



Features

- 2.06"x1.07" compact size
- 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 <0.075W (0.09W for 3.3V)
- Extremely low leakage current
- Wide operating temp. range -35 ~ +85°C
- EMI class B for class II configuration
- Protections:
Short circuit / Overload / Over voltage / Over temperature
- No minimum load required
- 3 years warranty

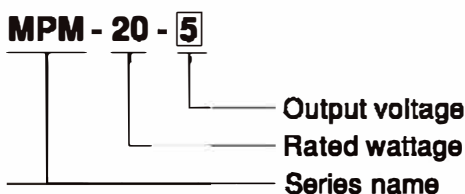
Applications

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

Description

MPM-20 is a 20W high density and small size (52.4*27.2*24mm) AC/DC module type medical power supply series offered in pin type. It features the operation for 80~264VAC, a low no load power consumption less than 0.075W (0.09W for 3.3V), a high efficiency up to 87%, 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/EN60601-1 and ANSI/AAMI ES60601-t version three with 2xMOPP level and ultra-low leakage current (<80 μA). It is very suitable for BF (patient contact) type medical device or relevant equipment.

Model Encoding

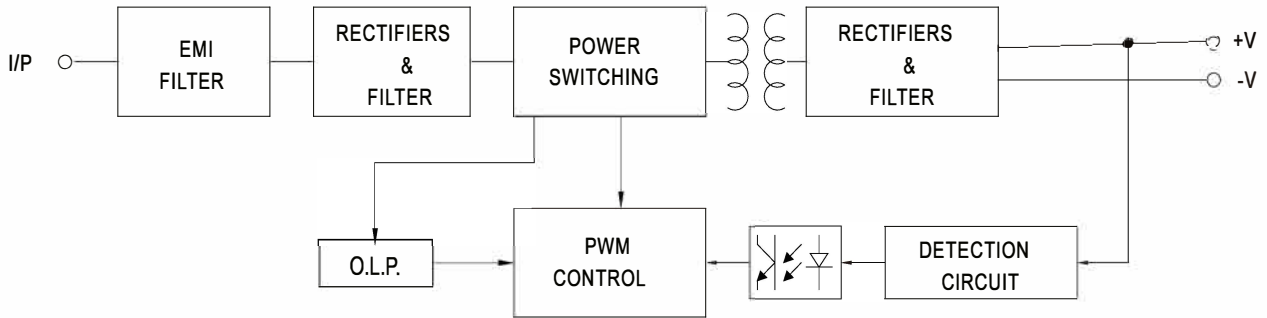


SPECIFICATION

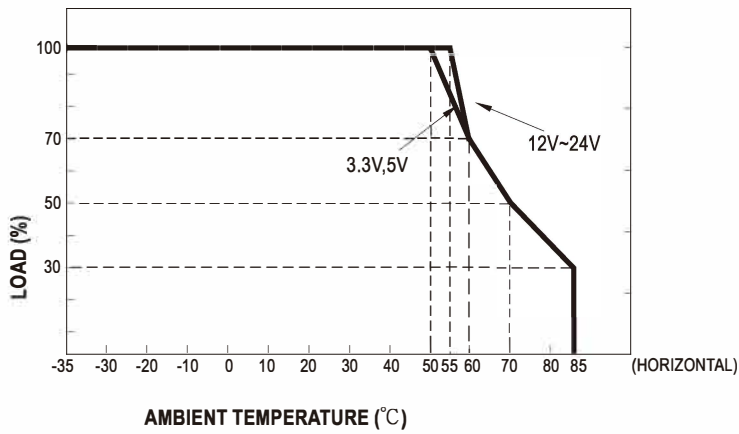
MODEL		MPM-20-3.3	MPM-20-5	MPM-20-12	MPM-20-15	MPM-20-24		
OUTPUT	DC VOLTAGE	3.3V	5V	12V	15V	24V		
	RATED CURRENT	4.5A	4A	1.8A	1.4A	0.9A		
	CURRENT RANGE <small>Note.2</small>	0 ~ 4.5A	0 ~ 4A	0 ~ 1.8A	0 ~ 1.4A	0 ~ 0.9A		
	PEAK CURRENT	4.95A	4.4A	1.98A	1.54A	0.99A		
	RATED POWER	14.9W	20W	21.6W	21W	21.6W		
	PEAK LOAD(10sec.) <small>Note.3</small>	16.3W	22W	23.8W	23.1W	23.8W		
	RIPPLE & NOISE (max.) <small>Note.4</small>	150mVp-p	150mVp-p	150mVp-p	180mVp-p	180mVp-p		
	VOLTAGE TOLERANCE <small>Note.5</small>	± 1.5%	± 1.5%	± 1.5%	± 1.5%	± 1.5%		
	LINE REGULATION	± 0.5%	± 0.5%	± 0.3%	± 0.3%	± 0.3%		
	LOAD REGULATION	± 0.5%	± 0.5%	± 0.5%	± 0.5%	± 0.5%		
SETUP, RISE TIME	1500ms, 30ms/230VAC 1500ms, 30ms/115VAC at full load							
HOLD UP TIME (Typ.)	40ms/230VAC 10ms/115VAC at full load							
INPUT	VOLTAGE RANGE <small>Note.6</small>	80 ~ 264VAC						
	FREQUENCY RANGE	47 ~ 440Hz						
	EFFICIENCY (Typ.)	81%	85%	85.5%	87%	87%		
	AC CURRENT (Typ.)	0.75A/115VAC 0.5A/230VAC						
	INRUSH CURRENT (Typ.)	COLD START	20A/115VAC	45A/230VAC				
	LEAKAGE CURRENT (max.) <small>Note.7</small>	Touch current <80µA/264VAC						
PROTECTION	OVERLOAD	110% ~ 150% 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		
	OVER TEMPERATURE	Protection type : Shut down o/p voltage, recovers automatically after temperature goes down						
ENVIRONMENT	WORKING TEMP.	-35 ~ +85°C (Refer to "Derating Curve")						
	WORKING HUMIDITY	20 ~ 90% RH non-condensing						
	STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH non-condensing						
	TEMP. COEFFICIENT	± 0.03%/°C (0 ~ 55°C)						
	SOLDERING TEMPERATURE	260°C ± 5°C/10sec.max.						
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, period for 60min. each along X, Y, Z axes						
	OPERATING ALTITUDE <small>Note.8</small>	5000 meters						
SAFETY & EMC (Note.9)	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						
	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 emission	EN55011 (CISPR11)			Class B		
		Radiated emission	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	100% dip 1 periods, 30% dip 25 periods, 100% interruptions 250 periods		
OTHERS	MTBF	1210Khrs min. MIL-HDBK-217F (25°C)						
	DIMENSION	52.4*27.2*24mm (L*W*H) or 2.06**1.07**0.94" inch						
	PACKING	0.056Kg; 240pcs/14.4Kg/0.97CUFT						
NOTE	<p>1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</p> <p>2. No minimum load required.</p> <p>3. 33% Duty cycle maximum within every 30 seconds. Average output power should not exceed the rated power.</p> <p>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.</p> <p>5. Tolerance : includes set up tolerance, line regulation and load regulation.</p> <p>6. Derating may be needed under low input voltages. Please check the derating curve for more details.</p> <p>7. Touch current was measured from primary input to DC output.</p> <p>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)</p> <p>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 http://www.meanwell.com)</p>							

Block Diagram

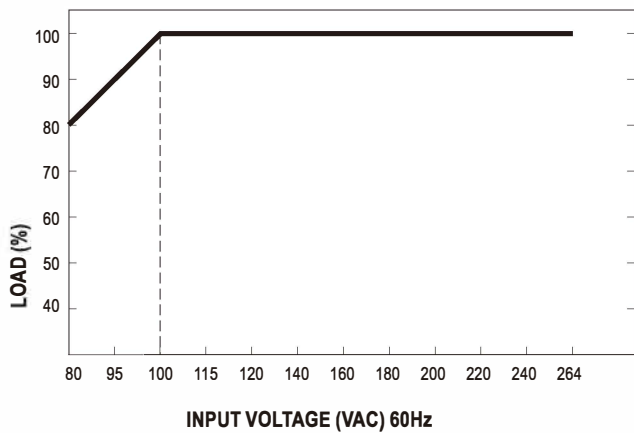
fosc : 100KHz



Derating Curve

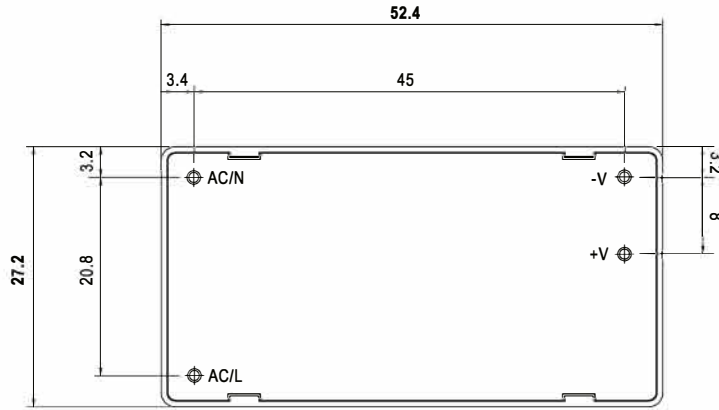


Output Derating VS Input Voltage

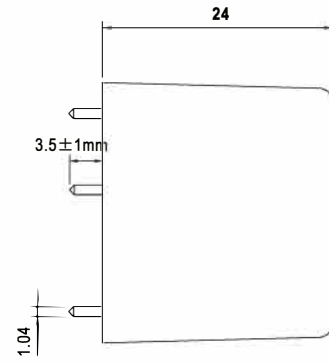


■ **Mechanical Specification**

Case No.219A Unit:(mm)



BOTTOM VIEW



P/N diameter:1.04

SIDE VIEW

■ **Installation Manual**

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