E-Star Power Development Co., Ltd. (E-STAR)
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Phone : 886-2-2957 5580 Fax : 886-2-2957 7473

80~100W Open Frame Medical power supply < PM101

DESCRIPTION

The PM101 series of AC-DC switching power supplies in a package of 2 x 4 x 1.29 inches are capable of delivering 100 watts of continuous power at 7.5 CFM forced air cooling or 80 watts at convection cooling. The units are constructed on a printed circuit board. They are suited for medical applications, information technology and industrial applications. Approval to both IEC60601-1 and IEC60950-1 safety standards improves design-in time and reduces end equipment compliance costs.

PM101 SERIES

RoHS

FEATURES

- BF class insulation
- Operation altitude up to 5000 meters
- 2 x 4 inch footprint with 1.29 inch low profile
- Less than 175 µA leakage current
- Wide input range 80-264 VAC
- Meet EN55011 /55022 and FCC Class B
- Short-circuit protection
- Compliant with RoHS requirements
- No load power consumption less than 0.15W

SAFETY STANDARD APPROVALS

INPUT SPECIFICATIONS

Input voltage:	80-264 VAC
Input frequency:	47-63 Hz
Input current:	2.0 A (rms) for 115 VAC 1.1 A (rms) for 230 VAC
Earth leakage current:	175 µA max. @ 264 VAC, 63 Hz
Touch current:	100 µA max. @ 264 VAC, 63 Hz

OUTPUT SPECIFICATIONS

Output voltage/current:	See rating chart.
Maximum output power:	See rating chart.
Ripple and noise:	1% peak to peak maximum
Overvoltage protection:	set at 112-140% of its nominal output voltage
Overcurrent protection:	Output protected to short circuit conditions
Temperature coefficient:	All outputs ±0.04% /℃ maximum
Transient response:	Maximum excursion of 4% or better on all models, recovering to 1% of final value within 500 us after a 25% step load change

ENVIRONMENTAL SPECIFICATIONS

Operating temperature:	-20℃ to +70℃
Storage temperature:	-40℃ to +85℃
Relative humidity:	5% to 95% non-condensing
Temperature derating:	Derate from 100% at +50℃ linearly to 50% at +70℃, applicable to convection and forced-air cooling conditions

GENERAL SPECIFICATIONS

Switching frequency:	65 KHz (typical)
Efficiency:	See rating chart.
Hold-up time:	20 ms minimum at 60 W load and 100 VAC 10 ms minimum at 100W load and 100 VAC
Line regulation:	±0.5% maximum at full load
Inrush current:	40 A @ 115 VAC or 80 A @ 230 VAC, at 25℃ cold start
Withstand voltage:	4000 VAC from input to output, 1500 VAC from input to ground, 1500 VAC from output to ground
MTBF:	150,000 hours at full load at 25℃ ambient, calculated per MIL-HDBK-217F

EMC Performance

EN55032:	Class B conducted, class B radiated
FCC:	Class B conducted, class B radiated
VCCI:	Class B conducted, class B radiated
EN61000-3-2:	Harmonic distortion, class A
EN61000-3-3:	Line flicker
EN55024	
EN61000-4-2:	ESD, ±8 KV air and ±4 KV contact
EN61000-4-3:	Radiated immunity, 3 V/m
EN61000-4-4:	Fast transient/burst, ±1 KV
EN61000-4-5:	Surge, ±1 KV diff., ±2 KV com
EN61000-4-6:	Conducted immunity, 3 Vrms
EN61000-4-8:	Magnetic field immunity, 1 A/m
EN61000-4-11:	Voltage dip immunity, 30% reduction for 500 ms, and >95% reduction for 10 ms

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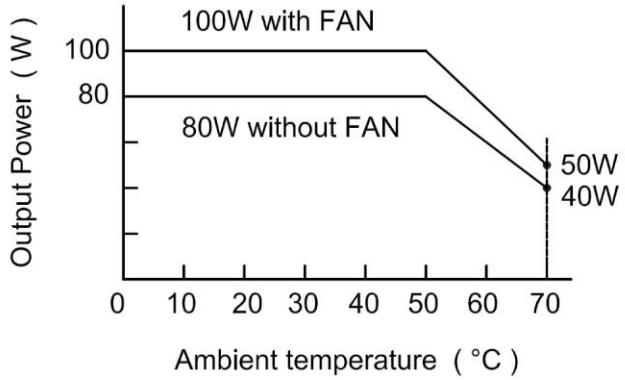
OUTPUT VOLTAGE/CURRENT RATING CHART

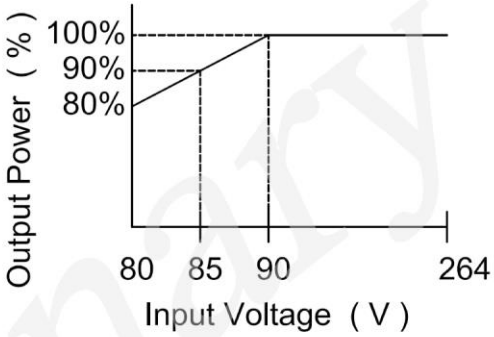
Model(1)	Output							Efficiency (typical) 115/230 Vac
	V1	Min. load	Max. Current at convection	Max. Current at 7.5 CFM	Tol.	Ripple & Noise(2)	Max. Power	
PM101-12A	12 V	0 A	6.67 A	8.34 A	±2%	120 mV	80 W /100 W	87 /90%
PM101-13A	15 V	0 A	5.34 A	6.67 A	±2%	150 mV	80 W /100 W	87 /90%
PM101-13-1A	18 V	0 A	4.45 A	5.56 A	±2%	180 mV	80 W /100 W	87 /90%
PM101-14A	24 V	0 A	3.34 A	4.17 A	±2%	240 mV	80 W /100 W	88 /90%
PM101-16A	30 V	0 A	2.67 A	3.34 A	±2%	300 mV	80 W /100 W	88 /90%
PM101-17A	36 V	0 A	2.23 A	2.78 A	±2%	360 mV	80 W /100 W	88 /90%
PM101-18A	48 V	0 A	1.67A	2.09 A	±2%	480 mV	80 W /100 W	88 /90%

NOTES:

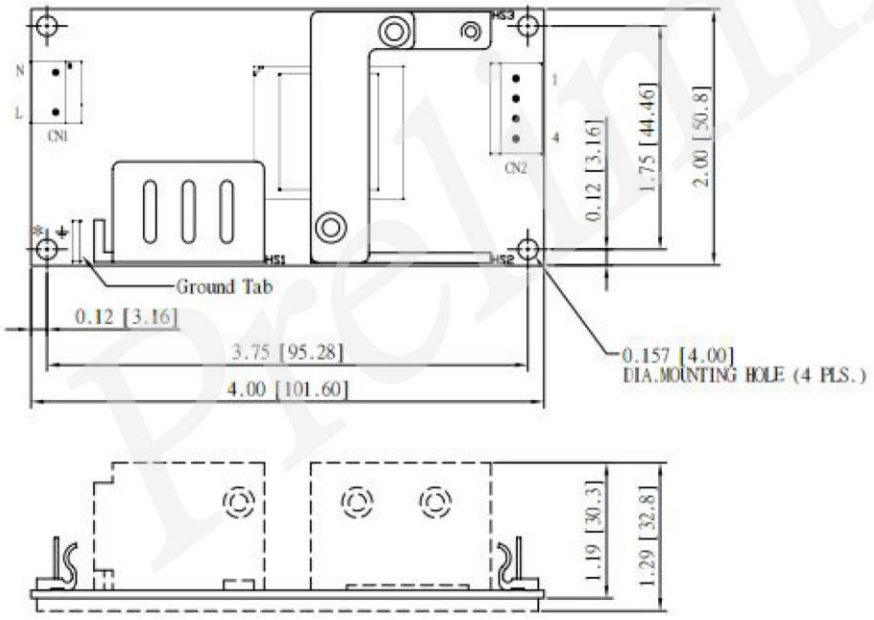
1. The first value of max. power is at convection cooling. The second value is with 7.5 CFM forced air provided by user.
2. Ripple and noise is maximum peak to peak voltage value measured at output within 20 MHz bandwidth, at rated line voltage and output load ranges, and with a 10 µF tantalum (or electrolytic) capacitor in parallel with a 0.1 µF ceramic capacitor across the output except model PM101-12A which is with a 22 µF tantalum (or electrolytic) capacitor in parallel with a 0.1 µF ceramic capacitor across the output.

OUTPUT POWER DERATING CURVE





MECHANICAL SPECIFICATIONS



NOTES:

1. Dimensions shown in inches [mm]
2. Tolerance 0.02 [0.5] maximum
3. Input connector P1: Molex header 09-65-2038, mating with Molex housing 09-50-1031 or equivalent.
4. Output connector P2: Molex header 09-65-2048 , mating with Molex housing 09-50-1041 or equivalent.
5. Weight: xxx grams (x.xx lbs.) approx.

PIN CHART

Connect	P1			P2			
PIN NO.	1	2	3	1	2	3	4
Polarity	Live	Void	Neutral	V1	V1	Common Return	Common Return