TMP135 Series
120-135 Watts Medical & ITE Power Adapters

FEATURES
- 90~264 VAC Input, Soft Start
- 0.98 Active Power Factor
- 87% to 91% Efficiency
- High Peak Power
- Low Safety Ground Leakage Current
- Class I & Class II Models Available
- CEC & Energy Star Level V Compliance

INPUT SPECIFICATIONS
Input Voltage Range .......... 90~264 VAC
Input Frequency ................. 47~63Hz
Input Current .................. 1.60A rms @ 115 VAC
Inrush Current .................. 80A @ 115 VAC or 160A @ 230 VAC, at 25°C cold start
Soft Start ....................... Yes
Earth Leakage Current .......... 200µA max. @ 264 VAC, 63Hz
Touch Current .................. 100µA max. @ 264 VAC, 63Hz

OUTPUT SPECIFICATIONS
Output Power Ratings ............ See table
Minimum Load .................. Not required
Tolerance ....................... ±5%
Ripple and Noise* .......... 1% peak to peak max. at full load
Overvoltage Protection .... Set at 115-140% of its nominal output voltage
Overcurrent Protection ....... Protected to short-circuit conditions
Temperature Coefficient ...... ±0.04%/°C max.
Transient Response .......... Max. excursion of 4% or better on all models, recovering to 1% of final value within 500 us after a 25% step load change

GENERAL SPECIFICATIONS
Power Factor .................... 0.98 typical @ 115 VAC
Efficiency ....................... 87% minimum at full load
Hold-up Time .................... 15ms at 110 VAC
Switching Frequency .......... 90~160KHz
Operating Temperature ...... 0°C to +60°C
Derating ......................... Derate from 100% at +40°C linearly to 50% at +60°C
-40°C to +85°C
Storage Temperature .......... 5°C to +95°C non-condensing
Relative Humidity .......... 5°C to +95°C non-condensing
Withstand Voltage ............ 4000 VAC from input to output
500 VAC from output to ground
MTBF .......................... 150K hours minimum at full load, 25°C ambient, calculated per MIL-HDBK-217F

MODELS LIST

<table>
<thead>
<tr>
<th>Product No. (1)</th>
<th>Output Voltage</th>
<th>Maximum Current</th>
<th>Peak Current</th>
<th>Maximum Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>TMP135-12 ......</td>
<td>12V</td>
<td>10.0A</td>
<td>20.0A</td>
<td>120W</td>
</tr>
<tr>
<td>TMP135-13 ......</td>
<td>13V</td>
<td>9.23A</td>
<td>18.5A</td>
<td>120W</td>
</tr>
<tr>
<td>TMP135-15 ......</td>
<td>14~16V</td>
<td>9.29A</td>
<td>18.6A</td>
<td>130W</td>
</tr>
<tr>
<td>TMP135-18 ......</td>
<td>18~19V</td>
<td>7.50A</td>
<td>15.0A</td>
<td>135W</td>
</tr>
<tr>
<td>TMP135-20 ......</td>
<td>20~21V</td>
<td>6.75A</td>
<td>13.5A</td>
<td>135W</td>
</tr>
<tr>
<td>TMP135-24 ......</td>
<td>24~25V</td>
<td>5.63A</td>
<td>11.3A</td>
<td>135W</td>
</tr>
<tr>
<td>TMP135-28 ......</td>
<td>28~29V</td>
<td>4.83A</td>
<td>5.8A</td>
<td>135W</td>
</tr>
<tr>
<td>TMP135-30 ......</td>
<td>30~32V</td>
<td>4.50A</td>
<td>5.4A</td>
<td>135W</td>
</tr>
<tr>
<td>TMP135-36 ......</td>
<td>36~38V</td>
<td>3.75A</td>
<td>4.5A</td>
<td>135W</td>
</tr>
<tr>
<td>TMP135-48 ......</td>
<td>46~50V</td>
<td>2.94A</td>
<td>3.5A</td>
<td>135W</td>
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</tbody>
</table>

Notes:
1) The listed P/N’s are for Class I models equipped with IEC 320/C14 AC inlet. Add suffix “C2” to order Class II models equipped with IEC 320/C18 AC inlet. When ordering 14-50V output units, specify the requested voltage, e.g. use P/N TMP135-18.5-C2 to order 18.5V Class II model.
2) The peak current is for 10 seconds maximum with the average power not over the maximum power.

STANDARDS & COMPLIANCES
EN 55011, EN 55022 ...... Class B, conducted & radiated
FCC, VCCI .................. Class B, conducted & radiated
EN 61000-3-2 ............... Harmonic distortion, Class A & D
EN 61000-3-3 ............... Line Flicker
EN 61000-4-2 ............... ESD, ±8 KV air and ±6 KV contact
EN 61000-4-3 ............... Radiated immunity, 3V/m
EN 61000-4-4 ............... Fast transient/burst, ±2 KV
EN 61000-4-5 ............... Surge, ±1 KV diff., ±2 KV com.
EN 61000-4-6 ............... Conducted immunity, 3 Vrms
EN 61000-4-8 ............... Magnetic field immunity, 3A/m
EN 61000-4-11 ............. Voltage dip immunity, 30% reduction for 500ms,
                          60% reduction for 100ms,
                          >95% reduction for 10ms
Safety Standards ............. UL/IEC/EN 60601-1 (3rd Edition),
                          ANSI/AAMI ES 60601-1 (1st Edition),
                          CSA C22.2 No. 60601-1 (2nd Edition),
                          IEC/EN 60950-1 (2nd Edition)
Agency Approvals ............. UL, cUL, TUV, CE, CB
Other Compliances ........... RoHS, CEC & Energy Star Level V

*Class I models certified to medical and ITE safety standards; Class II models certified to medical standard only.

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MECHANICAL SPECIFICATIONS

The length of output cable for 12V to 16V output models is 37.4 [950].

DC OUTPUT CONNECTOR

<table>
<thead>
<tr>
<th>PIN</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RETURN</td>
</tr>
<tr>
<td>2</td>
<td>+V</td>
</tr>
<tr>
<td>3</td>
<td>RETURN</td>
</tr>
<tr>
<td>4</td>
<td>+V</td>
</tr>
<tr>
<td>SHELL</td>
<td>AC GND/N C</td>
</tr>
</tbody>
</table>

*Shell is NC on class II models

Output connector: Kycon P/N KPPX-4P 4-pin circular DIN or equivalent.
Mating connector: Kycon P/N KPJX-4S-S or equivalent
Contact TRUMPower for output connector options.