UltraTEC™ UT Series Thermoelectric Cooler

The UT11-12-F2-3030-TA-RT-W6 is a high heat flux density thermoelectric cooler. The thermoelectric module is assembled with a large number of semiconducting thermoelectric couples to achieve a higher heat pumping capacity than standard single stage thermoelectric coolers. It has a maximum Qc of 88.7 Watts when ΔT = 0 and a maximum ΔT of 68.9 °C at Qc = 0.

Features

- High heat pump density
- Precise temperature control
- Reliable solid-state operation
- No sound or vibration
- DC operation
- RoHS-compliant

Applications

- Thermoelectric Coolers and Assemblies for Medical Applications
- Thermoelectric Coolers for Handheld Cosmetic Lasers
- Industrial Laser Cooling
- Peltier Cooling for Digital Light Processors

ELECTRICAL AND THERMAL PERFORMANCE

Heat Pumped at Cold Side
Thot = 27 °C

Qc (Watts) vs Operating Current (Amps)

Heat Pumped at Cold Side
Thot = 27 °C

Qc (Watts) vs Operating Voltage (Volts)

Note: Allow 0.020 in [0.5 mm] around perimeter of the thermoelectric cooler and lead wire attachment to accommodate sealant.
Current vs Voltage (I vs V)
Thot = 27 °C

ΔT = 0°C
ΔT = 10°C
ΔT = 20°C
ΔT = 30°C
ΔT = 40°C
ΔT = 50°C
ΔT = 60°C
SPECIFICATIONS*

<table>
<thead>
<tr>
<th>Parameter</th>
<th>27.0 °C</th>
<th>35.0 °C</th>
<th>50.0 °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hot Side Temperature</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Qcmax (ΔT = 0)</td>
<td>88.7 Watts</td>
<td>91.4 Watts</td>
<td>96.1 Watts</td>
</tr>
<tr>
<td>ΔTmax (Qc = 0)</td>
<td>68.9°C</td>
<td>71.8°C</td>
<td>77.0°C</td>
</tr>
<tr>
<td>Imax (I @ ΔTmax)</td>
<td>10.9 Amps</td>
<td>10.9 Amps</td>
<td>10.8 Amps</td>
</tr>
<tr>
<td>Vmax (V @ ΔTmax)</td>
<td>13.6 Volts</td>
<td>14.2 Volts</td>
<td>15.1 Volts</td>
</tr>
<tr>
<td>Module Resistance</td>
<td>1.16 Ohms</td>
<td>1.21 Ohms</td>
<td>1.30 Ohms</td>
</tr>
<tr>
<td>Max Operating Temperature</td>
<td>80 °C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>11.0 gram(s)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Specifications reflect thermoelectric coefficients updated March 2020

FINISHING OPTIONS

<table>
<thead>
<tr>
<th>Suffix</th>
<th>Thickness</th>
<th>Flatness / Parallelism</th>
<th>Hot Face</th>
<th>Cold Face</th>
<th>Lead Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>TA</td>
<td>2.413 ±0.025 mm</td>
<td>0.025 mm / 0.025 mm</td>
<td>Lapped</td>
<td>Lapped</td>
<td>152.4 mm</td>
</tr>
<tr>
<td></td>
<td>0.095 ± 0.001 in</td>
<td>0.001 in / 0.001 in</td>
<td></td>
<td></td>
<td>6.00 in</td>
</tr>
</tbody>
</table>

SEALING OPTIONS

<table>
<thead>
<tr>
<th>Suffix</th>
<th>Sealant</th>
<th>Color</th>
<th>Temp Range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RT</td>
<td>RTV</td>
<td>White</td>
<td>-60 to 204°C</td>
<td>Non-corrosive, silicone adhesive</td>
</tr>
</tbody>
</table>

NOTES

1. Max operating temperature: 80°C
2. Do not exceed Imax or Vmax when operating module
3. Reference assembly guidelines for recommended installation

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