



(MPM-45)



(MPM-45-xxST)



■ Features

- 3.43"x2.05" compact size
- PCB chassis or screw terminal mounting version
- Medical safety approved (2 x MOPP) according to ANSI/AAMI ES60601-1 and IEC/EN60601-1
- Suitable for BF application with appropriate system consideration
- No load power consumption < 0.1W
- Extremely low leakage current
- Wide operating temp. range -30 ~ +80°C
- EMI Class B without additional components
- Isolation Class II
- Protections: Short circuit / Overload / Over voltage
- No minimum load required
- Operating altitude up to 4000 meters(Note.7)
- 50W peak(10 sec.)
- 3 years warranty

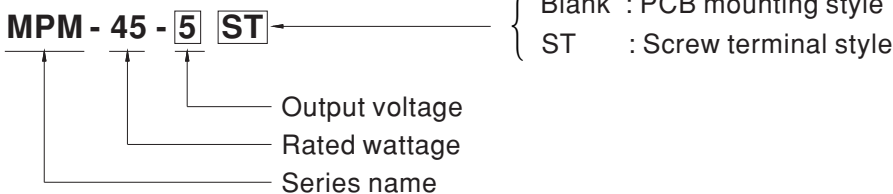
■ Applications

- Portable medical device
- Mobile clinical workstation
- Medical computer monitor
- Medical examination instrument

■ Description

MPM-45 is a 45W high density and small size (87x52x29.5mm) AC/DC PCB-mount type medical grade power supply. It features the operation for 80~264VAC, a low no load power consumption less than 0.1W, a high efficiency up to 92.5%, Class II (no FG) double insulation, outstanding dissipation, 2~5G anti-vibration by model, high EMC performance, 4KVAC isolation, etc. The design observes IEC/EN60601-1 and ANSI/AAMI ES60601-1 version three with 2 x MOPP level and ultra-low leakage current (<100µA). It is very suitable for BF (patient contact) type medical device or relevant equipment.

■ Model Encoding

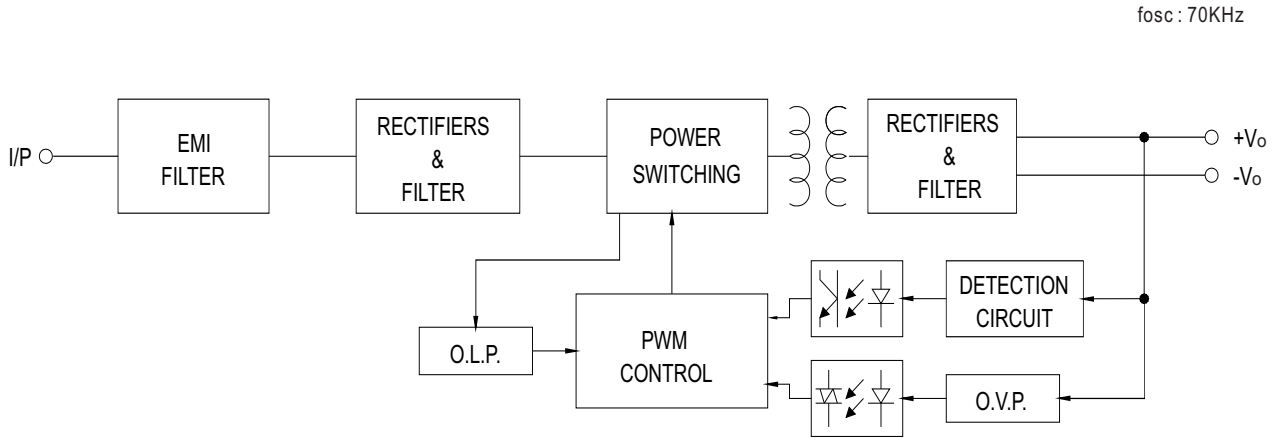




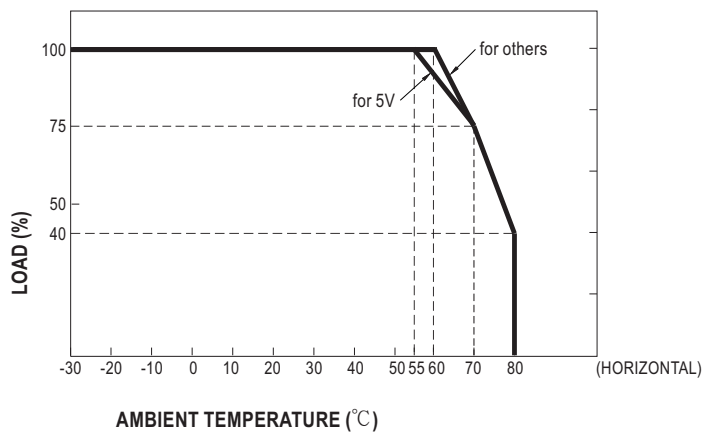
SPECIFICATION

| MODEL | | MPM-45-5 <input type="checkbox"/> | MPM-45-12 <input type="checkbox"/> | MPM-45-15 <input type="checkbox"/> | MPM-45-24 <input type="checkbox"/> | MPM-45-48 <input type="checkbox"/> | |
|---------------------------|---|--|------------------------------------|---|--|------------------------------------|-------|
| OUTPUT | DC VOLTAGE | 5V | 12V | 15V | 24V | 48V | |
| | CURRENT | Peak(10 sec.) | 8.8A | 4.13A | 3.3A | 2.1A | 1.05A |
| | | Convection | 8A | 3.75A | 3A | 1.88A | 0.94A |
| | RATED POWER | Peak(10 sec.) <small>Note.2</small> | 44W | 49.5W | 49.5W | 50.4W | 50.4W |
| | | Convection | 40W | 45W | 45W | 45.1W | 45.1W |
| | RIPPLE & NOISE (max.) <small>Note.3</small> | 80mVp-p | 120mVp-p | 120mVp-p | 200mVp-p | 240mVp-p | |
| | VOLTAGE TOLERANCE <small>Note.4</small> | ±2.0% | ±2.0% | ±2.0% | ±2.0% | ±2.0% | |
| | LINE REGULATION | ±0.5% | ±0.5% | ±0.5% | ±0.5% | ±0.5% | |
| | LOAD REGULATION | ±1.0% | ±1.0% | ±0.5% | ±0.5% | ±0.5% | |
| | SETUP, RISE TIME | 1000ms, 30ms/230VAC 1000ms, 30ms/115VAC at full load | | | | | |
| HOLD UP TIME (Typ.) | 50ms/230VAC 12ms/115VAC at full load | | | | | | |
| INPUT | VOLTAGE RANGE <small>Note.5</small> | 80 ~ 264VAC 113 ~ 370VDC | | | | | |
| | FREQUENCY RANGE | 47 ~ 63Hz | | | | | |
| | EFFICIENCY (Typ.) | 88% | 91.5% | 92.5% | 92.5% | 92% | |
| | AC CURRENT (Typ.) | 1.2A/115VAC 0.6A/230VAC | | | | | |
| | INRUSH CURRENT (Typ.) | COLD START 30A/115VAC 60A/230VAC | | | | | |
| | LEAKAGE CURRENT (max.) <small>Note.6</small> | Touch current <100 μ A/264VAC | | | | | |
| PROTECTION | OVERLOAD | 115% ~ 135% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed | | | | | |
| | OVER VOLTAGE | 5.3 ~ 7.2V | 12.6 ~ 16.2V | 15.8 ~ 20.3V | 25.2 ~ 32.4V | 50.4 ~ 64.8V | |
| | | Protection type : Shut down o/p voltage, re-power on to recover | | | | | |
| | OVER TEMPERATURE | Protection type : Shut down o/p voltage, re-power on to recover | | | | | |
| ENVIRONMENT | WORKING TEMP. | -30 ~ +80 $^{\circ}$ C (Refer to "Derating Curve") | | | | | |
| | WORKING HUMIDITY | 20 ~ 90% RH non-condensing | | | | | |
| | STORAGE TEMP. | -40 ~ +85 $^{\circ}$ C | | | | | |
| | TEMP. COEFFICIENT | ±0.03%/ $^{\circ}$ C (0 ~ 60 $^{\circ}$ C) | | | | | |
| | SOLDERING TEMPERATURE | 260 $^{\circ}$ C ±5 $^{\circ}$ C/10sec.max. | | | | | |
| | VIBRATION | Blank:10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes ST:10 ~ 500Hz, 5G 10min./1cycle, period for 60min. each along X, Y, Z axes | | | | | |
| | OPERATING ALTITUDE <small>Note.7</small> | 4000 meters / OVC II | | | | | |
| SAFETY & EMC (Note 8) | SAFETY STANDARDS | IEC60601-1, EN60601-1, EAC TP TC 004, UL ANSI/AAMI ES60601-1(3.1 version), CAN/CSA-C22 3 rd Edition approved; Design refer to EN60335-1(by request) | | | | | |
| | ISOLATION LEVEL | Primary-Secondary: 2xMOPP | | | | | |
| | WITHSTAND VOLTAGE | I/P-O/P:4KVAC | | | | | |
| | ISOLATION RESISTANCE | I/P-O/P:100M Ohms / 500VDC / 25 $^{\circ}$ C / 70% RH | | | | | |
| | EMC EMISSION | Parameter | Standard | | | Test Level / Note | |
| | | Conducted | EN55011 (CISPR11) | | | Class B | |
| | | Radiated | EN55011 (CISPR11) | | | Class B | |
| | | Harmonic Current | EN61000-3-2 | | | Class A | |
| | | Voltage Flicker | EN61000-3-3 | | | ---- | |
| | EMC IMMUNITY | EN60601-1-2 | | | | | |
| Parameter | | Standard | | | Test Level / Note | | |
| ESD | | EN61000-4-2 | | | Level 4, 15KV air ; Level 4, 8KV contact | | |
| RF field susceptibility | | EN61000-4-3 | | | Level 3, 10V/m(80MHz~2.7GHz) Table 9, 9~28V/m(385MHz~5.78GHz) | | |
| EFT bursts | | EN61000-4-4 | | | Level 3, 2KV | | |
| Surge susceptibility | | EN61000-4-5 | | | Level 3, 1KV/Line-Line | | |
| Conducted susceptibility | | EN61000-4-6 | | | Level 3, 10V | | |
| Magnetic field immunity | | EN61000-4-8 | | | Level 4, 30A/m | | |
| Voltage dip, interruption | EN61000-4-11 | | | >95% dip 0.5 periods, 30% dip 25 periods, >95% interruptions 250 periods | | | |
| OTHERS | MTBF | 563.44Khrs min. MIL-HDBK-217F (25 $^{\circ}$ C); | | 1530.14Khrs min. Telcordia TR/SR-332 (Bellcore) (25 $^{\circ}$ C) | | | |
| | DIMENSION | PCB mounting style : 87*52*29.5mm (L*W*H) | | | Screw terminal style : 109*52*33.5mm (L*W*H) | | |
| | PACKING | PCB mounting style : 0.185Kg;60pcs/12.1Kg/0.94CUFT | | | Screw terminal style :0.206Kg;50pcs/11.3Kg/0.56CUFT | | |
| NOTE | <p>1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25$^{\circ}$C of ambient temperature.</p> <p>2. 33% Duty cycle maximum within every 30 seconds. Average output power should not exceed the rated power.</p> <p>3. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1 μf & 47 μf parallel capacitor.</p> <p>4. Tolerance : includes set up tolerance, line regulation and load regulation.</p> <p>5. Derating may be needed under low input voltages. Please check the derating curve for more details.</p> <p>6. Touch current was measured from primary input to DC output.</p> <p>7. The ambient temperature derating of 3.5$^{\circ}$C/1000m with fanless models and of 5$^{\circ}$C/1000m with fan models for operating altitude higher than 2000m(6500ft).</p> <p>8. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies." (as available on http://www.meanwell.com)</p> <p>※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx</p> | | | | | | |

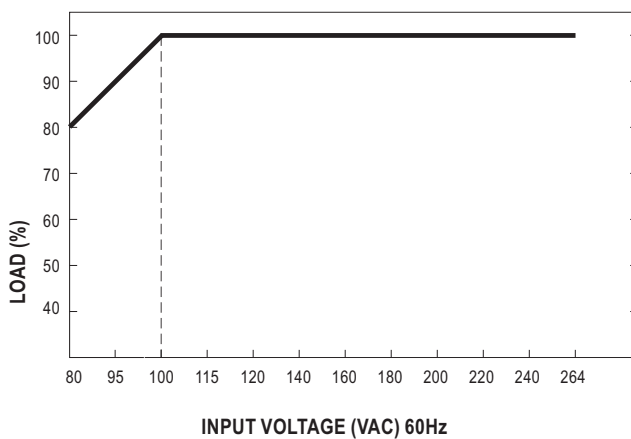
■ Block Diagram



■ Derating Curve



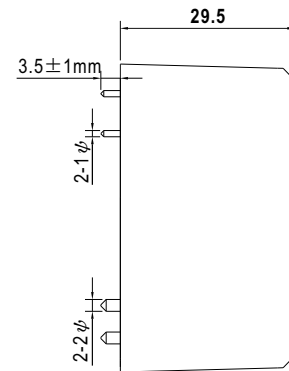
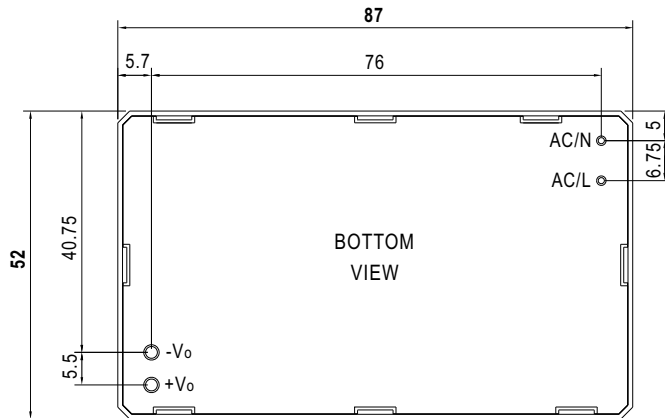
■ Output Derating VS Input Voltage



■ **Mechanical Specification**

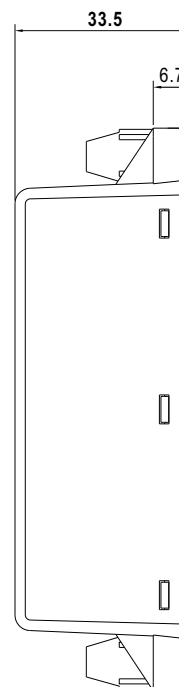
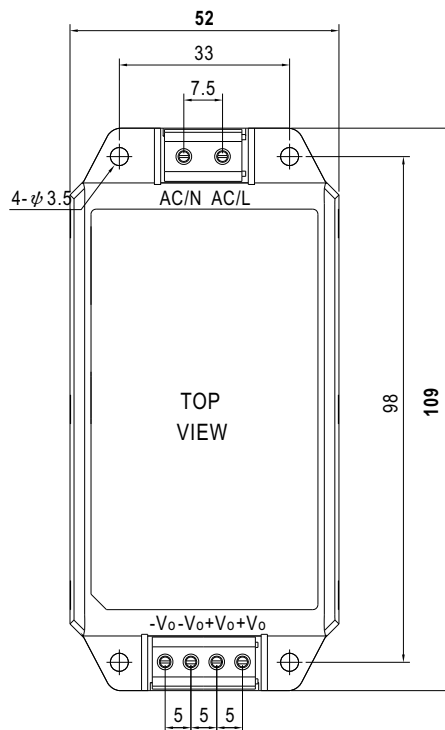
Case No. IRM60 Unit:mm

• PCB mounting style (MPM-45)



AC/L, AC/N P/N diameter: 1 φ
+Vo, -Vo P/N diameter: 2 φ

• Screw terminal style (MPM-45-xxST)



■ **Installation Manual**

Please refer to : <http://www.meanwell.com/manual.html>