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45W Module Type Medical power supply > MPM-45



(MPM-45)



(MPM-45-xxST)



Features

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

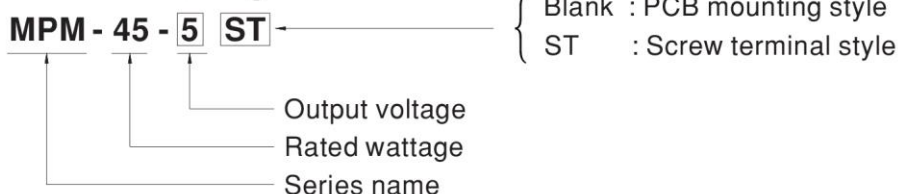
Applications

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

Description

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

Model Encoding





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SPECIFICATION

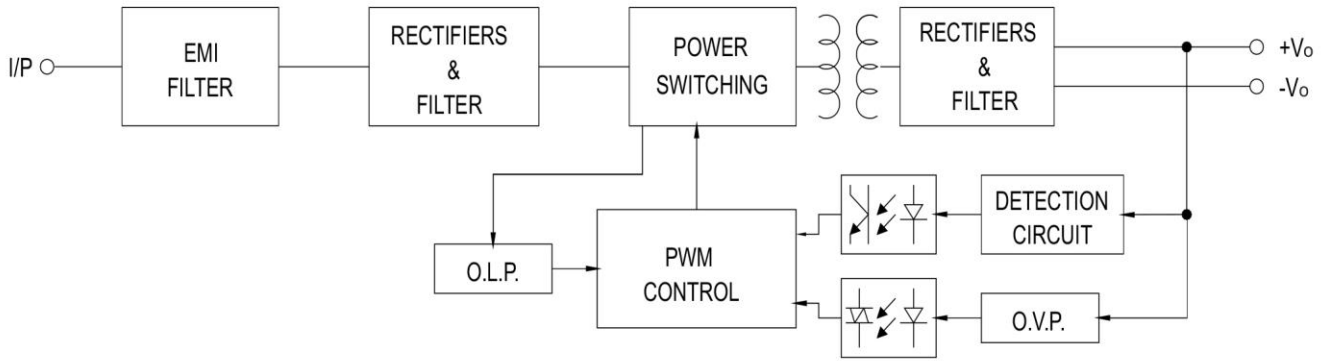
MODEL		MPM-45-5 <input type="checkbox"/>	MPM-45-12 <input type="checkbox"/>	MPM-45-15 <input type="checkbox"/>	MPM-45-24 <input type="checkbox"/>	MPM-45-48 <input type="checkbox"/>	
OUTPUT	DC VOLTAGE	5V	12V	15V	24V	48V	
	CURRENT	Peak(10 sec.)	8.8A	4.13A	3.3A	2.1A	1.05A
		Convection	8A	3.75A	3A	1.88A	0.94A
	RATED POWER	Peak(10 sec.) ^{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 <100µA/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					
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 ~ 60°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					
	OPERATING ALTITUDE ^{Note.7}	4000 meters / OVC II					
SAFETY & EMC (Note 8)	SAFETY STANDARDS	IEC60601-1, EN60601-1, EAC TP TC 004, UL ANSI/AAMI ES60601-1(3.1 version), CAN/CSA-C22 3 rd Edition approved; Design refer to EN60335-1(by request)					
	ISOLATION LEVEL	Primary-Secondary: 2xMOPP					
	WITHSTAND VOLTAGE	I/P-O/P:4KVAC					
	ISOLATION RESISTANCE	I/P-O/P:100M Ohms / 500VDC / 25°C / 70% RH					
	EMC EMISSION	Parameter	Standard			Test Level / Note	
		Conducted	EN55011 (CISPR11)			Class B	
		Radiated	EN55011 (CISPR11)			Class B	
		Harmonic Current	EN61000-3-2			Class A	
		Voltage Flicker	EN61000-3-3			-----	
	EMC IMMUNITY	EN60601-1-2					
		Parameter	Standard			Test Level / Note	
		ESD	EN61000-4-2			Level 4, 15KV air ; Level 4, 8KV contact	
		RF field susceptibility	EN61000-4-3			Level 3, 10V/m(80MHz~2.7GHz) Table 9, 9~28V/m(385MHz~5.78GHz)	
		EFT bursts	EN61000-4-4			Level 3, 2KV	
Surge susceptibility		EN61000-4-5			Level 3, 1KV/Line-Line		
Conducted susceptibility		EN61000-4-6			Level 3, 10V		
Magnetic field immunity		EN61000-4-8			Level 4, 30A/m		
Voltage dip, interruption		EN61000-4-11			>95% dip 0.5 periods, 30% dip 25 periods, >95% interruptions 250 periods		
OTHERS	MTBF	563.44Khrs min. MIL-HDBK-217F (25°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 : 0.185Kg;60pcs/12.1Kg/0.94CUFT			Screw terminal style :0.206Kg;50pcs/11.3Kg/0.56CUFT		
NOTE	<ol style="list-style-type: none"> All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature. 33% Duty cycle maximum within every 30 seconds. Average output power should not exceed the rated power. 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. Tolerance : includes set up tolerance, line regulation and load regulation. Derating may be needed under low input voltages. Please check the derating curve for more details. Touch current was measured from primary input to DC output. 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). 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." 						



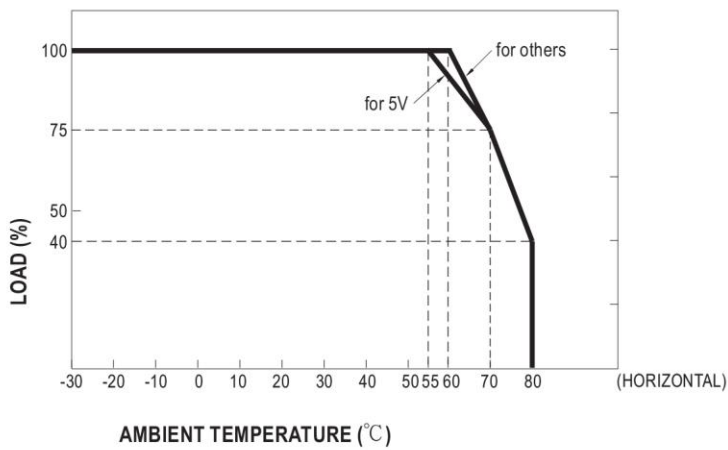
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Block Diagram

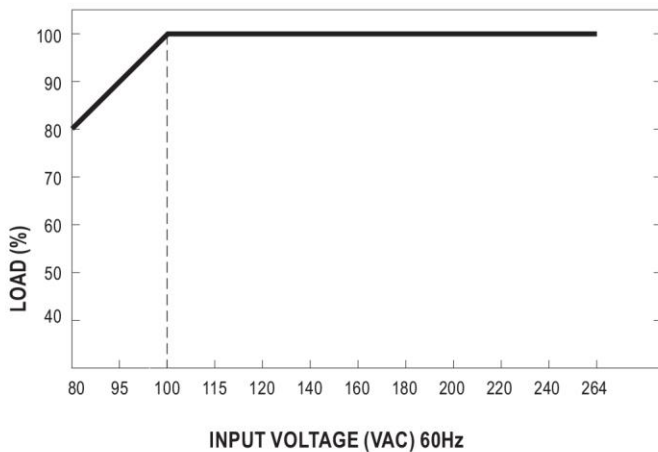
fosc : 70KHz



Derating Curve



Output Derating VS Input Voltage



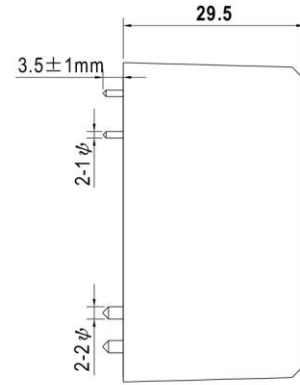
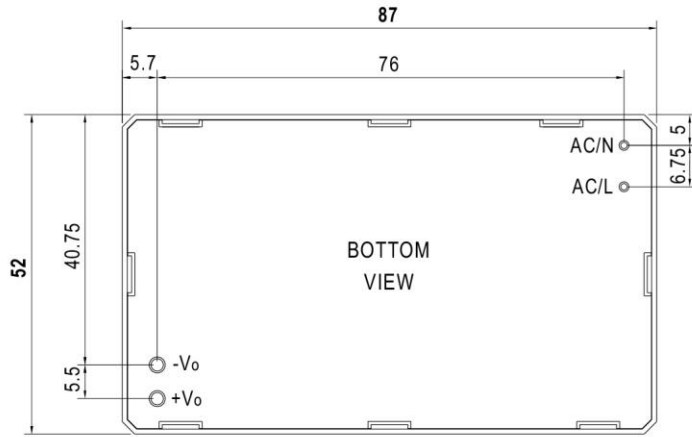


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Mechanical Specification

Case No. IRM60 Unit:mm

- PCB mounting style (MPM-45)



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

- Screw terminal style (MPM-45-xxST)

