eTEC™ HV14 Thin-Film Thermoelectric Cooler
Data Sheet

Description
The Nextreme eTEC family is a new class of RoHS compliant thermoelectric coolers to address applications with high heat flux requirements. The eTEC HV14 can produce 1.4 watts of cooling at 25°C pumping 90 W/cm². At 85°C, these values increase to 1.7 watts and 110 W/cm², respectively. The size, input power requirements, heat pumping capability, and speed of this device make it ideal for thermal management of sensors, photonics, and optoelectronics applications.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HV2001</td>
<td>Au Wire Bondable Pads</td>
</tr>
</tbody>
</table>

Features
- 1.7 watts maximum cooling @ 85°C
- 110 W/cm² heat pumping capability
- Small 1.52mm x 1.79mm footprint
- Extremely thin 0.62mm profile
- <2 ms response time
- RoHS compliant devices

Performance Values (Typical)

<table>
<thead>
<tr>
<th>Hot Side Temperature</th>
<th>25°C</th>
<th>85°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>$Q_{\text{max}}$ (Watts)</td>
<td>1.4</td>
<td>1.7</td>
</tr>
<tr>
<td>$\Delta T_{\text{max}}$ (°C)</td>
<td>45</td>
<td>60</td>
</tr>
<tr>
<td>$I_{\text{max}}$ (Amps)</td>
<td>1.0</td>
<td>0.9</td>
</tr>
<tr>
<td>$V_{\text{max}}$ (Volts)</td>
<td>2.0</td>
<td>2.7</td>
</tr>
<tr>
<td>$Q_{\text{max}}$/Area (W/cm²)</td>
<td>90</td>
<td>110</td>
</tr>
<tr>
<td>$R_{\text{electrical}}$ (Ω)</td>
<td>1.7</td>
<td>2.3</td>
</tr>
<tr>
<td>$R_{\text{thermal}}$ (K/W)</td>
<td>50</td>
<td>54</td>
</tr>
</tbody>
</table>

Assembly Conditions
- Time above 290°C | 60 sec
- Peak Assembly Temperature | 325°C

Operating Conditions
- Maximum Operating Temp. | 150°C
eTEC™ HV14 Thin-Film Thermoelectric Cooler Data Sheet

**Definitions**

- **Q_{max}** The maximum amount of heat that the eTEC device can pump when operating at **I_{max}**
- **ΔT_{max}** The maximum temperature difference the eTEC device can produce
- **I_{max}** The current that produces **ΔT_{max}**
- **V_{max}** The voltage that produces **ΔT_{max}**
- **COP** Coefficient of Performance (Heat Pumped / Input Power)
- **R_{thermal}** Thermal resistance
- **R_{electrical}** Electrical resistance

**General Information**

- Au on the top and back surfaces
- Au wire bondable pads.
- Positive terminal marked as shown

**Product Dimensions (mm)**

**Q_{c} vs ΔT at 25°C**

- I = 1.00 A
- I = 0.55 A
- I = 0.35 A
- I = 0.20 A
- I = 0.10 A

**Q_{c} vs ΔT at 85°C**

- I = 0.90 A
- I = 0.50 A
- I = 0.32 A
- I = 0.18 A
- I = 0.09 A

**COP vs Q_{c} at 25°C**

- 5 deg DT
- 10 deg DT
- 15 deg DT
- 20 deg DT
- 25 deg DT

**COP vs Q_{c} at 85°C**

- 5 deg DT
- 10 deg DT
- 15 deg DT
- 20 deg DT
- 25 deg DT

Contact info@Nextreme.com for more information

Nextreme Thermal Solutions, Inc. | www.nextreme.com | In Europe: www.nextreme.eu
Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Nextreme:
NCA-1101443-0202A_A