure 4: Continuous over voltage and over current protection circuit

7) Input and output filtering circuit

Most MORNSUN converters do not require additional components for filtering. However, if further noise and ripple voltage reduction are required, here are some techniques. Ceramic capacitor has better filtering effects, which is suitable for the application that the frequency is higher than 100KHz.

For the product without over-current protection, it is not recommended to use tantalum capacitor as filtering capacitor. Tantalum capacitor features low ESR and sleep mode, therefore, when the converter starts, the instant large current shock will damage the product. MORNSUN fixed input, unregulated output converters are not suggested to connect tantalum capacitor.



L2/L3/L4, C2/C3: forming the LC filter network to reduce the input ripple (the parameters of the devices are based on the ripple, but they can not exceed the maximum capacitive load)

L1, CY: L1 is the common mode choke to restrain the common mode interferences; Y1 is the 100-1000pF Y capacitor.

For some devices of filter circuit, the frequency selected should be 1/10 of the switching frequency of the converter (refer to the formula).

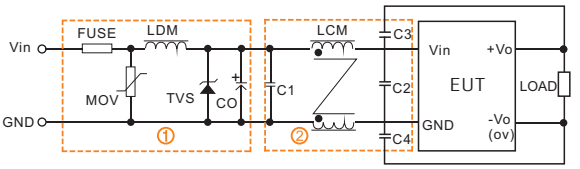
$$f_C = \frac{1}{2\pi\sqrt{LC}}$$

There are differences in the results because of the application design and load condition, thus the final parameters should be adjusted according to the field application. When selecting the parameters of filtering capacitor, it can not exceed the maximum capacitive load referring to the datasheet. And the maximum capacitive load is for the backend of the whole power supply, It is not just connected at end of the power supply. For example, the regulator chip is powered by the converter and connected to a 10uF capacitor, which is included in the capacitive load.

8) Electromagnetic compatibility

According to IEC 61000-6-X, the input terminal of DC/DC Converter should meet the corresponding EMC requirements when it connects to DC distribution network or supplies power in long distance. Here is a typical application circuit of EMC filter as required for MORNSUN modules. ① is used for EMS protection and ② for EMI filter. More details please refer to datasheet.

And please note that EMC performance relies on not only the modules but also circuit design, PCB layout and structure.



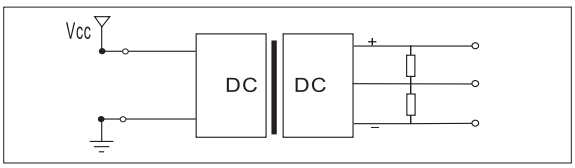
9) Capacitive load

Generally the switching power supply has limit of maximum capacitive load, it is recommended to connect an external electrolytic capacitor at the output end. However, the excess capacitance and low ESR (Equivalent Series Resistance) will cause the operating instability and starting failure of the converter (please refer to the datasheet for the External-connecting Capacitance List). Selecting the capacitor according to field application ensures the best performance and efficiency (tantalum capacitor is not recommended).

10) Output low load and overload protection

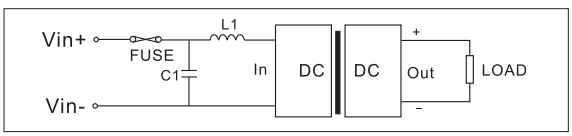
① Low load prevention circuit

Most isolated DC/DC converters have minimum load requirement to ensure proper operation and regulation. Typically, this it is 10% (non-isolated series can stand continuous unload). The output voltage will increase above stated spec for unregulated, For example, when converter is supplying power to a relay, MOSFET or IC of low power consumption(such as 485), it is recommended to guarantee a 10% load under worst case conditions. As the figure shows:



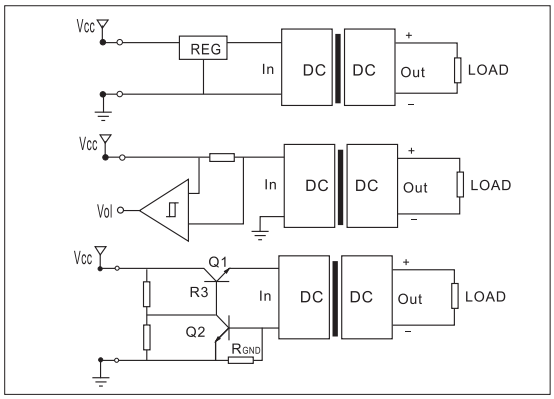
② Overload prevention circuit

Though some current can be limited by a filter, when overload or short circuit conditions occur, a high current may cause damage to DC/DC converters. It is recommended that one installs a slow blow type fuse of rating 3 times max input current on the input as shown. Contact factory for details.



Simple overload protection

(1) It is recommended to add a fuse to the input terminal, which has the tolerance of 2-3 times of the input current, so as to achieve protection in very short time. Auto-recovery fuse can also be used, but it is relatively slow.



Input over current protection

(2) A circuit breaker can be used.

(3) Overload is avoided by limiting the input current shown as above:

A: Utilize a pre-regulator to limit the input current, but the overall efficiency will be reduced.

B: A series resistor network may be placed before the converter to limit current, but in all but a few cases, this is usually impractical.

C: To limit input current by setting R_{GND}, $0.7V = R_{GND} * ILIMIT$.

③ Remote transmission

When the power source is long-distance transmitted via cable, it will cause more ripple and electromagnetic interferences than PCB circuit. Using isolation modules at the two ends of the cable can eliminate interferences of the MOSFET by common-mode signal. In outdoor environments (high mountain or reservoir), the over voltage caused by lightning will damage the modules and even lead to end devices explosion, therefore, the lightning protections should be higher than level 2. For long-distance transmission, it is best to use high isolation voltage and low current modules to reduce the losses and interferences. At the receiving end, the losses and interferences cause the voltage reduction and instability. Thus, it is recommended to use wide-input modules to ensure the sufficient input power and avoid starting failure.

11) Special function pin explanation

① Output voltage trimming range

With a resistor at the TRIM terminal, the user can adjust the output voltage ±10% around its rated value. The total output power of the converter should be within its maximum specified one.

Figure 1 shows how to connect the external trim resistors.

If only to adjust to higher (or lower) voltage, the resistor could be connected only between TRIM terminal and negative output (or positive output). The general rules are, to increase output voltage, adding resistor between TRIM terminal and negative output is all that is needed; to decrease output voltage, then adding resistor between TRIM terminal and positive output is all that is needed. If TRIM is not needed, just leave it open circuit.

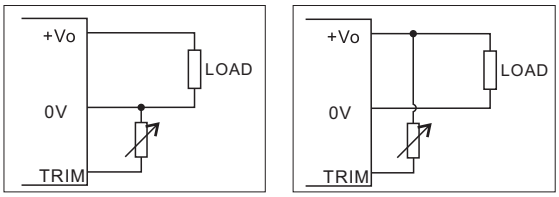
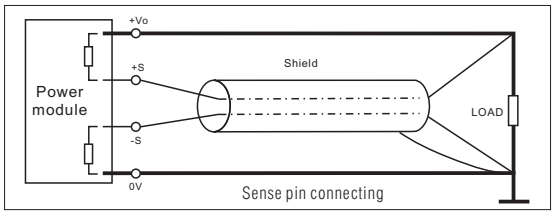


Figure 1: How to connect resistors for trimming

② Remote compensation (Sense Pin)



In remote transmission, remote voltage compensation can raise the input voltage to achieve work load. The +SENSE and –SENSE remote compensation pins transmit the input voltage for the remote load, and customers can use wires for remote connecting according to the applications. However, the long wires will cause large EMI. Therefore, in practical application, it is recommended to shield the wires or use twisted-pair wires for connecting. (As shown in the figure)

③ Remote on/off control

There are two remote control modes:

(1)Positive logic: CTRL terminal is connected to -Vin,output OFF;CTRL terminal is left open and connected to high level,output ON.

(2)Negative logic: CTRL terminal is connected to -Vin,output ON;CTRL terminal is left open,output OFF.

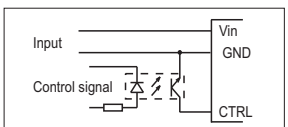


Figure 1: isolated control method

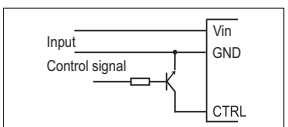
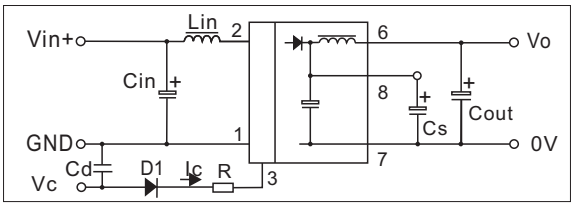


Figure 2: general control method

In some special applications, the isolation control method is necessary.

MORNSUN modules have two control methods: one is the voltage control type and the other is the current control type.

VR series and UR series: The on/off function is realized through a control voltage providing by the CTRL terminal. When the CTRL terminal voltage is lower than 1.2VDC or directly connected to the input ground, the module is in the off state; when the external power or module provide a 2.5-12V voltage to pin (the CTRL terminal is at high level with respect to the input ground), the module works normally.



WR series and PW series: when the CTRL pin is left floating or in a high-impedance state, the module works normally. To turn off the module, a control voltage Vc is supplied to the CTRL pin through a resistor R(the CTRL pin is at a high level with respect to the input ground) is required, and the input current to the CTRL pin is suggested to be 5-10mA to turn off the MOS inside.

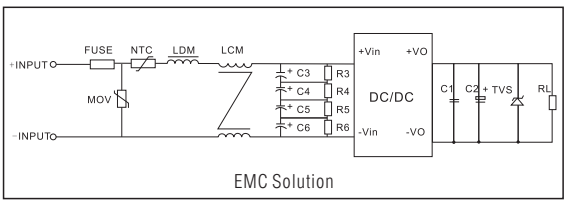
Resistance calculation formula: $R=\frac{Vc-Vd-1.0}{Ic}-300$

Please note that the CTRL pin can't be short connected to the input ground or connected to the low level, otherwise, the input (MOS transistor) would be short-circuited or even damaged.

The module can be turn on or off by changing the voltage of the CTRL pin according to the requirements and the technical manual providing by the power supply manufacturer. If there is no need to use the on/off function, the CTRL terminal can be left floating. In addition, it is recommended to have the interference protection (away from the interference source), otherwise misoperation could be triggered and the module may failed.

12.Photovoltaic power supply application

The PV series is a DC/DC power supply, which is mainly used in the high input voltage applications, such as photovoltaic power generation, high voltage frequency conversion, SVG, etc. It is recommended to add a necessary protection circuit if use in the harsh environments. The following figure is a typical protection circuit, which meets the conducted emission CISPR32 /EN55032 CLASS A, radiated emission CISPR22/EN55022 CLASS A, electronic fast transient IEC/EN61000-4-4 ±4KV, and surge immunity IEC/EN61000-4-5 ±2KV. Please note that the fuse in the input should be considered of its power and withstand voltage in order to meet the safety requirements basic on the application.



EMC Solution

13.High power brick power supply application note

(1) It is necessary to connect a electrolytic capacitor Cin (C≥220μF) to suppress the possible surge when testing and using the module).

(2) Connecting a large transient circuit such as a motor drive circuit in parallel at the input of the module may pull down the input voltage. In order to prevent that and keep the module away from constant reboot which caused by UVP, increasing the value of the input electrolytic capacitor is recommended.

(3) It is recommended to connect a TVS and increase the Cout within the capacitive load specification to decrease the voltage spike when the load is inductive such as relay, motor etc. For more details, please refer to the datasheet.

3.Common questions

In special applications, isolated control method is required. Please refer to fig. 1.

1) Can the module support hot plug?

Generally speaking, "hot plug" is to plug the power supply module into or out of the system directly without switching off the power source.

Hot plug is not allowed when the module is in operation. As a huge current and voltage spike will be generated at the moment of hot plug, and it may be dozens of times of the input voltage and current of module, which may damage the module in severe conditions.

2) Can the module be applied at no-load and light-load conditions?

The converters can be applied at no-load or light-load conditions, but the conversion efficiency would be relatively lower. When the product operates at no-load, the loop is unstable. Thus, oscillations may occur and some parameters may not meet the values in datasheet. To ensure reliability, applications at no-load or light-load conditions shall be avoided. The minimum operating output current of the module shall be no less than 10% of rated current (minimum 5% load for products suffixed with R2). It is recommended that the module shall be applied at 30-80% load conditions or the module with smaller power shall be selected and applied.

3) Possible causes for poor starting of module

Cause 1: in the actual application, if the capacitive load exceeds the maximum capacitive load in datasheet and the input capacitance is too large, a very large starting current will be required at start-up time and may cause start up failure; it is recommended to reduce the capacitance

connected to output terminal or provide a buffer circuit at output terminal to improve the module's capability of carrying the capacitive load.
Cause 2: as limited by the maximum starting current of intrinsic safety power supply, the maximum power provided by power supply cannot meet the starting power requirement of module (relatively large starting power is required). It is recommended to select the module with small starting current or connect a small resistance or induction in series at input terminal of converter to reduce the starting current.
Cause 3: the winding of inductive load (generally the motor winding) fails to form induced electromotive force at the moment of starting, and only the internal resistance of winding is operating in the whole circuit. As the internal resistance of winding is very small (generally mΩ～Ω level), the current generated at start-up time will be very large and exceed the over-current protection limit of module, causing protection phenomenon and start up failure. As for the module with small power, it is recommended to connect a small resistance in series at he output terminal or select a power converter with larger power.

4) Will the input terminal and output terminal of module be affected when a tantalum capacitor is connected?

In the application of module, it is recommended to use ceramic capacitor or electrolytic capacitor at input and output terminal for the filtering circuit, rather than tantalum capacitor. On one hand, tantalum capacitor with poor surge protection is quite likely to breakdown and cause short circuit due to relatively large instantaneous current or a very high surge voltage generated at start-up time. On the other hand, the withstanding voltage of tantalum capacitor will be reduced in high temperature environment.

1. The Function of signal conditioning module

1.1 Eliminate the interference from the multi-point grounding design

Lots of automated instruments, control units and actuators are applied for monitoring and control in the industrial production process. Due to the potential difference between the potential references of each instruments which caused by multiple-point grounding design, signal distortion happens in the transmission process. With the isolated signal conditioning module, the signal distortion caused by grounding loop would be effectively avoided.

1.2 Isolation and anti-interference

Low-voltage devices are frequently used to measure and control high-voltage, high-current analog applications. If there is no electrical isolation between analog and digital circuits, the energy in the high power circuits may destroy the system and cause a safety incident. The signal conditioning modules isolate the field ends and the monitoring center, improve the CMRR of the high common-mode voltage system to keep the system from being damaged by the lightning surge and ensure the human safety.

1.3 Signal Conversion & Long Distance Transmission

In the PLC & DCS system, various signals collected by the sensors in the field ends need to be converted into industrial standard signals for transmission. Normally, the signal transmission capability of the sensor is very weak, which requests signal conversion such as converting the voltage signal into a current signal to improve the signal anti-interference ability. And the long-distance transmission ability and facilitates interface compatibility are improved. On the other hand, it is convenient to use the signal conditioning module to convert and transfer the signal between the monitoring center and the actuators for improving the stability of the signal transmission.

1.4 Achieve differential signal input and improve load capacity

As the differential signal is highly immune to external EMI, it has stronger anti-interference ability in the long-distance transmission. In addition to differential signal, the signal conditioning module can also receives the common mode signal and isolates it to a differential signal for transmission to improve the load capacity. Moreover, the signal conditioning module can be applied for signal interface matching, signal distribution and isolation purpose.

2. Introduction of the signal conditioning module

The signal conditioning module is also called an isolation transmitter. It is a module that converts analog signals such as dc voltage signal, current signal and resistance signal into different isolated signal type. Linearity, accuracy, bandwidth, isolation withstand voltage and signal distortion are very important in this process. Engineers can choose a proper part according to the application. Designed with the unique magneto electric isolation technology, our signal conditioning module has small signal distortion, and factory default(zero and full scale) calibration have been set. Unlike optocoupler isolation which causes light decay during long-term use that can lead to poor linearity and zero drift, our signal conditioning module does not have this problem and it is stable, safe and reliable.

2.1 Active High Precision TxxxxP Series

The TxxxxP series adopts four-isolation technology. The input signal port, output signal port, input power port and output power port are all isolated. The basic principle block diagram is as below:

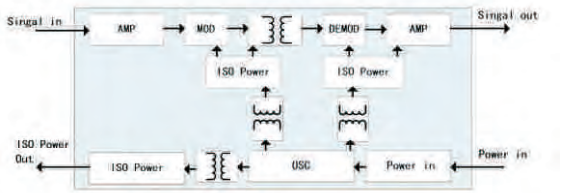


Fig 1. TxxxP series

TxxxxP series signal conditioning module provides different solutions according to the type of input signal such as voltage/current signal and mV voltage signal.

Table 1. List of TxxxxP Series

Model	Input Signal	Output Signal	ISO Power
TxxxxP	0～20mA,0～10V	0～20mA,0～10V	Support
TxxxxAP	±10V	4～20mA,0～10V	Support
TxxxxCP	±10V	±20mA,±10V	Support
TMxxxxP	0～100mV	0～20mA,0～10V	N/A
TMxxxxAP	±100mV	4～20mA,0～10V	N/A
TMxxxxCP	±200mV	±10V	N/A

2.2 Active high precision TExxxxN series

The TExxxxN series uses two-isolation technology, also known as detective signal conditioning module. The output signal port and the input power port share the same ground, and the input signal share the same ground with the output power port. The external zero and full-scale adjustment pins are available to meet the special demand of customers. The basic principle block diagram is as below:

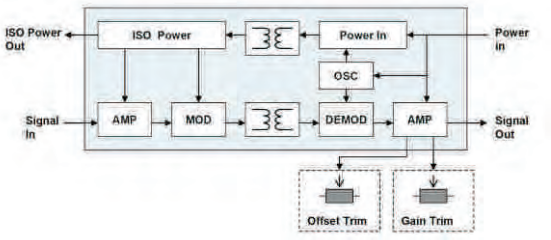


Fig 2.TExxxxN Series

TExxxxN series signal conditioning module provide different solutions according to the type of input signal such as voltage/current signal and mV voltage signal.

Table 2. List of TExxxxN Series

Model	Input Signal	Output Signal	ISO Power
TExxxxN	4～20mA，0～10V	0～10V	Support
TExxxxAN	±10V	0～10V	N/A
TExxxxCN	±10V	±10V	N/A
TEMxxxxAN	±100mV	0-5V	N/A
TEMxxxxCN	±200mV	±10V	N/A

2.3 Active high precision TFxxxxN series

The TFxxxxN series uses two-isolation technology, also known as output signal conditioning module. The output signal is common grounded with the power output port, and the input signal is common grounded with the power input port. The external zero and full-scale adjustment pins is as below:

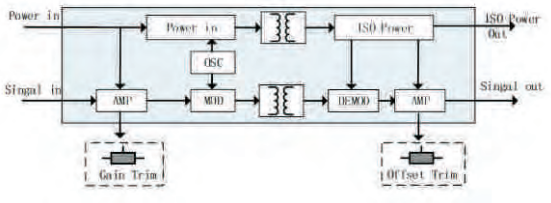


Fig 3. TF Series

TFxxxxN series signal conditioning module provides a variety of solutions as below according to different types of input signals and output signals:

Table 3. List of TExxxxN Series

Model	Input Signal	Output Signal	ISO Power
TFxxxxN	0～10V	0～20mA，0～10V	Support
TFxxxxGN	0～5V	±10V	N/A
TFWxxxN	PWM(0-100)	0～20mA，0～10V	N/A

2.4 Passive high precision signal conditioning module series

The T1100L series adopts a unique electromagnetic isolation technology, which can transmit the 4～20mA signal of the two-wire equipment to the secondary equipment for detection.

With the loop power technology, the module gets power from the Input loop or output loop to support the pre-stage two-wire equipment. Receiving 0/4～20mA current signal from the two-wire equipment and transmit to the back-end detection equipment. The basic principle block diagram is as below:

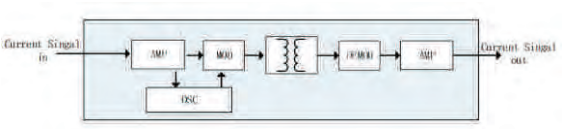


Fig 4. Passive Series

The passive signal conditioning module provides a variety of solutions as below, according to whether it supports loop power mode or not.

Table 4. List of Passive Series

Model	Input Signal	Output Signal	Loop-powered
T1100L	4～20mA	4～20mA	Support
T1100L-F	4～20mA	4～20mA	N/A

2.5 Two-wire instrument isolated interface TxxxL series

The two-wire instrument interface isolation module uses high-efficiency loop power technology to power the sensors in the field, and convert the voltage signal or PWM signal transmitted from the sensors into a standard current signal output which is applicable to Hart protocol. The module solves the problem of power supply and signal conversion of the intelligent two-wire instruments in field. The basic principle block diagram is as follows:

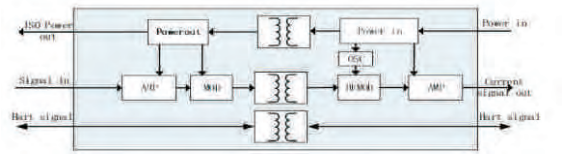


Fig 5. Txxx(H) L Series

Table 5. List of Txxx(H) L

Model	Input Signal	Output Signal	Hart Protocol
TxxxL	0～2.5V	3.7～22mA	N/A
TxxxHL	0～2.5V	3.7～22mA	Support
TWxxxHL	PWM （0～100%）	4～20mA	Support

3,The typical application of the signal conditioning module

3.1 The typical application of signal acquisition

The signal acquisition & control system includes signal acquisition interface, signal transmission interface, communication interface, power supply interface, and signal processing system. The MCU cannot directly process the signal from sensors such as pressure, position, speed, temperature, flow, humidity, sound and light, graphic recognition and other signals. Therefore, the conversion of the signal from sensors is a must to the MCU. Our signal conditioning module not only provides a complete signal acquisition and signal transmission isolation solution, but also converts, isolates and transfers the power signal of the field sensor and the execution power signal of the field actuator.

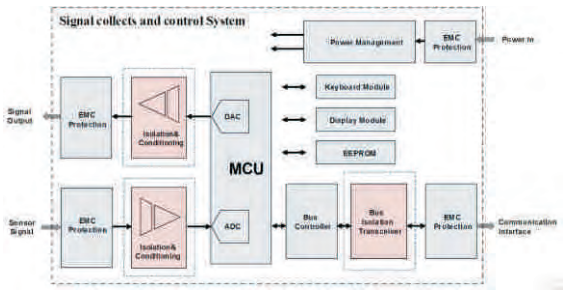


Fig 6. Typical Block Diagram of Signal Acquisition & Control System

3.2 The multi-channel signal acquisition interface circuit

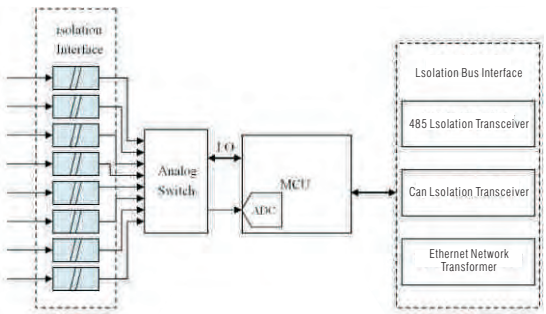


Fig 7. DCS System AI Interface Isolation Application

3.3 The multi-channel transmission interface circuit

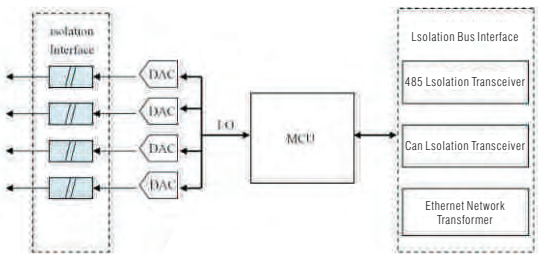


Fig 8. DCS System AO Interface Isolation Application

3.4 The wiring diagram of two-wire signal acquisition interface circuit

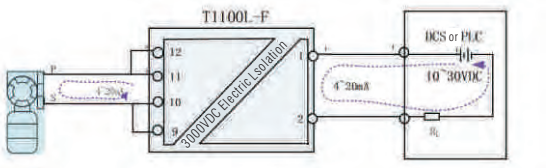


Fig 9. Sample One - the wiring diagram of the Passive Series Conditioning Module

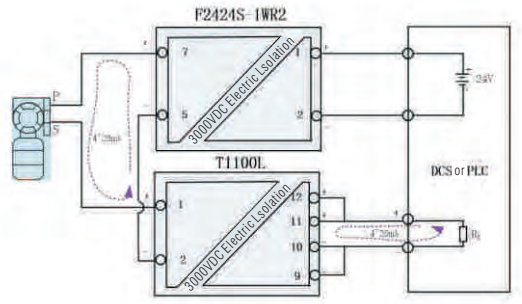


Fig 10. Sample Two - the wiring diagram of the Passive Series Conditioning Module

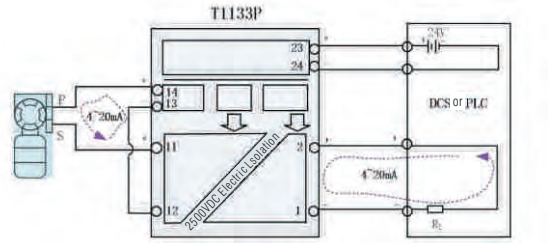


Fig 11.Sample One - the wiring diagram of the Active Series Conditioning Module

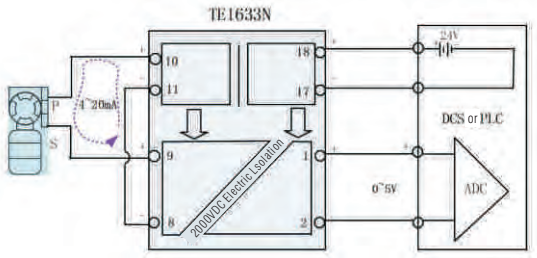


Fig 12.Sample Two - the wiring diagram of the Active Series Conditioning Module

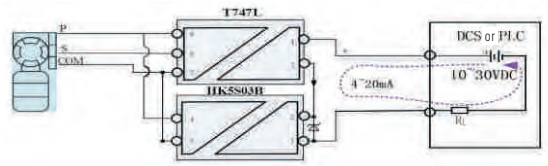


Fig 13. The wiring diagram of the two-wire instrument interface module

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