

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, EN55022 and FCC class B emission limits, and are designed for medical and ITE applications, not for life supporting equipment.

FEATURES

- 12 standard desktop models
- Single, dual or triple outputs
- Optional output connectors
- Optional on/off switch
- 100% burn-in
- Wide input range 85-264 VAC
- Input surge current protection
- Overvoltage 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: | 85-264 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: (Touch current) | 200 μ A max. @ 264 VAC, 63 Hz |

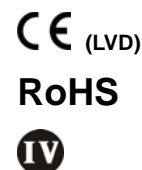
OUTPUT SPECIFICATIONS

| | |
|--------------------------|--|
| 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 μ s 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 60601-1, CSA C22.2 No. 601.1
File No. E178020



TÜV EN 60601-1



UL 60950-1, CSA C22.2 No. 60950-1
(except PMP60-14 by UL)



TÜV EN 60950-1

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: | 4000 VAC from input to output, 1500 VAC from input to ground, 500 VAC from output to ground |
| MTBF: | 150,000 hours minimum at full load at 25 $^{\circ}$ 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, ± 8 KV air and ± 6 KV contact |
| EN61000-4-3: | Radiated immunity, 3 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, 3 Vrms |
| EN61000-4-8: | Magnetic field immunity, 3 A/m |
| EN61000-4-11: | Voltage dip immunity, 30% reduction for 500 ms, 60% reduction for 100 ms and >95% reduction for 10 ms |

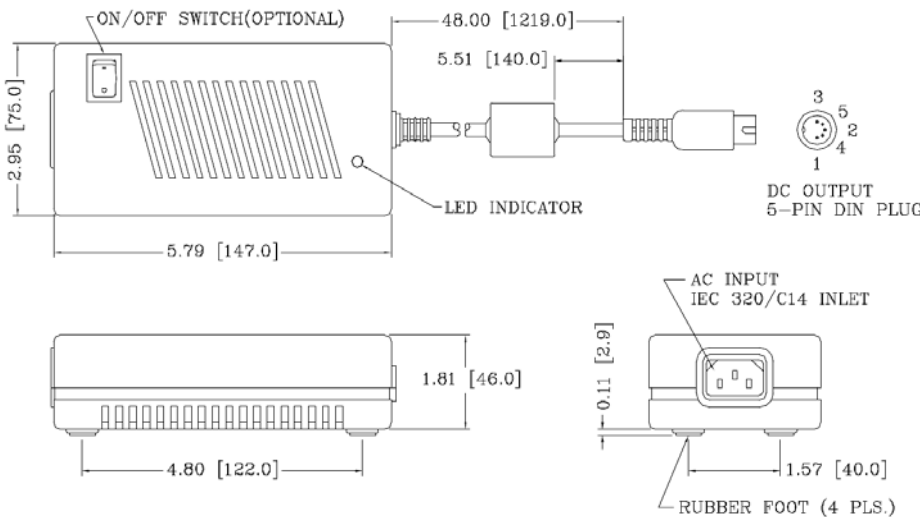
OUTPUT VOLTAGE/CURRENT RATING CHART

| 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 |

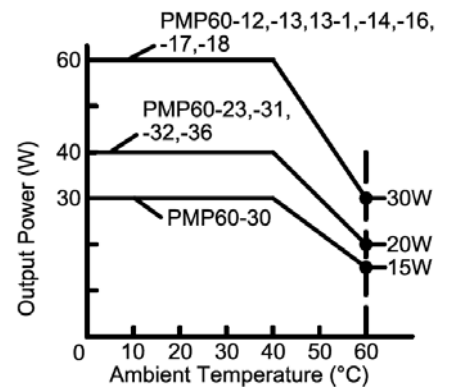
NOTES:

- 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 OUPUT 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 PMP60-18 | 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 |