TMP180 SERIES
Class I, Class II

DESCRIPTION
The TMP180 series of AC/DC switching power supplies delivers 180 watts of continuous output power. They are enclosed in a 94V-1 rated polyphenylene-oxide case with AC inlet of the IEC 320/C14 or IEC320/C8 to mate with an interchangeable cord for world-wide use. All models meet CISPR 11 and FCC class B emission limits, and are designed for medical applications, not for life-supporting equipment.

FEATURES
- High efficiency
- Low ripple & noise
- Overvoltage protection
- Short-circuit protection
- Overpower protection
- Over temperature protection
- 100% burn-in at full rated load
- Standby consumption less than 0.5 W
- Compliant with CEC and ENERGY STAR efficiency level V requirements
- Compliant with RoHS requirements
- 0.95 Power factor

INPUT SPECIFICATIONS
Input voltage: 90-264 VAC
Input frequency: 47-63 Hz
Input current: 2.3 A (rms) for 100 VAC
0.8 A (rms) for 240 VAC
Earth leakage current: 300 uA max. @ 264 VAC, 60 Hz

OUTPUT SPECIFICATIONS
Output voltage/current: See rating chart
Total output power: See rating chart
Ripple and noise: 380 mV peak to peak maximum
Overvoltage protection: Set at 130% to 150% of its nominal output voltage
Overcurrent protection: All models protected to short circuit conditions
Transient response: +10% maximum excursion
Output load step is:
(1) 0% to 50%
(2) 50% to 100%
Slew rate = 0.5 A/uS
Frequency is 100 Hz and 1 KHz

ENVIRONMENTAL SPECIFICATIONS
Operating temperature: 0ºC to +40ºC
Storage temperature: -20ºC to +80ºC
Relative humidity: 10% to 90% non-condensing

GENERAL SPECIFICATIONS
Hold-up time: 5 msec minimum at 100 VAC
Turn on delay time: 3 S maximum at 100 VAC
Power Factor: 0.95 typical
Efficiency: 87% min. at 100 VAC or 240 VAC
Line regulation: ±0.5% maximum at full load
Inrush current: No damage
Withstand voltage: 2000 VAC from input to output
MTBF: 100,000 hours at full load at 25ºC ambient, calculated per MIL-HDBK-217F

EMC Performance (IEC 60601-1-2)
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 D
EN61000-3-3: Line flicker
EN61000-4-2: ESD, ±15 KV air and ±8 KV contact
EN61000-4-3: Radiated immunity, 3 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, 3 Vrms
EN61000-4-8: Magnetic field immunity, 3 A/m
EN61000-4-11: Voltage dips, 30% reduction for 500 ms, 60% reduction for 100 ms and >95% reduction for 10 ms

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MEDICAL GRADE

OUTPUT VOLTAGE/CURRENT RATING CHART

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>TMP180-19</td>
<td>19 V</td>
<td>0 A</td>
<td>9.47 A</td>
<td>5%</td>
<td>180 W</td>
</tr>
<tr>
<td>TMP180-24</td>
<td>24 V</td>
<td>0 A</td>
<td>7.5 A</td>
<td>5%</td>
<td>180 W</td>
</tr>
<tr>
<td>TMP180-28</td>
<td>28 V</td>
<td>0 A</td>
<td>6.42 A</td>
<td>5%</td>
<td>180 W</td>
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<tr>
<td>TMP180-24-C2</td>
<td>24 V</td>
<td>0 A</td>
<td>7.5 A</td>
<td>5%</td>
<td>180 W</td>
</tr>
</tbody>
</table>

NOTE: 1. Ripple and noise: Peak to peak with 20 MHz bandwidth and 47 uF tantalum capacitor in parallel with a 0.1 uF ceramic capacitor at rated line voltage and load ranges.
2. All models are with IEC320/C14 inlet (class I), except TMP180-24-C2 is with IEC320/C8 (class II).

MECHANICAL SPECIFICATIONS

NOTE:
1. Dimensions shown in inches [mm]
2. Tolerance 0.02 [0.5] maximum
3. Weight: 950 grams (2.09 lbs.) approx.

PIN CHART

<table>
<thead>
<tr>
<th>MODEL</th>
<th>PIN</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Shield</th>
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<tbody>
<tr>
<td>TMP180-19</td>
<td>TMP180-24</td>
<td>Output +V</td>
<td>Output +V</td>
<td>Return &amp; Ground</td>
<td>Return &amp; Ground</td>
<td></td>
</tr>
<tr>
<td>TMP180-24</td>
<td>TMP180-28</td>
<td>Output +V</td>
<td>Output +V</td>
<td>Return &amp; Ground</td>
<td>Return &amp; Ground</td>
<td></td>
</tr>
<tr>
<td>TMP180-24-C2</td>
<td></td>
<td>Output +V</td>
<td>Output +V</td>
<td>Return</td>
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