Ultra-High-Power Resistors

Series UPT®-400

400 W resistor, US Patent-No. 5,355,281

For variable speed drives, power supplies, control devices, robotics, motor control and other power designs, the easy mounting fixture assures a pressure of the cooling plate of about 300 N.

Features
- 400 W operating power
- Non-Inductive design
- ROHS compliant
- High insulation & partial discharge performance
- Materials in accordance with UL 94 V-0
- Resistor is also available with preapplied PCM (Phase Change Material) (ask for details)

Technical Specifications

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resistance value</td>
<td>0.5 Ω ≤ 1 MΩ</td>
</tr>
<tr>
<td>Resistance tolerance</td>
<td>±5 % to ±10 %</td>
</tr>
<tr>
<td>Temperature coefficient</td>
<td>±150 ppm/°C</td>
</tr>
<tr>
<td>Power rating</td>
<td>400 W at 85°C bottom case temp</td>
</tr>
<tr>
<td>Short time overload</td>
<td>700 W at 70°C for 10 sec.</td>
</tr>
<tr>
<td>Maximum working voltage</td>
<td>5,000 V DC = 3.500 V AC RMS (50 Hz)</td>
</tr>
<tr>
<td>Electric strength voltage</td>
<td>7 kVrms / 50 Hz / 500 VA, test min. between terminal &amp; case</td>
</tr>
<tr>
<td>Partial discharge</td>
<td>4 kVrms &lt; 10 pC (up to 7 kVrms &lt; 10 pC on request) acc. to IEC 60270</td>
</tr>
<tr>
<td>Insulation resistance</td>
<td>&gt; 10 GΩ at 1,000 V</td>
</tr>
<tr>
<td>Single shot voltage</td>
<td>up to 12 kV norm wave (1.5/50 μsec)</td>
</tr>
<tr>
<td>Inductance</td>
<td>≥ 80 nH (typical), measuring frequency 10 kHz</td>
</tr>
<tr>
<td>Capacity/mass</td>
<td>≥ 110 pF (typical), measuring frequency 10 kHz</td>
</tr>
<tr>
<td>Capacity/parallel</td>
<td>≥ 40 pF (typical), measuring frequency 10 kHz</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-55°C to +155°C</td>
</tr>
<tr>
<td>Mounting - torque for contacts</td>
<td>1.8 Nm to 2 Nm, screw-in depth max. 6 mm</td>
</tr>
<tr>
<td>Mounting - torque</td>
<td>1.6 Nm to 1.8 Nm M4 screws</td>
</tr>
<tr>
<td>Terminal tops for additional insulation requirements</td>
<td>on special request (ask for details)</td>
</tr>
<tr>
<td>Cable variation</td>
<td>on special request (ask for details)</td>
</tr>
</tbody>
</table>

Contacts
- Easy load connection with M5 screws (others on request)

Dimensions in mm [inches]

- Weight: ~67 g

General Specifications

Encapsulation
Resin-filled epoxy casing with large creeping distance to mass, large air distance between the terminals and high insulation resistance

Resistance Element
Special design for low inductance and capacitance values. The element employs our special METOXFILM, which demonstrates stability while covering high wattage and pulse loading

Housing
Housings are made without color additives. The color definition is natural and can vary in different pigmentations

Contacts
- Easy load connection with M5 screws (others on request)

Derating (thermal resist.) UPT®-400:
5.55 W/K (0.18K/W)

Power rating: 400 W at 85°C bottom case temperature**

Please ask for detailed mounting procedure!

** This value is only applicable when using a thermal transfer compound with a heat conductivity of at least 1 W/mK. The flatness of the cooling plate must be better than 0.05 mm overall. Surface roughness should not exceed 6.4 μm.