



(MPM-45)



(MPM-45-xxST)

User's Manual



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)
- 50W 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-45 is a 45W high density and small size (87x52x29.5mm) AC/DC PCB-mount type medical grade power supply. It features the operation for 80~264VAC, a low no load power consumption less than 0.1W, a high efficiency up to 92.5%, Class II (no FG) double insulation, outstanding dissipation, 2~5G anti-vibration by model, high EMC performance, 4KVAC isolation, etc. The design observes IEC/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 - 45 - 5 ST

{ Blank : PCB mounting style
ST : Screw terminal style

Output voltage
Rated wattage
Series name

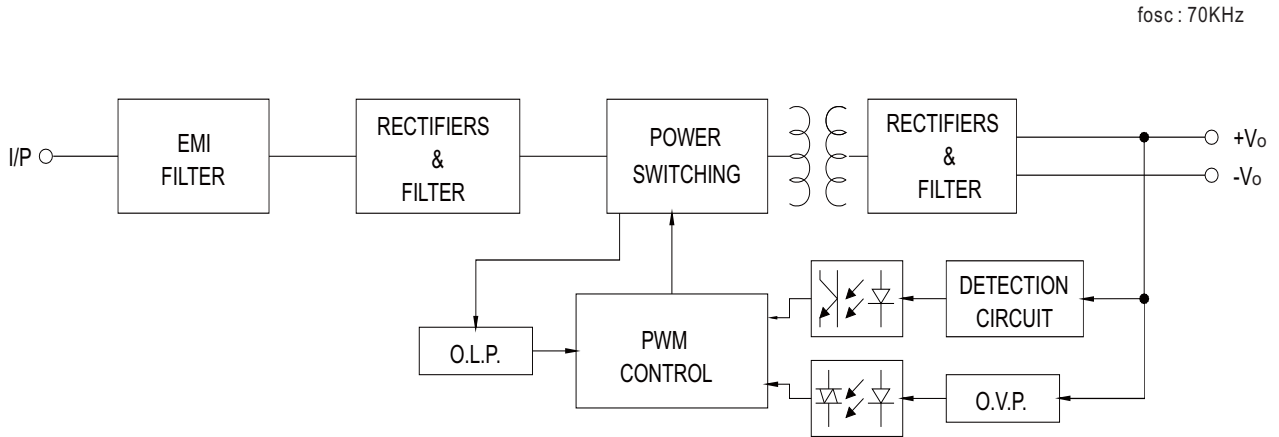


45W AC-DC High Reliable PCB-Mount Green Medical Power Module **MPM-45** series

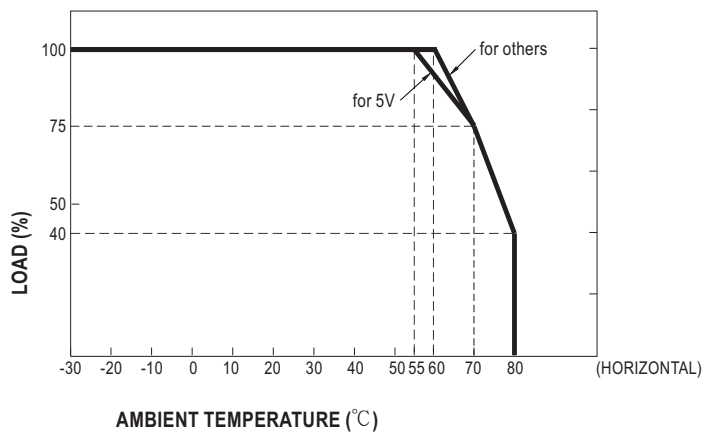
SPECIFICATION

MODEL		MPM-45-5	MPM-45-12	MPM-45-15	MPM-45-24	MPM-45-48	
OUTPUT	DC VOLTAGE	5V	12V	15V	24V	48V	
	CURRENT	Peak(10 sec.)	8.8A	4.13A	3.3A	2.1A	1.05A
		Convection	8A	3.75A	3A	1.88A	0.94A
	RATED POWER	Peak(10 sec.) ^{Note.2}	44W	49.5W	49.5W	50.4W	50.4W
		Convection	40W	45W	45W	45.1W	45.1W
	RIPPLE & NOISE (max.) ^{Note.3}	80mVp-p	120mVp-p	120mVp-p	200mVp-p	240mVp-p	
	VOLTAGE TOLERANCE ^{Note.4}	± 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 ^{Note.5}	80 ~ 264VAC 113 ~ 370VDC					
	FREQUENCY RANGE	47 ~ 63Hz					
	EFFICIENCY (Typ.)	88%	91.5%	92.5%	92.5%	92%	
	AC CURRENT (Typ.)	1.2A/115VAC 0.6A/230VAC					
	INRUSH CURRENT (Typ.)	COLD START 30A/115VAC 60A/230VAC					
	LEAKAGE CURRENT (max.) ^{Note.6}	Touch current <100 μ A/264VAC					
PROTECTION	OVERLOAD	115% ~ 135% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed					
	OVER VOLTAGE	5.3 ~ 7.2V	12.6 ~ 16.2V	15.8 ~ 20.3V	25.2 ~ 32.4V	50.4 ~ 64.8V	
	OVER TEMPERATURE	Protection type : Shut down o/p voltage, re-power on to recover					
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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 ~ 60℃)					
	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 ST: 10 ~ 500Hz, 5G 10min./1cycle, period for 60min. each along X, Y, Z axes					
	OPERATING ALTITUDE ^{Note.7}	4000 meters / OVC II					
	SAFETY STANDARDS	IEC 60601-1:2005+A1, TUV BS EN/ EN 60601-1:2006+A1+A12+A2, ANSI/AAMI ES60601-1:2005+A2 CAN/CSA C22.2 No. 60601-1:2014+A2, EAC TP TC 004 approved; Design refer to BS EN/EN60335-1(by request)					
SAFETY & EMC (Note 8)	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) 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	4590.4K 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 : 0.185Kg/60pcs/12.1Kg/0.94CUFT Screw terminal style : 0.206Kg/50pcs/11.3Kg/0.56CUFT					
NOTE	1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ 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 μ F & 47 μ F 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℃/1000m with fanless models and of 5℃/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 https://www.meanwell.com/Upload/PDF/EMI_statement_en.pdf)						
※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx							

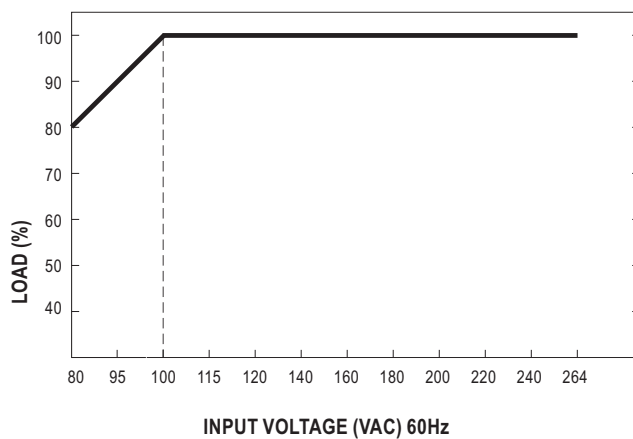
■ Block Diagram



■ Derating Curve



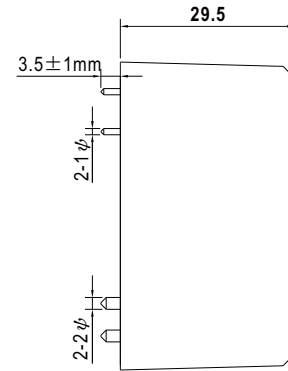
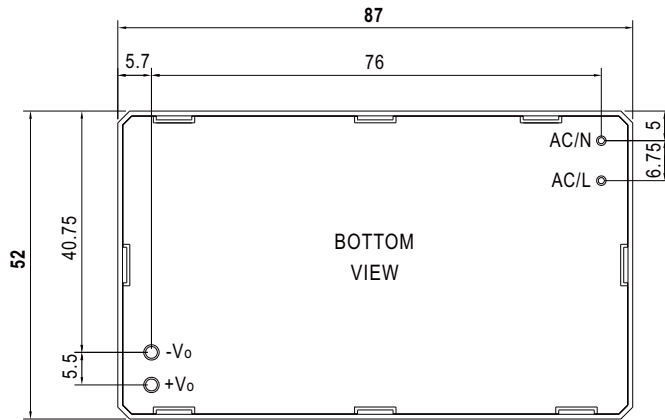
■ Output Derating VS Input Voltage



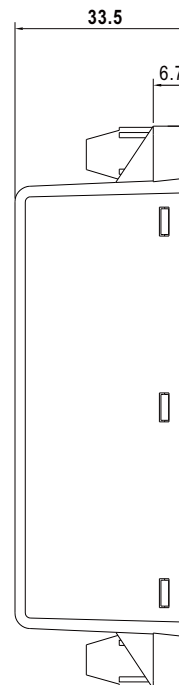
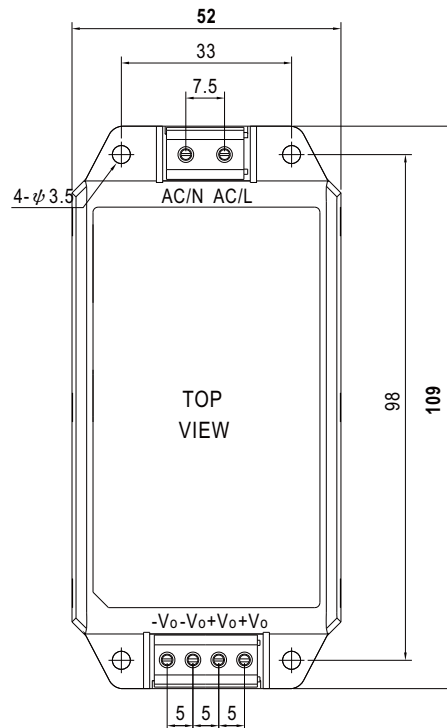
Case No. IRM60 Unit:mm

Mechanical Specification

PCB mounting style (MPM-45)


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

Screw terminal style (MPM-45-xxST)



Installation Manual

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