



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



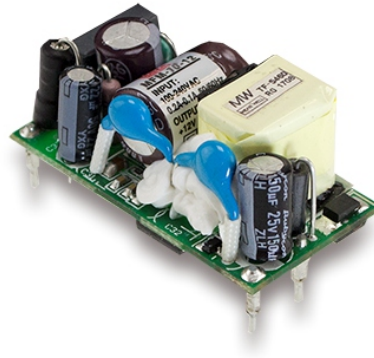
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■ **Features**

- 1.65"x0.88" 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
- Extremely low leakage current
- Wide operating temp. range -30 ~ +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**

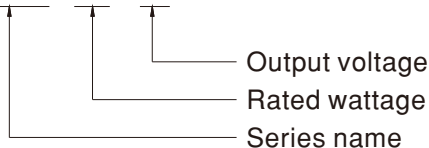
- Portable medical device
- Mobile clinical workstation
- Medical computer monitor
- Medical examination instrument

■ **Description**

MFM-10 is a 10W high density and small size (42*22.3*20.5mm) AC/DC on board type medical grade power supply series. It features the operation for 80~264VAC, a low no load power consumption less than 0.075W, a high efficiency up to 84%, Class II (no FG) double insulation, outstanding dissipation, 5G anti-vibration, high EMC performance, 4KVAC isolation, etc. The design observes IEC/EN60601-1 and ANSI/AAMI ES60601-1 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**

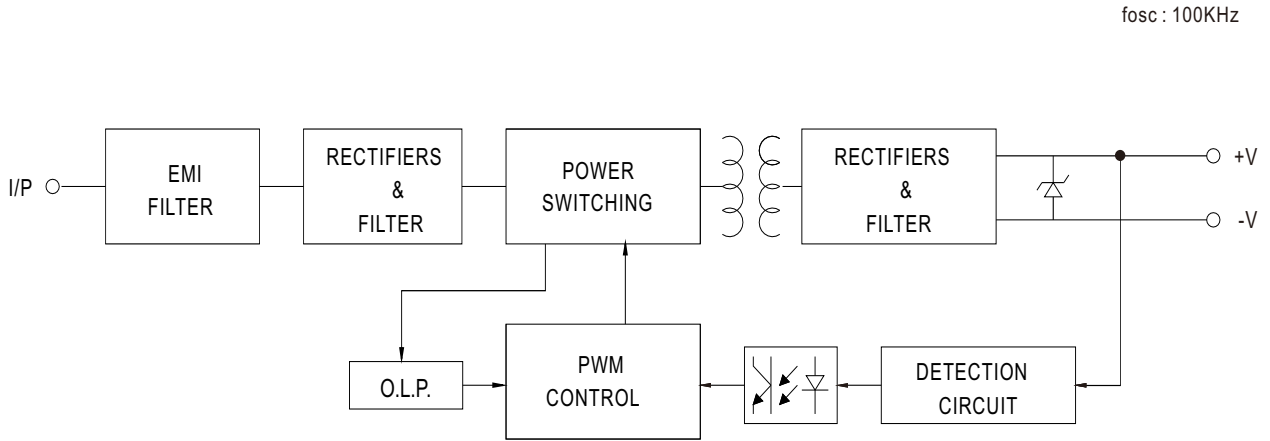
MFM - 10 - 5



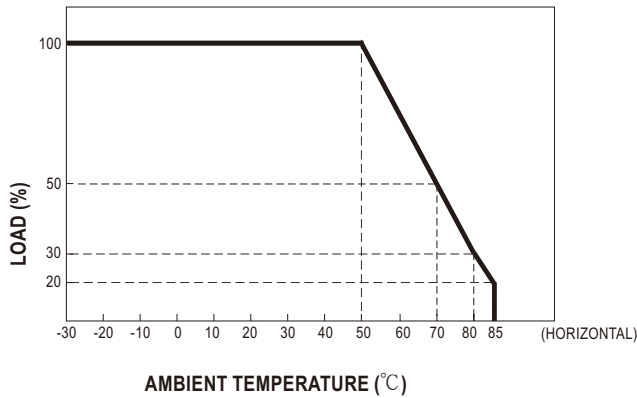
SPECIFICATION

MODEL	MFM-10-3.3	MFM-10-5	MFM-10-12	MFM-10-15	MFM-10-24				
OUTPUT	DC VOLTAGE	3.3V	5V	12V	15V	24V			
	RATED CURRENT	2.5A	2A	0.85A	0.67A	0.42A			
	CURRENT RANGE <small>Note.2</small>	0 ~ 2.5A	0 ~ 2A	0 ~ 0.85A	0 ~ 0.67A	0 ~ 0.42A			
	PEAK CURRENT	2.75A	2.2A	0.94A	0.74A	0.46A			
	RATED POWER	8.3W	10W	10.2W	10W	10W			
	PEAK LOAD(10sec.) <small>Note.3</small>	9W	11W	11.3W	11.1W	11W			
	RIPPLE & NOISE (max.) <small>Note.4</small>	120mVp-p	100mVp-p	180mVp-p	180mVp-p	200mVp-p			
	VOLTAGE TOLERANCE <small>Note.5</small>	±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 8ms/115VAC at full load								
INPUT	VOLTAGE RANGE <small>Note.6</small>	80 ~ 264VAC							
	FREQUENCY RANGE	47 ~ 440Hz							
	EFFICIENCY (Typ.)	78%	81%	83%	83%	84%			
	AC CURRENT (Typ.)	0.3A/115VAC 0.2A/230VAC							
	INRUSH CURRENT (Typ.)	COLD START 25A/115VAC 45A/230VAC							
	LEAKAGE CURRENT (max.) <small>Note.7</small>	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	5.75 ~ 6.8V	13.8 ~ 16.2V	17.3 ~ 20.3V	27.6 ~ 32.4V			
	OVER TEMPERATURE	Protection type : Shut off o/p voltage, clamping by zener diode Protection type : Shut down o/p voltage, recovers automatically after temperature goes down							
ENVIRONMENT	WORKING TEMP.	-30 ~ +85 $^{\circ}$ C (Refer to "Derating Curve")							
	WORKING HUMIDITY	20 ~ 90% RH non-condensing							
	STORAGE TEMP., HUMIDITY	-40 ~ +100 $^{\circ}$ C, 10 ~ 95% RH non-condensing							
	TEMP. COEFFICIENT	±0.03%/ $^{\circ}$ C (0 ~ 50 $^{\circ}$ C)							
	SOLDERING TEMPERATURE	260 $^{\circ}$ C ±5 $^{\circ}$ C/10sec.max.							
	VIBRATION	10 ~ 500Hz, 5G 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 $^{\circ}$ 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			100% dip 1 periods, 30% dip 25 periods, 100% interruptions 250 periods				
OTHERS	MTBF	1756.2Khrs min. MIL-HDBK-217F (25 $^{\circ}$ C)							
	DIMENSION	42*22.3*20.5mm (L*W*H) or 1.65**0.88*0.80" inch							
	PACKING	0.018Kg; 270pcs/5.8Kg/0.97CUFT							
NOTE	<p>1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25$^{\circ}$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 0.1μf & 47μf 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$^{\circ}$C/1000m with fanless models and of 5$^{\circ}$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>								

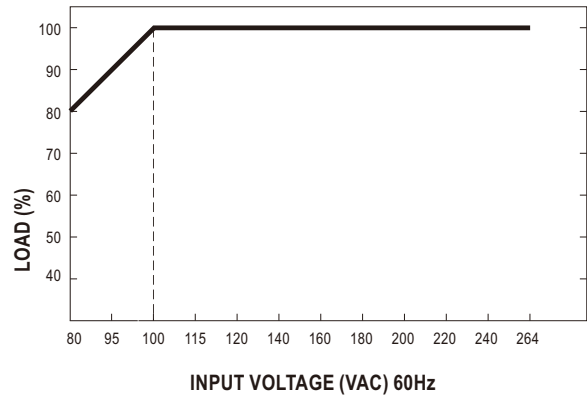
■ Block Diagram



■ Derating Curve

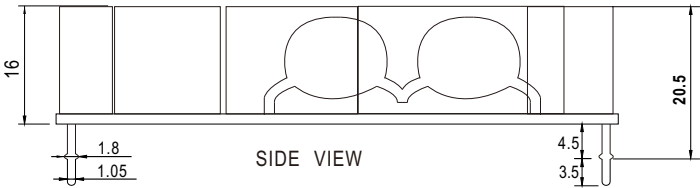
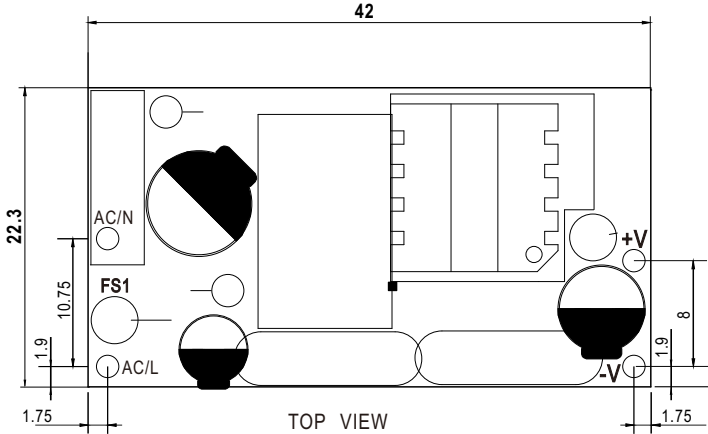


■ Output Derating VS Input Voltage



■ Mechanical Specification

Unit:mm



■ Installation Manual

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