



E-Star Power Development Co., Ltd. (E-STAR)
 1F., No.40, Juren Ln., Sec. 2, Sanmin Rd., Banciao Dist., New Taipei City
 22069, Taiwan (R.O.C.)
 Phone : 886-2-2957 5580 Fax : 886-2-2957 7473

60W Desktop type Medical power supply < PMP60N1

60 WATT MEDICAL & ITE POWER SUPPLIES

DESCRIPTION

The PMP60N1 series of AC/DC switching power supplies are for 60 watts of continuous output power. They are enclosed in a 94V-1 rated polyphenylene-oxide case with an IEC320/C14 inlet to mate with interchangeable cord for world-wide use. All models meet EN55011, EN55022 and FCC class B emission limits, and are designed for medical and ITE applications.

FEATURES

- Operation up to 5000 meters
- Optional on /off switch
- Optional output connectors
- 100% burn-in
- Wide input range 90-264 VAC
- Input surge current protection
- Overvoltage protection
- Overcurrent protection
- Over-temperature protection
- Compliant with DoE Efficiency level VI requirements (except PMP60N1-12)
- Compliant with RoHS requirement

INPUT SPECIFICATIONS

Input voltage: 90-264 VAC
 Input frequency: 47-63 Hz
 Input current: 1.22 A (rms) for 100 VAC
 0.68 A (rms) for 240 VAC
 Earth leakage current: 200 µA max. @ 264 VAC, 63 Hz
 Touch current: 100 µA max. @ 264 VAC, 63 Hz

OUTPUT SPECIFICATIONS

Output voltage /current: See output rating chart.
 Maximum output power: See output rating chart.
 Ripple and noise: 1% peak to peak maximum
 Overvoltage protection: Set at 112-140% of its nominal output voltage
 Overcurrent protection: Outputs protected to short circuit conditions
 Temperature coefficient: ±0.04% /°C 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°C to +60°C
 Storage temperature: -40°C to +85°C
 Relative humidity: 5% to 95% non-condensing
 Derating: Derate from 100% at +40°C linearly to 50% at +60°C

PMP60N1 SERIES



RoHS



SAFETY STANDARD APPROVALS



UL ES 60601-1, CSA C22.2 No. 60601-1
 File No. E178020



TÜV EN 60601-1



UL 60950-1, CSA C22.2 No. 60950-1



TÜV EN 60950-1

GENERAL SPECIFICATIONS

Switching frequency: 20 KHz-130 KHz
 Efficiency: See output rating chart
 Hold-up time: 20 ms typical at 110 VAC
 Line regulation: ±0.5% maximum at full load
 Inrush current: 60 A @ 115 VAC or 120 A @ 230 VAC, at 25°C cold start
 Withstand voltage: 5600 VDC from input to output (2 MOPP)
 2100 VDC from input to ground (1 MOPP)
 700 VDC from output to ground
 (To verify AC strength, get correct test method to avoid power supply damage.)
 MTBF: 150,000 hours minimum at full load at 25°C ambient, calculated per MIL-HDBK-217F

EMC Performance (IEC60601-1-2)

EN55011 / EN55022: 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 and D
 EN61000-3-3: Line flicker
 EN61000-4-2: ESD, ±15 KV air and ±8 KV contact
 EN61000-4-3: Radiated immunity, 10 V/m for 80-2500 MHz
 EN61000-4-4: Fast transient/burst, ±2 KV
 EN61000-4-5: Surge, ±1 KV diff., ±2 KV com
 EN61000-4-6: Conducted immunity, 10 Vrms
 EN61000-4-8: Magnetic field immunity, 30 A/m
 EN61000-4-11: Voltage dip immunity, 30% reduction for 500 ms, 100% reduction for 20 ms



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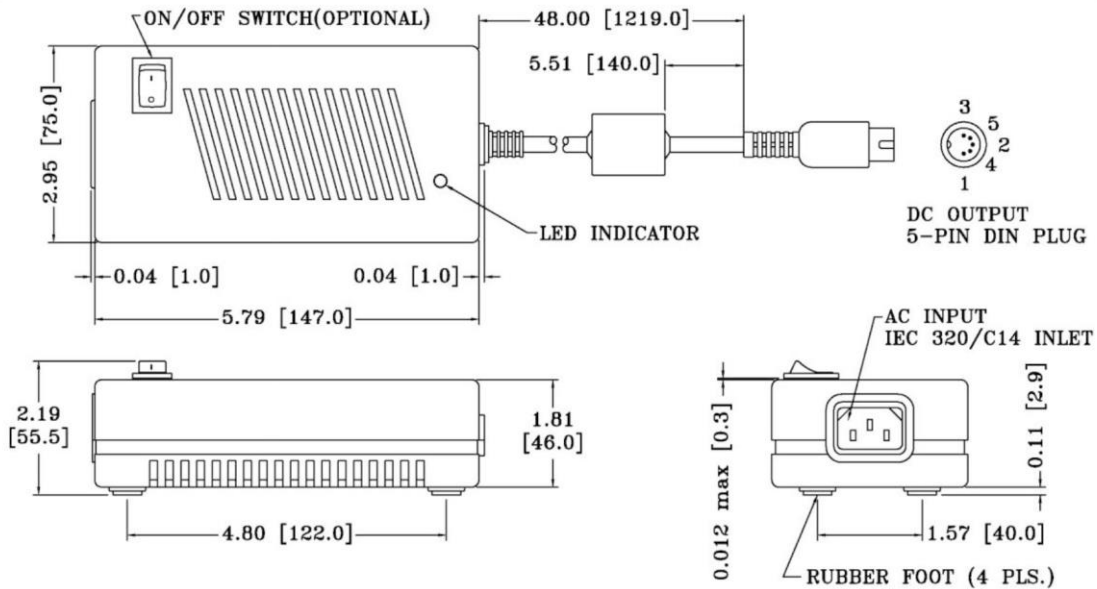
OUTPUT VOLTAGE/CURRENT RATING CHART

Model	V1	Output				Ripple & Noise ⁽¹⁾	Max. Output Power	Average Active Efficiency (typical) @ 115 / 230 Vac
		Min. current	Max. current	Tol.				
PMP60N1-12	11-13 V	0 A	5.46 A	±5%	110-130 mV	60 W	88 /88%	
PMP60N1-13	13-17 V	0 A	4.62 A	±5%	130-170 mV	60 W	88 /89%	
PMP60N1-13-1	17-21 V	0 A	3.53 A	±5%	170-210 mV	60 W	89 /90%	
PMP60N1-14	21-27 V	0 A	2.86 A	±5%	210-270 mV	60 W	88 /89%	
PMP60N1-16	27-33 V	0 A	2.23 A	±3%	270-330 mV	60 W	88 /89%	
PMP60N1-17	33-39 V	0 A	1.82 A	±3%	330-390 mV	60 W	88 /89%	
PMP60N1-18	46-50 V	0 A	1.31 A	±3%	460-500 mV	60 W	89 /89%	

NOTES:

1. 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 capacitor in parallel with a 0.1 µF ceramic capacitor across the output.

MECHANICAL SPECIFICATIONS



NOTES:

1. Dimensions shown in inches [mm]
2. Tolerance 0.02 [0.5] maximum
3. Weight: 600 grams (1.33 lbs.) approx.
4. Output connector is 5 pin DIN plug, mating with Switchcraft P/N 57GB5F receptacle or equivalent.
5. Refer to Section titled "OPTIONAL OUPUT CONNECTORS" for optional output connectors. Add the suffix assigned for a selected connector to a wanted model number, e.g. PMP60N1-12-B2, for ordering.
6. To order a model with on / off switch, add suffix " S " to the model number, e.g. PMP60N1-12-B2-S

PIN CHART

PIN 1	V1 Return
PIN 2	V1 Return
PIN 3	+V1
PIN 4	V1 Return
PIN 5	+V1

OUTPUT POWER DERATING CURVE

