

DESCRIPTION

The PMP60 series of AC/DC switching power supplies are for 30-60 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 and FCC class B emission limits, and are designed for medical applications.

FEATURES

- 12 standard desktop models
- Single, dual or triple outputs
- Optional output connectors
- Optional on /off switch
- 100% burn-in
- Wide input range 90-264 VAC
- Input surge current protection
- Overvoltage protection
- Over-temperature protection
- Overcurrent protection
- Single output models compliant with CEC and Energy Star Efficiency level IV requirements
- * No load power consumption less than 0.5 W
- * Average active efficiency $\geq 85\%$
- 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 μ A max. @ 264 VAC, 63 Hz |
| Touch current: | 100 μ A max. @ 264 VAC, 63 Hz |

OUTPUT SPECIFICATIONS

| | |
|--------------------------|--|
| Output voltage /current: | See rating chart. |
| Maximum output power: | See rating chart. |
| Ripple and noise: | 66 mVp-p maximum on 3.3 V output, 100 mVp-p maximum on 5 V output and 1% maximum on other voltage outputs (12 V, 15 V ..., 48 V etc.) |
| Overvoltage protection: | Provided on output #1 only, set at 112-140% of its nominal output voltage |
| Overcurrent protection: | All outputs protected to short circuit conditions |
| Temperature coefficient: | All outputs $\pm 0.04\%$ / $^{\circ}$ 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: | 0 $^{\circ}$ C to +60 $^{\circ}$ C |
| Storage temperature: | -40 $^{\circ}$ C to +85 $^{\circ}$ C |
| Relative humidity: | 5% to 95% non-condensing |
| Derating: | Derate from 100% at +40 $^{\circ}$ C linearly to 50% at +60 $^{\circ}$ C |

PMP60 SERIES



SAFETY STANDARD APPROVALS



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



TÜV EN 60601-1

GENERAL SPECIFICATIONS

| | |
|--------------------------------|--|
| Switching frequency: | 40 KHz-130 KHz |
| Efficiency: | 85% minimum on single output models, 68-74% minimum on the others |
| Hold-up time: | 10 ms minimum at 110 VAC |
| Line regulation: | $\pm 0.5\%$ maximum at full load |
| Inrush current: | 50 A @ 115 VAC or 100 A @ 230 VAC, at 25 $^{\circ}$ 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 $^{\circ}$ C ambient, calculated per MIL-HDBK-217F |
| EMC Performance (IEC60601-1-2) | |
| EN55011: | 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 |
| 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 10 ms |

OUTPUT VOLTAGE/CURRENT RATING CHART

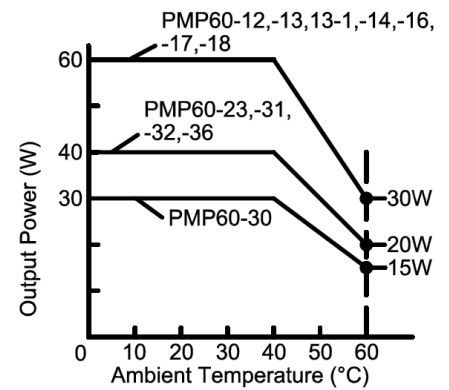
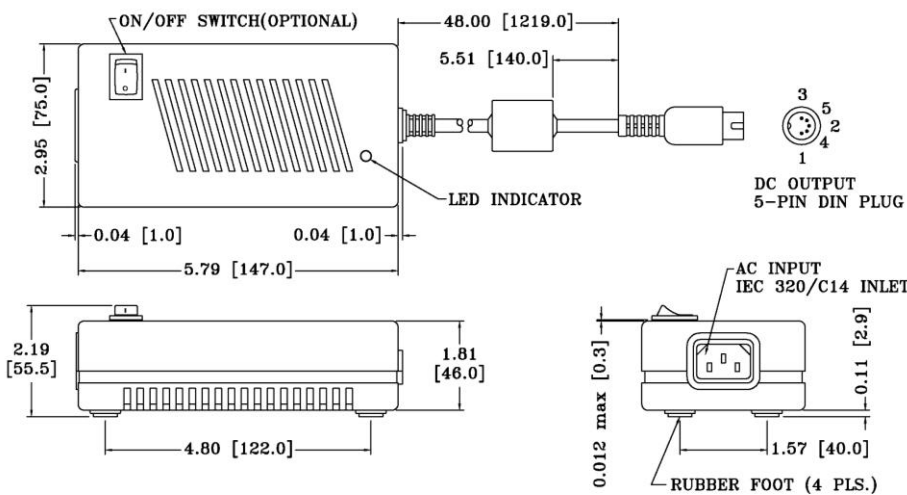
| Model | Output #1 | | | | Output #2 | | | | Output #3 | | | | Max. Output Power |
|------------|-----------|--------------|--------------|------|-----------|--------------|--------------|------|-----------|--------------|--------------|------|-------------------|
| | V1 | Min. current | Max. current | Tol. | V2 | Min. current | Max. current | Tol. | V3 | Min. current | Max. current | Tol. | |
| PMP60-12 | 11-13 V | 0 A | 5.46 A | ±5% | (N/A) | | | | (N/A) | | | | 60 W |
| PMP60-13 | 13-17 V | 0 A | 4.62 A | ±5% | (N/A) | | | | (N/A) | | | | 60 W |
| PMP60-13-1 | 17-21 V | 0 A | 3.53 A | ±5% | (N/A) | | | | (N/A) | | | | 60 W |
| PMP60-14 | 21-27 V | 0 A | 2.86 A | ±5% | (N/A) | | | | (N/A) | | | | 60 W |
| PMP60-16 | 27-33 V | 0 A | 2.23 A | ±3% | (N/A) | | | | (N/A) | | | | 60 W |
| PMP60-17 | 33-39 V | 0 A | 1.82 A | ±3% | (N/A) | | | | (N/A) | | | | 60 W |
| PMP60-18 | 46-50 V | 0 A | 1.31 A | ±3% | (N/A) | | | | (N/A) | | | | 60 W |
| PMP60-23 | +5.0 V | 1 A | 5.0 A | ±5% | +12 V | 0.5 A | 3.0 A | ±5% | (N/A) | | | | 40 W |
| PMP60-30 | +3.3 V | 1 A | 6.0 A | ±5% | +5 V | 0.5 A | 3.0 A | ±5% | +12 V | 0.1 A | 0.7 A | ±10% | 30 W |
| PMP60-31 | +5.0 V | 1 A | 5.0 A | ±5% | +12 V | 0.5 A | 3.0 A | ±5% | -12 V | 0.1 A | 0.7 A | ±10% | 40 W |
| PMP60-32 | +5.0 V | 1 A | 5.0 A | ±5% | +15 V | 0.4 A | 2.3 A | ±5% | -15 V | 0.1 A | 0.7 A | ±10% | 40 W |
| PMP60-36 | +5.0 V | 1 A | 5.0 A | ±5% | +24 V | 0.3 A | 1.5 A | ±5% | +12 V | 0.1 A | 0.7 A | ±10% | 40 W |

NOTES:

- The output voltages of a multiple output model may go outside of the stated tolerance when an output load current is out of stated limits. All models may be operated at no-load without damage.
- 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

OUTPUT POWER DERATING CURVE



NOTES:

- Dimensions shown in inches [mm]
- Tolerance 0.02 [0.5] maximum
- Weight: 600 grams (1.33 lbs.) approx.
- Output connector is 5 pin DIN plug, mating with Switchcraft P/N 57GB5F receptacle or equivalent.
- Refer to Section titled "OPTIONAL OUTPUT CONNECTORS" for optional output connectors. Add the suffix assigned for a selected connector to a wanted model number, e.g. PMP60-12-B2, for ordering.
- To order a model with on / off switch, add suffix " S " to the model number, e.g. PMP60-12-B2-S

PIN CHART

| MODEL | PIN | 1 | 2 | 3 | 4 | 5 |
|------------------------------------|--|---------------|---------------|-----|-----------|-----|
| PMP60-12 PMP60-13 PMP60-13-1 | PMP60-14 PMP60-16 PMP60-17 PMP60-18 | V1 Return | V1 Return | +V1 | V1 Return | +V1 |
| PMP60-23 | | Common Return | Common Return | V1 | N.C. | V2 |
| PMP60-30 PMP60-31 | PMP60-32 PMP60-36 | Common Return | Common Return | V1 | V3 | V2 |