



BS EN/EN60335-1 ANSI/AAMI ES60601-1 BS EN/EN60601-1 IEC60601-1 TPTC004

## Features

- 2.06"x1.07" compact size
- Medical safety approved (2 x MOPP) according to ANSI/AAMI ES60601-1 and IEC/BS EN/EN60601-1
- Suitable for BF application with appropriate system consideration
- No load power consumption < 0.1W
- Extremely low leakage current
- Wide operating temp. range -35 ~ +85°C
- EMI class B for class II configuration
- Protections:  
Short circuit / Overload / Over voltage / Over temperature
- No minimum load required
- 3 years warranty

## Applications

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

## GTIN CODE

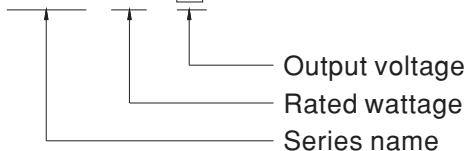
MW Search: <https://www.meanwell.com/serviceGTIN.aspx>

## Description

MPM-20 is a 20W high density and small size (52.4\*27.2\*24mm) AC/DC module type medical power supply series offered in pin type. It features the operation for 80~264VAC, a low no load power consumption less than 0.1W, a high efficiency up to 87%, Class II (no FG) double insulation, outstanding dissipation and high lifespan thanks to the interior potting, 2G anti-vibration, high EMC performance, 4KVAC isolation, etc. The design observes IEC/BS EN/EN60601-1 and ANSI/AAMI ES60601-1 version three with 2xMOPP level and ultra-low leakage current (<80 μA). It is very suitable for BF (patient contact) type medical device or relevant equipment.

## Model Encoding

MPM - 20 - 5

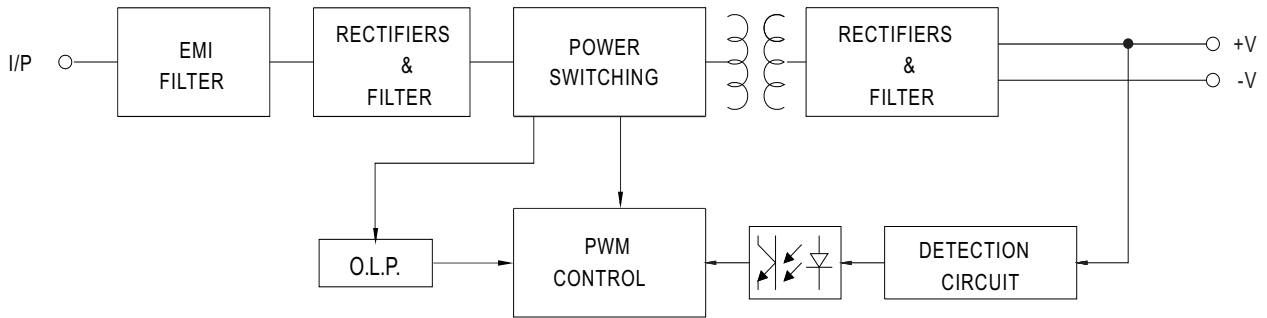


**SPECIFICATION**

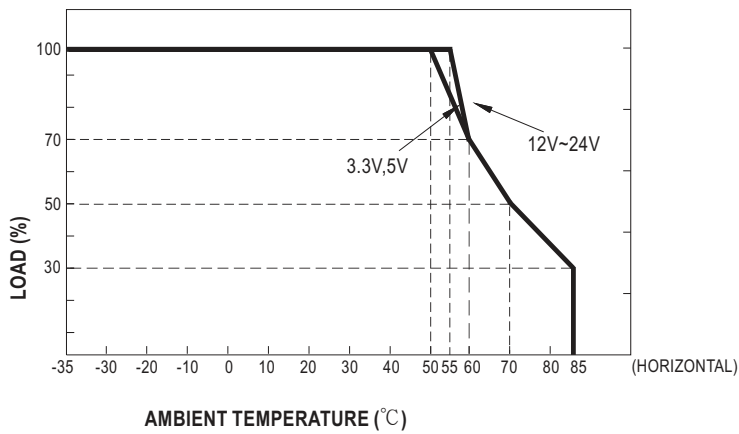
| MODEL  |   | MPM-20-3.3  | MPM-20-5                | MPM-20-12  | MPM-20-15              | MPM-20-24  |  |
|--|---|---|-------------------------|--|------------------------|--|--|
| OUTPUT                                       | DC VOLTAGE  | 3.3V  | 5V                      | 12V  | 15V                    | 24V  |  |
|  | RATED CURRENT   | 4.5A  | 4A                      | 1.8A   | 1.4A                   | 0.9A   |  |
|  | CURRENT RANGE <small>Note.2</small>   | 0 ~ 4.5A  | 0 ~ 4A                  | 0 ~ 1.8A   | 0 ~ 1.4A               | 0 ~ 0.9A   |  |
|  | PEAK CURRENT  | 4.95A   | 4.4A                    | 1.98A  | 1.54A                  | 0.99A  |  |
|  | RATED POWER   | 14.9W   | 20W                     | 21.6W  | 21W                    | 21.6W  |  |
|  | PEAK LOAD(10sec.) <small>Note.3</small>   | 16.3W   | 22W                     | 23.8W  | 23.1W                  | 23.8W  |  |
|  | RIPPLE & NOISE (max.) <small>Note.4</small>   | 150mVp-p  | 150mVp-p                | 150mVp-p   | 180mVp-p               | 180mVp-p   |  |
|  | VOLTAGE TOLERANCE <small>Note.5</small>   | ±2.0%   | ±2.0%                   | ±2.0%  | ±2.0%                  | ±2.0%  |  |
|  | LINE REGULATION   | ±0.5%   | ±0.5%                   | ±0.3%  | ±0.3%                  | ±0.3%  |  |
|  | LOAD REGULATION   | ±0.5%   | ±0.5%                   | ±0.5%  | ±0.5%                  | ±0.5%  |  |
| SETUP, RISE TIME                             | 1500ms, 30ms/230VAC      1500ms, 30ms/115VAC at full load   |   |                         |  |                        |  |  |
| HOLD UP TIME (Typ.)                          | 40ms/230VAC      10ms/115VAC at full load   |   |                         |  |                        |  |  |
| INPUT  | VOLTAGE RANGE <small>Note.6</small>   | 80 ~ 264VAC   | 113V~370VDC             |  |                        |  |  |
|  | FREQUENCY RANGE   | 47 ~ 440Hz  |                         |  |                        |  |  |
|  | EFFICIENCY (Typ.)   | 81%   | 85%                     | 85.5%  | 87%                    | 87%  |  |
|  | AC CURRENT (Typ.)   | 0.75A/115VAC      0.5A/230VAC   |                         |  |                        |  |  |
|  | INRUSH CURRENT (Typ.)   | COLD START      20A/115VAC      45A/230VAC  |                         |  |                        |  |  |
| LEAKAGE CURRENT (max.) <small>Note.7</small> | Touch current <80µA/264VAC  |   |                         |  |                        |  |  |
| PROTECTION                                   | OVERLOAD  | 110% ~ 150% rated output power<br>Protection type : Hiccup mode, recovers automatically after fault condition is removed  |                         |  |                        |  |  |
|  | OVER VOLTAGE  | 3.8 ~ 5V  | 5.8 ~ 6.8V              | 13.8 ~ 16.2V   | 17.3 ~ 20.3V           | 27.6 ~ 32.4V   |  |
|  | OVER TEMPERATURE  | Protection type : Shut down o/p voltage, recovers automatically after temperature goes down   |                         |  |                        |  |  |
| ENVIRONMENT                                  | WORKING TEMP.   | -35 ~ +85°C (Refer to "Derating Curve")   |                         |  |                        |  |  |
|  | WORKING HUMIDITY  | 20 ~ 90% RH non-condensing  |                         |  |                        |  |  |
|  | STORAGE TEMP., HUMIDITY   | -40 ~ +85°C, 10 ~ 95% RH non-condensing   |                         |  |                        |  |  |
|  | TEMP. COEFFICIENT   | ±0.03%/°C (0 ~ 55°C)  |                         |  |                        |  |  |
|  | SOLDERING TEMPERATURE   | Wave soldering: 265°C, 5s (max.); Manual soldering: 390°C, 3s (max.)  |                         |  |                        |  |  |
|  | VIBRATION   | 10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes   |                         |  |                        |  |  |
| OPERATING ALTITUDE <small>Note.8</small>     | 5000 meters   |   |                         |  |                        |  |  |
| SAFETY & EMC <small>(Note.9)</small>         | SAFETY STANDARDS  | IEC60601-1, TUV BS EN/EN60601-1, IEC60335-1, Dekra BS EN/EN60335-1, EAC TP TC 004, UL ANSI/AAMI ES60601-1 (3.1 version), CAN/CSA-C22 3 <sup>rd</sup> Edition approved |                         |  |                        |  |  |
|  | ISOLATION LEVEL   | Primary-Secondary: 2xMOPP   |                         |  |                        |  |  |
|  | WITHSTAND VOLTAGE   | I/P-O/P:4KVAC   |                         |  |                        |  |  |
|  | ISOLATION RESISTANCE  | I/P-O/P:100M Ohms / 500VDC / 25°C / 70% RH  |                         |  |                        |  |  |
|  | EMC EMISSION  | Parameter   | Standard                |  |                        | Test Level / Note  |  |
|  |   | Conducted emission  | BS EN/EN55011 (CISPR11) |  |                        | Class B  |  |
|  |   | Radiated emission   | BS EN/EN55011 (CISPR11) |  |                        | Class B  |  |
|  |   | Harmonic current  | BS EN/EN61000-3-2       |  |                        | Class A  |  |
|  | Voltage flicker   | BS EN/EN61000-3-3   |                         |  | -----                  |  |  |
|  | EMC IMMUNITY  | BS EN/EN55035, BS EN/EN60601-1-2  |                         |  |                        |  |  |
|  |   | Parameter   | Standard                |  |                        | Test Level / Note  |  |
|  |   | ESD   | BS EN/EN61000-4-2       |  |                        | Level 4, 15KV air ; Level 4, 8KV contact                             |  |
|  |   | RF field susceptibility   | BS EN/EN61000-4-3       |  |                        | Level 3, 10V/m( 80MHz~2.7GHz )<br>Table 9, 9~28V/m( 385MHz~5.78GHz ) |  |
|  |   | EFT bursts  | BS EN/EN61000-4-4       |  |                        | Level 3, 2KV   |  |
| Surge susceptibility                         |   | BS EN/EN61000-4-5   |                         |  | Level 3, 1KV/Line-Line |  |  |
| Conducted susceptibility                     |   | BS EN/EN61000-4-6   |                         |  | Level 3, 10V           |  |  |
| Magnetic field immunity                      | BS EN/EN61000-4-8   |   |                         | Level 4, 30A/m   |                        |  |  |
| Voltage dip, interruption                    | BS EN/EN61000-4-11  |   |                         | 100% dip 1 periods, 30% dip 25 periods, 100% interruptions 250 periods |                        |  |  |
| OTHERS                                       | MTBF  | 7319.8K hrs min.      Telcordia SR-332 (Bellcore) ; 1210.0K hrs min.      MIL-HDBK-217F (25°C)  |                         |  |                        |  |  |
|  | DIMENSION   | 52.4*27.2*24mm (L*W*H) or 2.06**1.07**0.94" inch  |                         |  |                        |  |  |
|  | PACKING   | 0.056Kg; 240pcs/14.4Kg/0.94CUFT   |                         |  |                        |  |  |
| NOTE   | <p>1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</p> <p>2. No minimum load required.</p> <p>3. 33% Duty cycle maximum within every 30 seconds. Average output power should not exceed the rated power.</p> <p>4. Ripple &amp; noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1 µf &amp; 47 µf parallel capacitor.</p> <p>5. Tolerance : includes set up tolerance, line regulation and load regulation.</p> <p>6. Derating may be needed under low input voltages. Please check the derating curve for more details.</p> <p>7. Touch current was measured from primary input to DC output.</p> <p>8. The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude higher than 2000m(6500ft).</p> <p>9. 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."<br/>(as available on <a href="http://www.meanwell.com">http://www.meanwell.com</a>)</p> <p>※ Product Liability Disclaimer : For detailed information, please refer to <a href="https://www.meanwell.com/serviceDisclaimer.aspx">https://www.meanwell.com/serviceDisclaimer.aspx</a></p> |   |                         |  |                        |  |  |

### Block Diagram

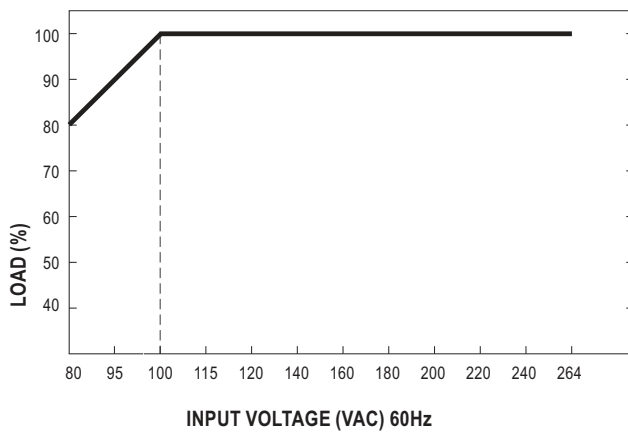
fosc : 100KHz



### Derating Curve

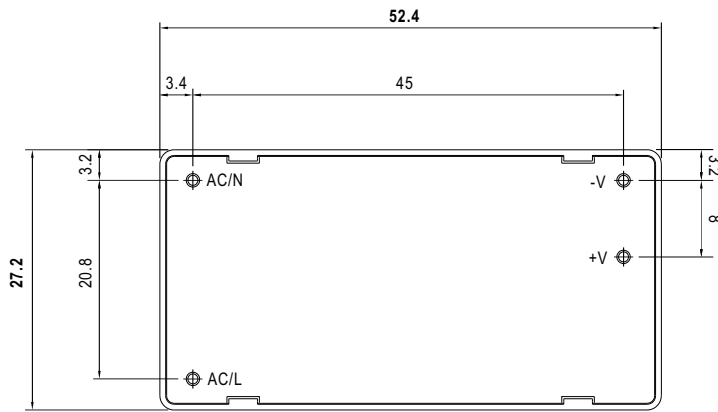


### Output Derating VS Input Voltage

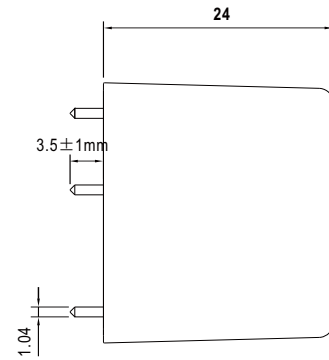


## Mechanical Specification

Case No.219A Unit:(mm)



BOTTOM VIEW



P/N diameter:1.04

SIDE VIEW

## Installation Manual

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