

■ Features

- 2.58"x1.38" 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 -40 ~ +85°C
- EMI class B for class II configuration
- Protections: Short circuit / Overload / Over voltage
- No minimum load required
- 3 years warranty

■ Applications

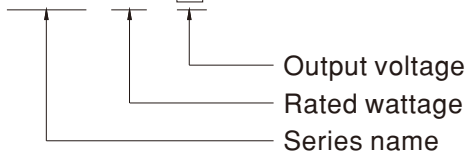
- Portable medical device
- Mobile clinical workstation
- Medical computer monitor
- Medical examination instrument

■ Description

MFM-30 is a 30W high density and small size (65.5x35x23mm) 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, a high efficiency up to 91%, 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 2 x MOPP level and ultra-low leakage current (<80µA). It is very suitable for BF (patient contact) type medical device or relevant equipment.

■ Model Encoding

MFM - 30 - 5

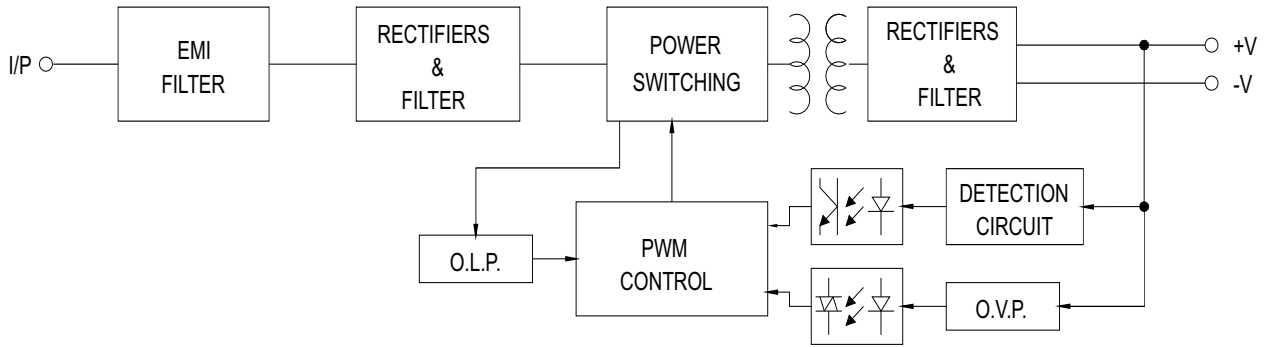


SPECIFICATION

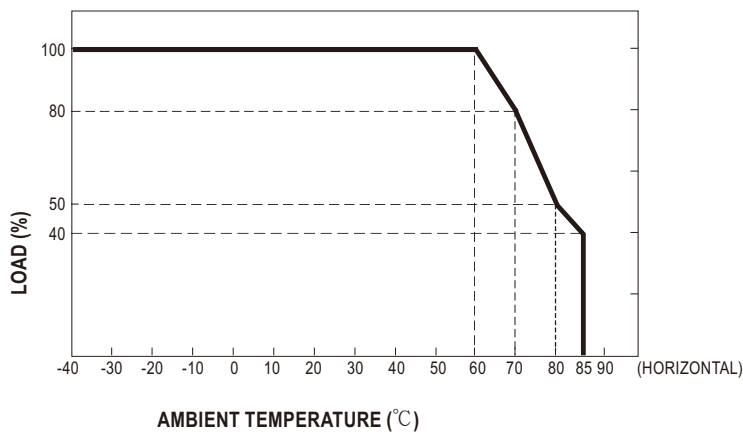
MODEL	MFM-30-3.3	MFM-30-5	MFM-30-12	MFM-30-15	MFM-30-24	MFM-30-48		
OUTPUT	DC VOLTAGE	3.3V	5V	12V	15V	24V	48V	
	RATED CURRENT	6A	6A	2.5A	2A	1.3A	0.63A	
	CURRENT RANGE <small>Note.2</small>	0 ~ 6A	0 ~ 6A	0 ~ 2.5A	0 ~ 2A	0 ~ 1.3A	0 ~ 0.63A	
	PEAK CURRENT	7.8A	6.9A	2.9A	2.3A	1.5A	0.73A	
	RATED POWER	19.8W	30W	30W	30W	31.2W	30.2W	
	PEAK LOAD(10sec.) <small>Note.3</small>	25.7W	34.5W	34.8W	34.5W	36W	35W	
	RIPPLE & NOISE (max.) <small>Note.4</small>	80mVp-p	80mVp-p	120mVp-p	120mVp-p	200mVp-p	200mVp-p	
	VOLTAGE TOLERANCE <small>Note.5</small>	±2.0%	±2.0%	±2.0%	±2.0%	±2.0%	±2.0%	
	LINE REGULATION	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%	
	LOAD REGULATION	±1.0%	±1.0%	±0.5%	±0.5%	±0.5%	±0.5%	
	SETUP, RISE TIME	500ms, 30ms/230VAC 500ms, 30ms/115VAC at full load						
HOLD UP TIME (Typ.)	40ms/230VAC 12ms/115VAC at full load							
INPUT	VOLTAGE RANGE <small>Note.6</small>	80 ~ 264VAC						
	FREQUENCY RANGE	47 ~ 63Hz						
	EFFICIENCY (Typ.)	82.5%	86.5%	90%	89%	90%	91%	
	AC CURRENT (Typ.)	0.75A/115VAC 0.5A/230VAC						
	INRUSH CURRENT (Typ.)	COLD START	25A/115VAC	45A/230VAC				
	LEAKAGE CURRENT (max.) <small>Note.7</small>	Touch current <80µA/264VAC						
PROTECTION	OVERLOAD	115% ~ 165% rated output power Protection type : Hiccup mode, recovers automatically after fault condition is removed						
	OVER VOLTAGE	3.5 ~ 4.5V	5.3 ~ 6.8V	12.6 ~ 16.2V	15.8 ~ 20.3V	25.2 ~ 32.4V	50.4 ~ 64V	
ENVIRONMENT	WORKING TEMP.	-40 ~ +85°C (Refer to "Derating Curve")						
	WORKING HUMIDITY	20 ~ 90% RH non-condensing						
	STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH						
	TEMP. COEFFICIENT	±0.03%/°C (0 ~ 60°C)						
	SOLDERING TEMPERATURE	260°C ±5°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, 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	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 3, 8KV air ; Level 4, 8KV contact	
		Radiated	EN61000-4-3				Level 3	
		EFT / Burst	EN61000-4-4				Level 3	
Surge		EN61000-4-5				Level 2, 1KV/Line-Line		
Conducted		EN61000-4-6				Level 3		
Magnetic Field		EN61000-4-8				Level 4		
Voltage Dips and Interruptions	EN61000-4-11				100% dip 1 periods, 30% dip 25 periods, 100% interruptions 250 periods			
OTHERS	MTBF	779Khrs min. MIL-HDBK-217F (25°C)						
	DIMENSION	65.5*35*23mm (L*W*H) or 2.58**1.38**0.90" inch						
	PACKING	0.053Kg; 144pcs/8.6Kg/0.97CUFT						
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. No minimum load required. 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 2.5°C/ 1000m is needed for operating altitude greater 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." (as available on http://www.meanwell.com) 							

Block Diagram

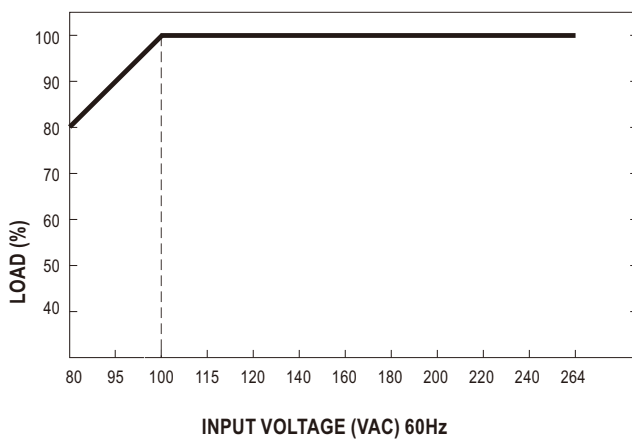
fosc : 65KHz



Derating Curve

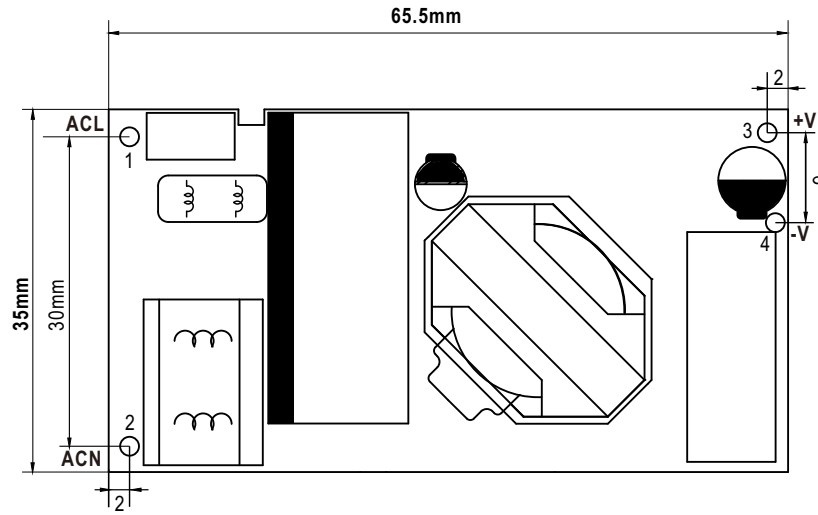


Output Derating VS Input Voltage

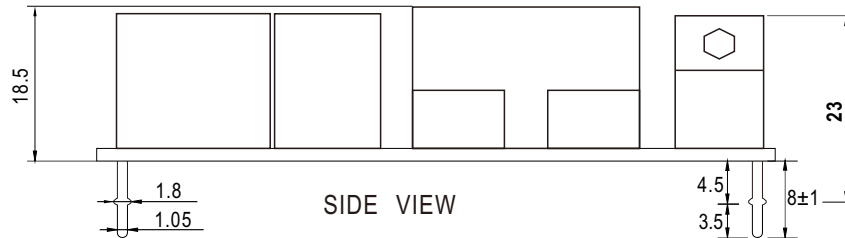


■ Mechanical Specification

Unit:inch(mm)



TOP VIEW



SIDE VIEW

■ Installation Manual

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