



5W High Reliable Green Medical Encapsulated Type

MPM-05 series

User's Manual



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



■ Features

- 1.8"x1" compact size
- Medical safety approved (2 x MOPP) according to ANSI/AAMI ES60601-1 and IEC/BS EN/EN60601-1
- Suitable for BF application with appropriate system consideration
- No load power consumption < 0.075W
- Extremely low leakage current
- Wide operating temp. range -40 ~ +85°C
- EMI class B for class II configuration
- Protections:
Short circuit / Overload / Over voltage / Over temperature
- No minimum load required
- Typical lifetime > 48K hours
- 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-05 is a 5W high density and small size (45.7*25.4*21.5mm) AC/DC module type medical grade power supply series offered in pin type. It features the operation for 80~264VAC, a low no load power consumption less than 0.075W, a high efficiency up to 82%, Class II (no FG) double insulation, outstanding dissipation and high lifespan thanks to the interior potting, 5G anti-vibration, high EMC performance, 4KVAC isolation, etc. The design observes IEC/BS EN/EN60601-1 and ANSI/AAMI ES60601-1 version three with 2xMOPP level and ultra-low leakage current (<80 μ A). It is very suitable for BF (patient contact) type medical device or relevant equipment.

■ Model Encoding

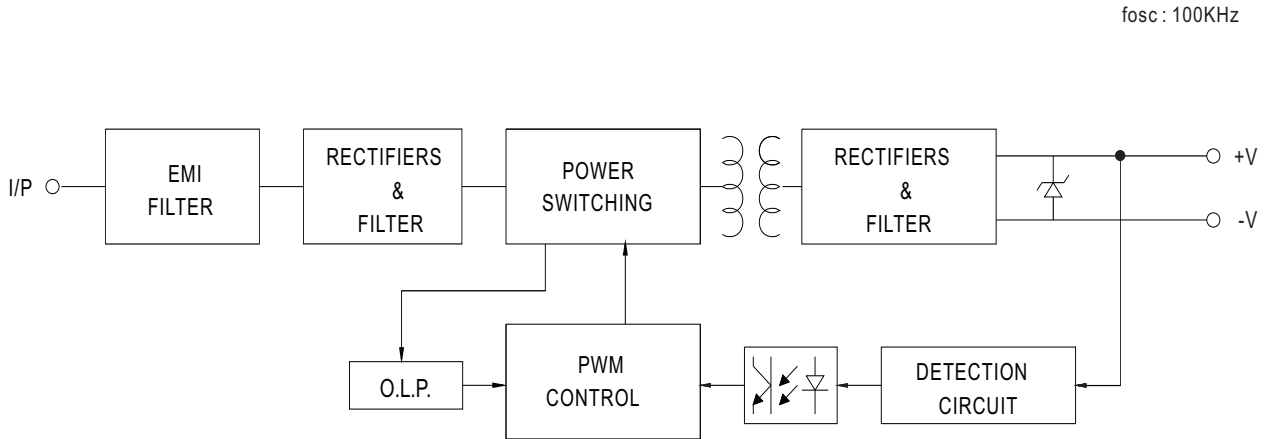
MPM - 05 - 5

Output voltage
Rated wattage
Series name

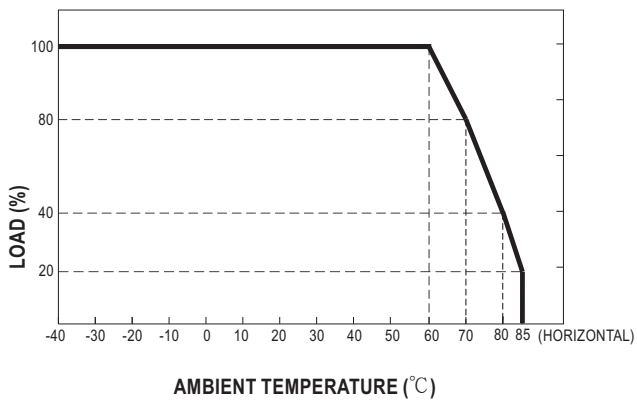
SPECIFICATION

MODEL		MPM-05-3.3	MPM-05-5	MPM-05-12	MPM-05-15	MPM-05-24		
OUTPUT	DC VOLTAGE	3.3V	5V	12V	15V	24V		
	RATED CURRENT	1.25A	1A	0.42A	0.33A	0.23A		
	CURRENT RANGE Note.2	0 ~ 1.25A	0 ~ 1A	0 ~ 0.42A	0 ~ 0.33A	0 ~ 0.23A		
	PEAK CURRENT	1.38A	1.1A	0.46A	0.36A	0.25A		
	RATED POWER	4.1W	5W	5W	5W	5.5W		
	PEAK LOAD(10sec.) Note.3	4.6W	5.5W	5.5W	5.4W	6W		
	RIPPLE & NOISE (max.) Note.4	100mVp-p	100mVp-p	150mVp-p	150mVp-p	180mVp-p		
	VOLTAGE TOLERANCE Note.5	±2.5%	±2.5%	±2.5%	±2.5%	±2.5%		
	LINE REGULATION	±0.3%	±0.3%	±0.3%	±0.3%	±0.3%		
	LOAD REGULATION	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%		
	SETUP, RISE TIME	1000ms, 30ms/230VAC 1000ms, 30ms/115VAC at full load						
	HOLD UP TIME (Typ.)	40ms/230VAC 12ms/115VAC at full load						
INPUT	VOLTAGE RANGE Note.6	80 ~ 264VAC						
	FREQUENCY RANGE	47 ~ 440Hz						
	EFFICIENCY (Typ.)	74%	78%	80%	81%	82%		
	AC CURRENT (Typ.)	0.2A/115VAC 0.1A/230VAC						
	INRUSH CURRENT (Typ.)	COLD START 25A/115VAC 45A/230VAC						
	LEAKAGE CURRENT (max.) Note.7	Touch current <80 μ A/264VAC						
PROTECTION	OVERLOAD	110% ~ 180% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed						
	OVER VOLTAGE	3.8 ~ 5V	5.8 ~ 6.8V	13.8 ~ 16.2V	17.3 ~ 20.3V	27.6 ~ 32.4V		
		Protection type : Shut off o/p voltage, clamping by zener diode						
	OVER TEMPERATURE	Protection type : Shut down o/p voltage, recovers automatically after temperature goes down						
ENVIRONMENT	WORKING TEMP.	-40 ~ +85°C (Refer to "Derating Curve")						
	WORKING HUMIDITY	20 ~ 90% RH non-condensing						
	STORAGE TEMP., HUMIDITY	-40 ~ +100°C, 10 ~ 95% RH non-condensing						
	TEMP. COEFFICIENT	±0.03%/°C (0 ~ 60°C)						
	SOLDERING TEMPERATURE	Wave soldering: 265°C, 5s (max.); Manual soldering: 390°C, 3s (max.)						
	VIBRATION	10 ~ 500Hz, 5G 10min./1cycle, period for 60min. each along X, Y, Z axes						
	OPERATING ALTITUDE Note.8	5000 meters						
	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)						
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							
SAFETY & EMC (Note 9)	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		100% dip 1 periods, 30% dip 25 periods, 100% interruptions 250 periods			
		OTHERS	MTBF	9337.3K hrs min. Telcordia SR-332 (Bellcore) ; 1799.5K hrs min. MIL-HDBK-217F (25°C)				
			DIMENSION	45.7*25.4*21.5mm (L*W*H) or 1.8*1.0*0.85" inch				
			PACKING	0.035Kg; 270pcs/10.5Kg/0.94CUFT				
NOTE	1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature. 2. No minimum load required. 3. 33% Duty cycle maximum within every 30 seconds. Average output power should not exceed the rated power 4. 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. 5. Tolerance : includes set up tolerance, line regulation and load regulation. 6. Derating may be needed under low input voltages. Please check the derating curve for more details. 7. Touch current was measured from primary input to DC output. 8. The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude higher than 2000m(6500ft). 9. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies." (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							

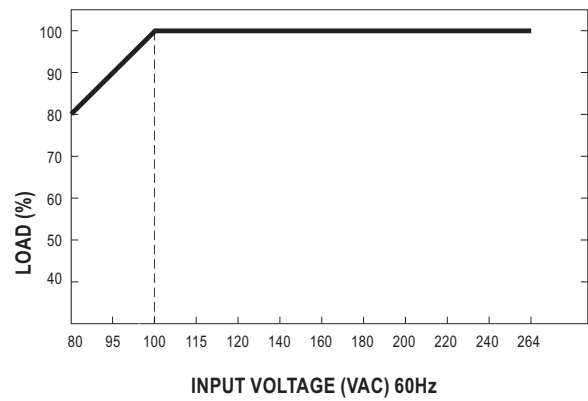
Block Diagram



Derating Curve

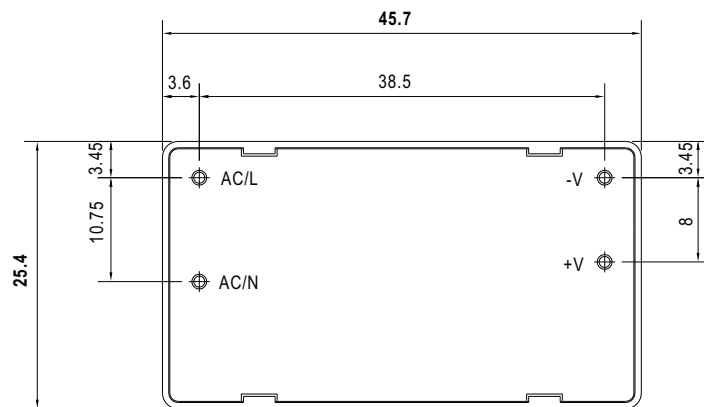


Output Derating VS Input Voltage

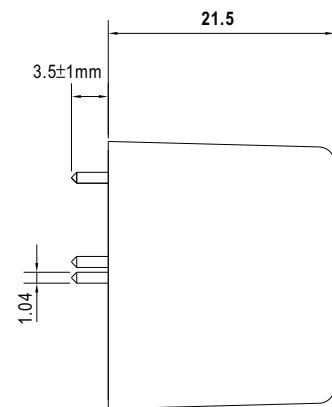


■ Mechanical Specification

Case No.222A Unit:(mm)



BOTTOM VIEW



SIDE VIEW

■ Installation Manual

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