UltraTEC™ UTX Series Thermoelectric Cooler

The UTX11-12-F2-3030-TA-EP-W6 is a high-performance thermoelectric cooler that is assembled with advanced thermoelectric materials and can boost cooling capacity by up to 10%. The UltraTEC UTX Series features a higher thermal insulating barrier when compared to standard materials creating a maximum temperature differential (ΔT) of 71.7 °C at Qc = 0. It has a maximum Qc of 95.2 Watts when ΔT = 0.

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

Applications
- Spot Cooling for Industrial Lasers & Optics
- Thermoelectric Cooling for Projection Lasers

Electrical and Thermal Performance

For maximum performance, be sure to orient the CONTROL side of the TEC against the application to be managed and the HEATSINK side against the heat sink or other heat rejection method. The CONTROL side is always opposite the side with lead attachments. Lead attachment is a passive heat loss and less impactful if located on the side that attaches to the heat exchanger.

Operating Current (Amps) vs Operating Voltage (Volts)

Qc (Watts) Heat Pumped at Cold Side
Thot = 27 °C

Current vs Voltage (I vs V)
Thot = 27 °C

Heat Pumped at Cold Side
Thot = 27 °C

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

Note: Allow 0.020 in [0.5 mm] around perimeter of the thermoelectric cooler and lead wire attachment to accommodate sealant.
**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Hot Side Temperature</th>
<th>27.0 °C</th>
<th>35.0 °C</th>
<th>50.0 °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qcmax (ΔT = 0)</td>
<td>95.2 Watts</td>
<td>97.8 Watts</td>
<td>102.4 Watts</td>
</tr>
<tr>
<td>ΔTmax (Qc = 0)</td>
<td>71.7°C</td>
<td>74.8°C</td>
<td>80.4°C</td>
</tr>
<tr>
<td>Imax (I @ ΔTmax)</td>
<td>11.0 Amps</td>
<td>10.9 Amps</td>
<td>10.8 Amps</td>
</tr>
<tr>
<td>Vmax (V @ ΔTmax)</td>
<td>14.6 Volts</td>
<td>15.1 Volts</td>
<td>16.2 Volts</td>
</tr>
<tr>
<td>Module Resistance</td>
<td>1.24 Ohms</td>
<td>1.30 Ohms</td>
<td>1.40 Ohms</td>
</tr>
<tr>
<td>Max Operating Temperature</td>
<td>80 °C</td>
<td>80 °C</td>
<td>80 °C</td>
</tr>
<tr>
<td>Weight</td>
<td>11.0 gram(s)</td>
<td>11.0 gram(s)</td>
<td>11.0 gram(s)</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 / 6.00 in</td>
</tr>
<tr>
<td></td>
<td>0.095 ± 0.0010 in</td>
<td>0.001 in / 0.001 in</td>
<td></td>
<td></td>
<td></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>EP</td>
<td>Epoxy</td>
<td>Black</td>
<td>-55 to 150°C</td>
<td>Low density syntactic foam epoxy encapsulant</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
4. Recommended to be used with a liquid heat exchanger on the hot side
Mouser Electronics

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