



Наличие и актуальные цены на

**MPM-65-15ST**

<https://www.mean-well.ru/store/MPM-65-15ST/>



(MPM-65)



(MPM-65-xxST)



ANSI/AAMI ES60601-1



BS EN/EN60601-1



IEC60601-1



TPTC004



## 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/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 -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)
- 71W peak(10 sec.)
- 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-65 is a 65W 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 93%, Class II (no FG) double insulation, outstanding dissipation, 2~5G anti-vibration by model, high EMC performance, 4KVAC isolation, etc. The design observes IEC/BS EN/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

**MPM - 65 - 5 ST**

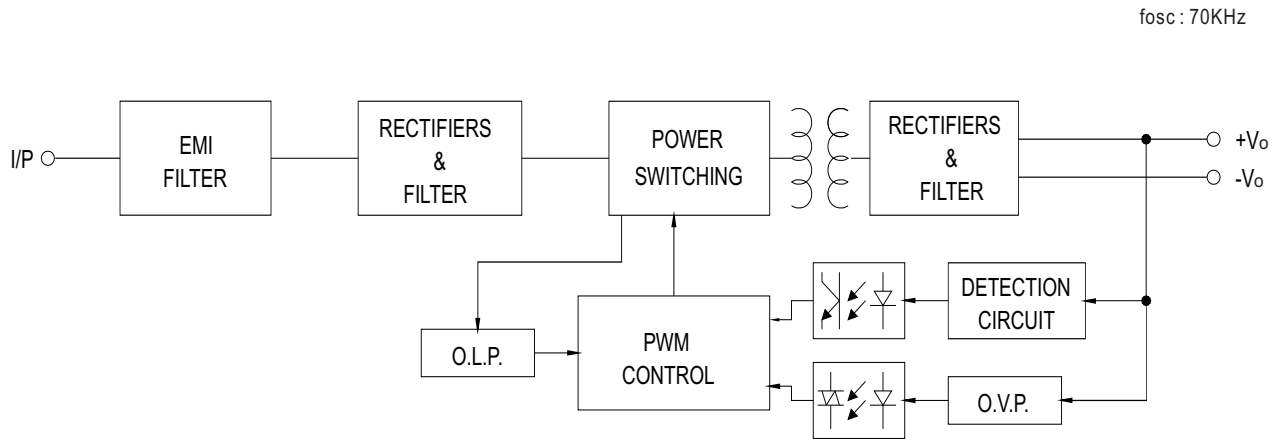
Blank : PCB mounting style  
ST : Screw terminal style

Output voltage  
Rated wattage  
Series name

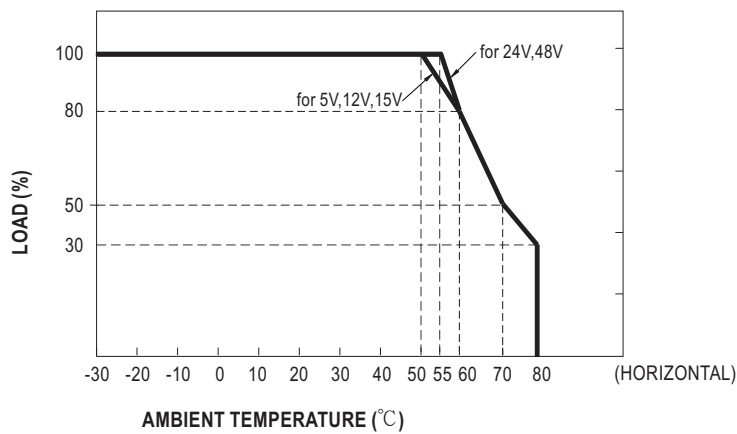
**SPECIFICATION**

| MODEL                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | MPM-65-5                                                                                                                                                                                         | MPM-65-12               | MPM-65-15                                                                   | MPM-65-24                                                            | MPM-65-48    |       |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-----------------------------------------------------------------------------|----------------------------------------------------------------------|--------------|-------|
| OUTPUT                    | DC VOLTAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 5V                                                                                                                                                                                               | 12V                     | 15V                                                                         | 24V                                                                  | 48V          |       |
|                           | CURRENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Peak(10 sec.)                                                                                                                                                                                    | 11A                     | 5.96A                                                                       | 4.77A                                                                | 2.98A        | 1.49A |
|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Convection                                                                                                                                                                                       | 10A                     | 5.42A                                                                       | 4.33A                                                                | 2.71A        | 1.36A |
|                           | RATED POWER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Peak(10 sec.) <sup>Note.2</sup>                                                                                                                                                                  | 55W                     | 71.5W                                                                       | 71.6W                                                                | 71.5W        | 71.5W |
|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Convection                                                                                                                                                                                       | 50W                     | 65W                                                                         | 65W                                                                  | 65W          | 65.3W |
|                           | RIPPLE & NOISE (max.) <sup>Note.3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 80mVp-p                                                                                                                                                                                          | 120mVp-p                | 120mVp-p                                                                    | 200mVp-p                                                             | 240mVp-p     |       |
|                           | VOLTAGE TOLERANCE <sup>Note.4</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ± 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 <sup>Note.5</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 80 ~ 264VAC    113 ~ 370VDC                                                                                                                                                                      |                         |                                                                             |                                                                      |              |       |
|                           | FREQUENCY RANGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 47 ~ 63Hz                                                                                                                                                                                        |                         |                                                                             |                                                                      |              |       |
|                           | EFFICIENCY (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 86.5%                                                                                                                                                                                            | 92.5%                   | 92.5%                                                                       | 93%                                                                  | 92%          |       |
|                           | AC CURRENT (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1.5A/115VAC    1A/230VAC                                                                                                                                                                         |                         |                                                                             |                                                                      |              |       |
|                           | INRUSH CURRENT (Typ.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | COLD START    30A/115VAC    65A/230VAC                                                                                                                                                           |                         |                                                                             |                                                                      |              |       |
|                           | LEAKAGE CURRENT (max.) <sup>Note.6</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Touch current <100 $\mu$ A/264VAC                                                                                                                                                                |                         |                                                                             |                                                                      |              |       |
| PROTECTION                | OVERLOAD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 115% ~ 135% rated output power<br>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℃ (Refer to "Derating Curve")                                                                                                                                                           |                         |                                                                             |                                                                      |              |       |
|                           | WORKING HUMIDITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 20 ~ 90% RH non-condensing                                                                                                                                                                       |                         |                                                                             |                                                                      |              |       |
|                           | STORAGE TEMP.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | -40 ~ +85℃                                                                                                                                                                                       |                         |                                                                             |                                                                      |              |       |
|                           | TEMP. COEFFICIENT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ±0.03%/℃ (0 ~ 50℃)                                                                                                                                                                               |                         |                                                                             |                                                                      |              |       |
|                           | SOLDERING TEMPERATURE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Wave soldering: 265℃, 5s (max.); Manual soldering: 390℃, 3s (max.)                                                                                                                               |                         |                                                                             |                                                                      |              |       |
|                           | VIBRATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Blank: 10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes<br>ST: 10 ~ 500Hz, 5G 10min./1cycle, period for 60min. each along X, Y, Z axes                                    |                         |                                                                             |                                                                      |              |       |
|                           | OPERATING ALTITUDE <sup>Note.7</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 4000 meters / OVC II                                                                                                                                                                             |                         |                                                                             |                                                                      |              |       |
| SAFETY & EMC<br>(Note 8)  | SAFETY STANDARDS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | IEC 60601-1:2005+A1, TUV BS EN/ EN 60601-1:2006+A1+A12+A2, ANSI/AAMI ES60601-1:2005+A2<br>CAN/CSA C22.2 No. 60601-1:2014+A2, EAC TP TC 004 approved; Design refer to BS EN/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℃/ 70% RH                                                                                                                                                        |                         |                                                                             |                                                                      |              |       |
|                           | EMC EMISSION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Parameter                                                                                                                                                                                        | Standard                |                                                                             | Test Level / Note                                                    |              |       |
|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Conducted                                                                                                                                                                                        | BS EN/EN55011 (CISPR11) |                                                                             | Class B                                                              |              |       |
|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Radiated                                                                                                                                                                                         | 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                                                                                                                                                                               |                         | >95% dip 0.5 periods, 30% dip 25 periods,<br>>95% interruptions 250 periods |                                                                      |              |       |
| OTHERS                    | MTBF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 5087.8K hrs min.    Telcordia SR-332 (Bellcore) ; 563.4K hrs min.    MIL-HDBK-217F (25℃)                                                                                                         |                         |                                                                             |                                                                      |              |       |
|                           | 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 : 0.191Kg/60pcs/12.5Kg/0.94CUFT    Screw terminal style : 0.216Kg/50pcs/11.8Kg/0.56CUFT                                                                                       |                         |                                                                             |                                                                      |              |       |
| NOTE                      | 1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ of ambient temperature.<br>2. 33% Duty cycle maximum within every 30 seconds. Average output power should not exceed the rated power.<br>3. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1 $\mu$ F & 47 $\mu$ F parallel capacitor.<br>4. Tolerance : includes set up tolerance, line regulation and load regulation.<br>5. Derating may be needed under low input voltages. Please check the derating curve for more details.<br>6. Touch current was measured from primary input to DC output.<br>7. The ambient temperature derating of 3.5℃/1000m with fanless models and of 5℃/1000m with fan models for operating altitude higher than 2000m(6500ft).<br>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."<br>(as available on <a href="https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf">https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf</a> )<br>※ Product Liability Disclaimer : For detailed information, please refer to <a href="https://www.meanwell.com/serviceDisclaimer.aspx">https://www.meanwell.com/serviceDisclaimer.aspx</a> |                                                                                                                                                                                                  |                         |                                                                             |                                                                      |              |       |

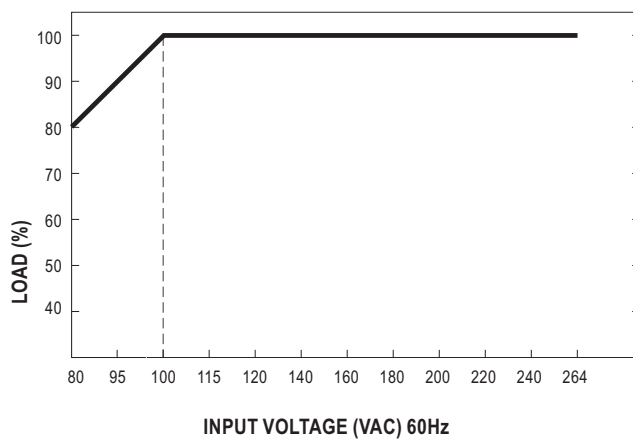
### ■ Block Diagram



### ■ Derating Curve



### ■ Output Derating VS Input Voltage

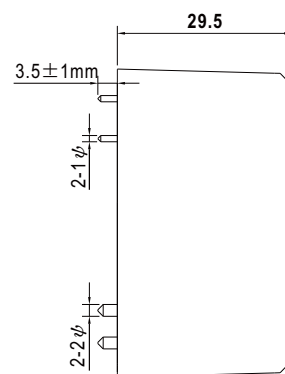
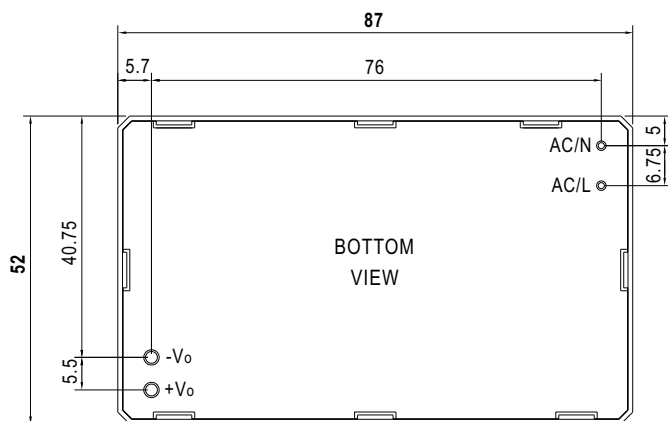


## ■ Mechanical Specification

(Unit: mm , tolerance  $\pm 1$ mm)

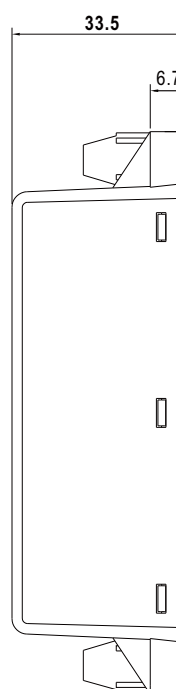
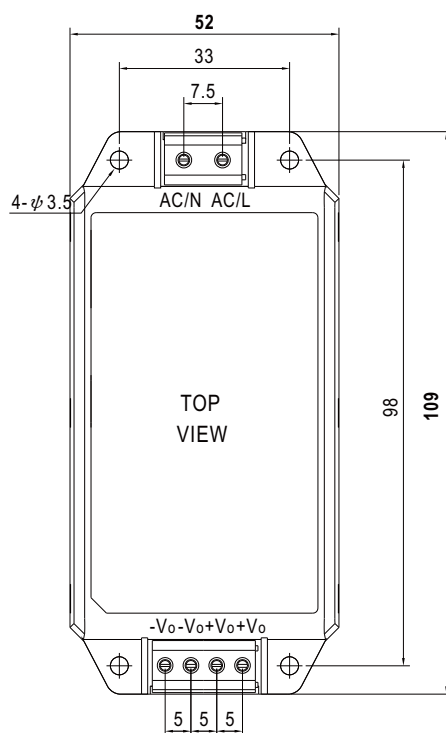
Case No.IRM60

- **PCB mounting style (MPM-65)**



AC/L, AC/N P/N diameter: 1  $\psi$   
+V<sub>o</sub>, -V<sub>o</sub> P/N diameter: 2  $\psi$

- **Screw terminal style (MPM-65-xxST)**

**■ Installation Manual**

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