



65W AC-DC High Reliable PCB-Mount Green Medical Power Module

**MPM-65** series

(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

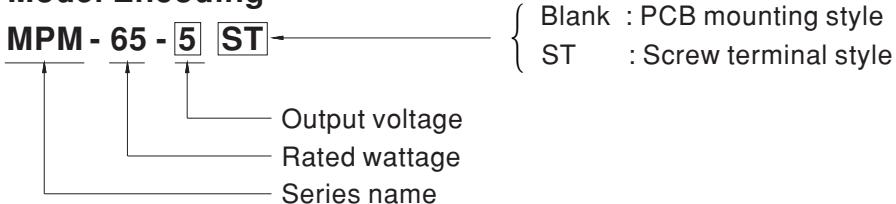
## ■ Applications

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

## ■ 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



## SPECIFICATION

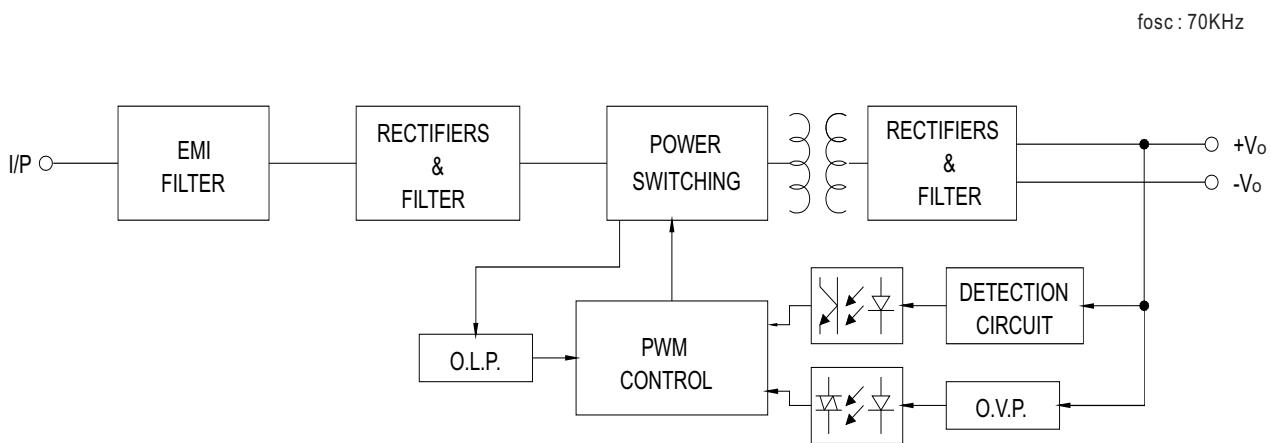
MODEL	MPM-65-5 <input type="checkbox"/>	MPM-65-12 <input type="checkbox"/>	MPM-65-15 <input type="checkbox"/>	MPM-65-24 <input type="checkbox"/>	MPM-65-48 <input type="checkbox"/>		
OUTPUT	DC VOLTAGE	5V	12V	15V	24V		
	CURRENT Peak(10 sec.)	11A	5.96A	4.77A	2.98A		
	Convection	10A	5.42A	4.33A	2.71A		
	RATED POWER	Peak(10 sec.) <sup>Note.2</sup>	55W	71.5W	71.5W		
	Convection	50W	65W	65W	65.3W		
	RIPPLE & NOISE (max.) <sup>Note.3</sup>	80mVp-p	120mVp-p	120mVp-p	200mVp-p		
	VOLTAGE TOLERANCE <sup>Note.4</sup>	±2.0%	±2.0%	±2.0%	±2.0%		
	LINE REGULATION	±0.5%	±0.5%	±0.5%	±0.5%		
	LOAD REGULATION	±1.0%	±1.0%	±0.5%	±0.5%		
	SETUP, RISE TIME	1000ms, 30ms/230VAC	1000ms, 30ms/115VAC at full load				
INPUT	HOLD UP TIME (Typ.)	50ms/230VAC	12ms/115VAC at full load				
	VOLTAGE RANGE <sup>Note.5</sup>	80 ~ 264VAC	113 ~ 370VDC				
	FREQUENCY RANGE	47 ~ 63Hz					
	EFFICIENCY (Typ.)	86.5%	92.5%	92.5%	93%		
	AC CURRENT (Typ.)	1.5A/115VAC	1A/230VAC				
	INRUSH CURRENT (Typ.)	COLD START	30A/115VAC	65A/230VAC			
PROTECTION	LEAKAGE CURRENT (max.) <sup>Note.6</sup>	Touch current <100 μA/264VAC					
	OVERLOAD	115% ~ 135% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed					
	OVER VOLTAGE	5.3 ~ 7.2V	12.6 ~ 16.2V	15.8 ~ 20.3V	25.2 ~ 32.4V		
	OVER TEMPERATURE	Protection type : Shut down o/p voltage, re-power on to recover					
ENVIRONMENT	WORKING TEMP.	-30 ~ +80°C (Refer to "Derating Curve")					
	WORKING HUMIDITY	20 ~ 90% RH non-condensing					
	STORAGE TEMP.	-40 ~ +85°C					
	TEMP. COEFFICIENT	±0.03%/°C (0 ~ 50°C)					
	SOLDERING TEMPERATURE	260°C ±5°C/10sec.max.					
	VIBRATION	Blank:10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes ST:10 ~ 500Hz, 5G 10min./1cycle, period for 60min. each along X, Y, Z axes					
SAFETY & EMC (Note 8)	OPERATING ALTITUDE <sup>Note.7</sup>	4000 meters / OVC II					
	SAFETY STANDARDS	IEC60601-1, BS EN/EN60601-1, EAC TP TC 004, UL ANSI/AAMI ES60601-1(3.1 version), CAN/CSA-C22 3 <sup>rd</sup> Edition 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°C / 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			
	EMC IMMUNITY	Voltage Flicker	BS EN/EN61000-3-3	-----			
		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 ) 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, >95% interruptions 250 periods			
OTHERS	MTBF	563.44Khrs min.	MIL-HDBK-217F (25°C);	1530.14Khrs min.	Telcordia TR/SR-332 (Bellcore) (25°C)		
	DIMENSION	PCB mounting style : 87*52*29.5mm (L*W*H)		Screw terminal style : 109*52*33.5mm (L*W*H)			
	PACKING	PCB mounting style : 0.191Kg;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°C of ambient temperature.					
	2.	33% Duty cycle maximum within every 30 seconds. Average output power should not exceed the rated power.					
	3.	Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1 μf & 47 μf parallel capacitor.					
	4.	Tolerance : includes set up tolerance, line regulation and load regulation.					
	5.	Derating may be needed under low input voltages. Please check the derating curve for more details.					
	6.	Touch current was measured from primary input to DC output.					
	7.	The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude higher than 2000m(6500ft).					
	8.	The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies." (as available on <a href="http://www.meanwell.com">http://www.meanwell.com</a> )					
	※ Product Liability Disclaimer : For detailed information, please refer to <a href="https://www.meanwell.com/serviceDisclaimer.aspx">https://www.meanwell.com/serviceDisclaimer.aspx</a>						



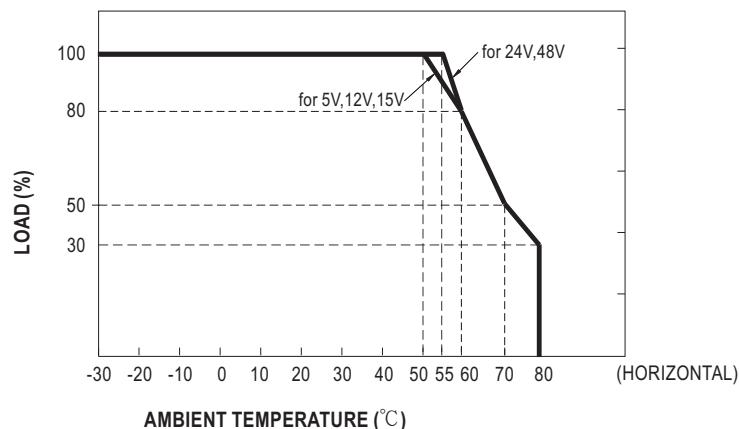
65W AC-DC High Reliable PCB-Mount Green Medical Power Module

**MPM-65** series

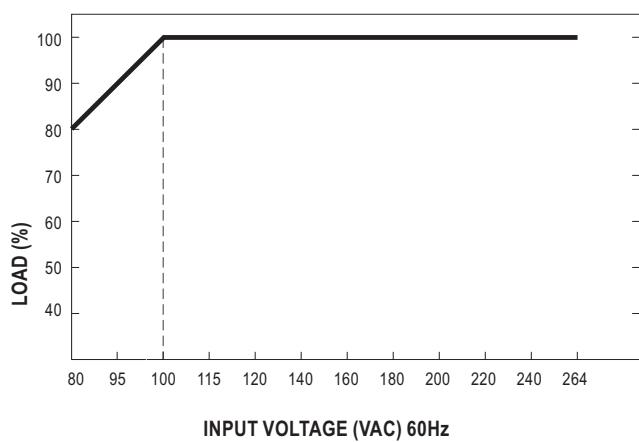
■ Block Diagram



■ Derating Curve



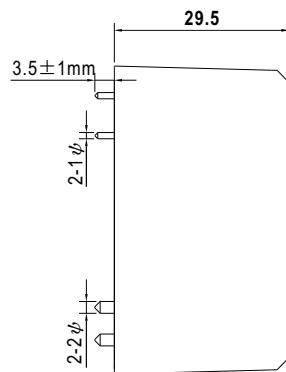
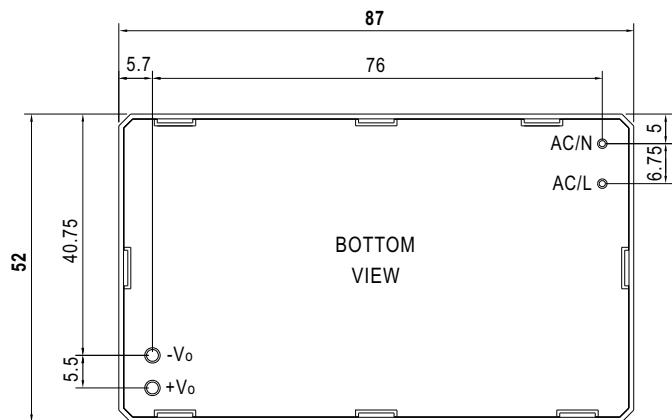
■ Output Derating VS Input Voltage



## ■ Mechanical Specification

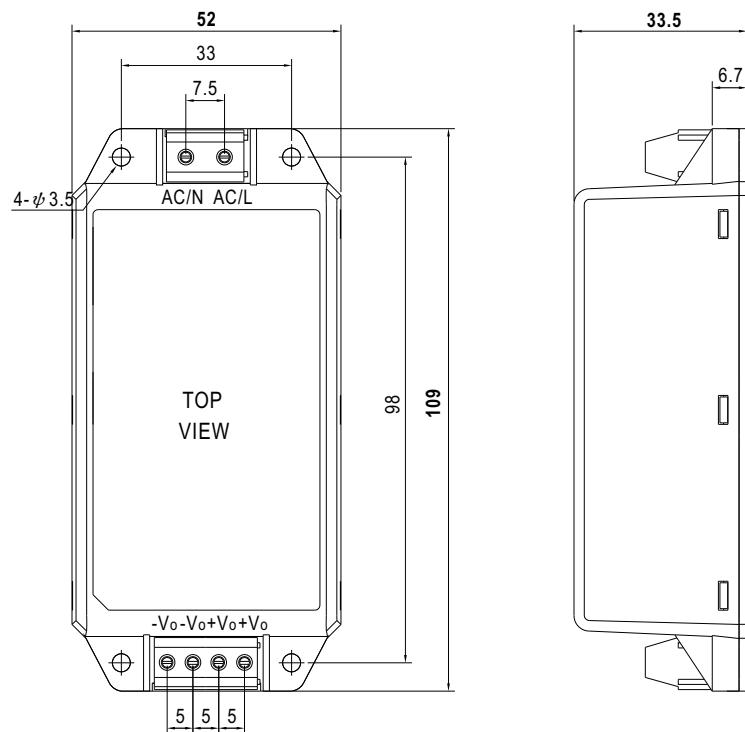
Case No. IRM60 Unit:mm

- PCB mounting style (MPM-65)



AC/L, AC/N P/N diameter:1  $\psi$   
+V<sub>0</sub>, -V<sub>0</sub> P/N diameter:2  $\psi$

- Screw terminal style (MPM-65-xxST)



■ Installation Manual

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