

**OptoTEC™ HTX Series Thermoelectric Cooler**

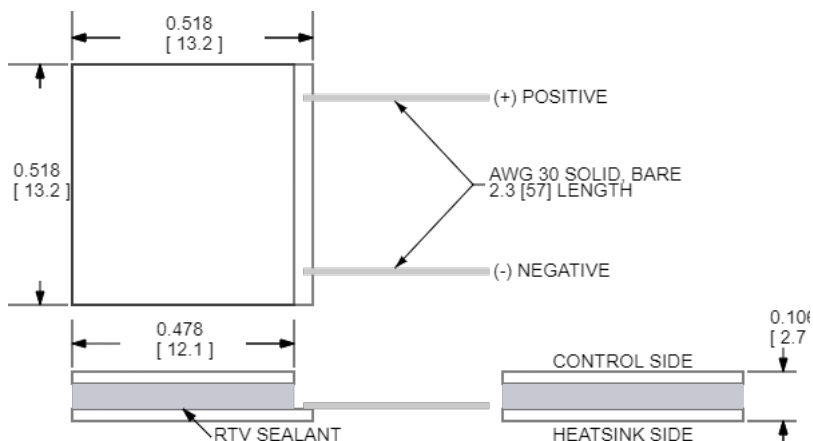
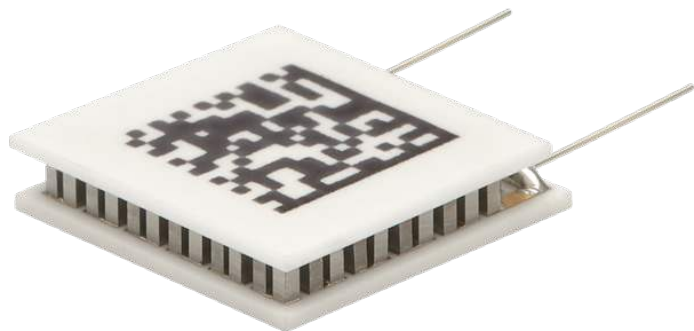
The HTX12-65-F2A-1312-TB-RT-W2.25 is a high-performance, high-temperature, miniature thermoelectric cooler. The HTX12-65-F2A-1312-TB-RT-W2.25 is primarily used in applications to stabilize the temperature of sensitive optical components in the telecom and photonics industries. It has a maximum Qc of 5.8 Watts when ΔT = 0 and a maximum ΔT of 81.6 °C at Qc = 0.

**Features**

- Miniature footprint
- Precise temperature control
- Reliable solid-state operation
- Operates in high-temperature applications
- No sound or vibration
- RoHS-compliant

**Applications**

- Laser Diodes
- Optical Transceivers
- Lidar Sensors
- Infrared Range (IR) Sensors
- CMOS Sensors
- Autonomous Systems
- Machine Vision
- Security Cameras

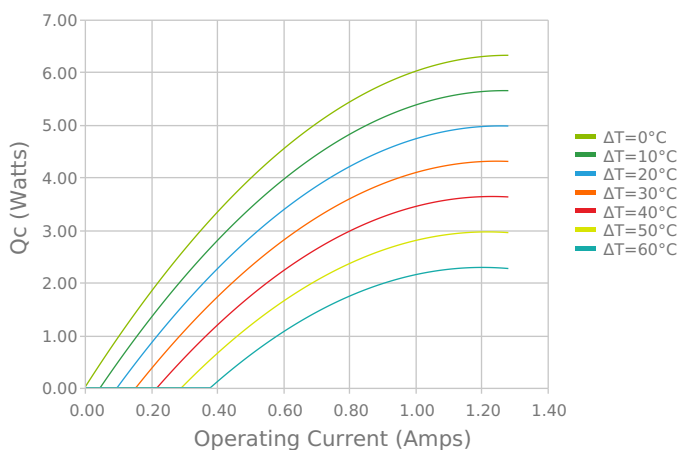


CERAMIC MATERIAL: Al<sub>2</sub>O<sub>3</sub>  
 SOLDER CONSTRUCTION: 280°C, AuSn  
 Note: Allow 0.020 in [0.5 mm] around perimeter of the thermoelectric cooler and lead wire attachment to accommodate sealant

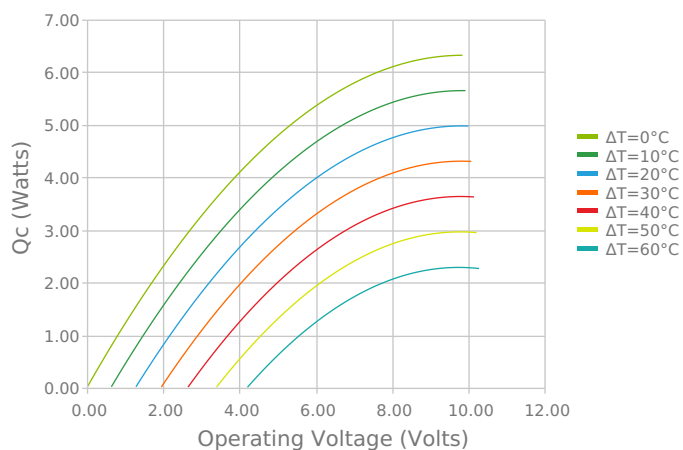
**ELECTRICAL AND THERMAL PERFORMANCE**

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.

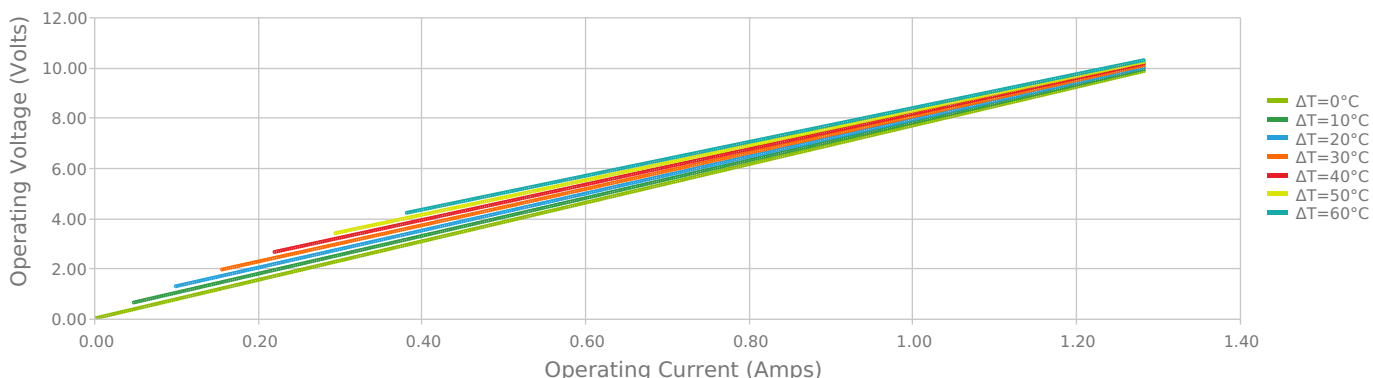
Heat Pumped at Cold Side  
 Thot = 85 °C



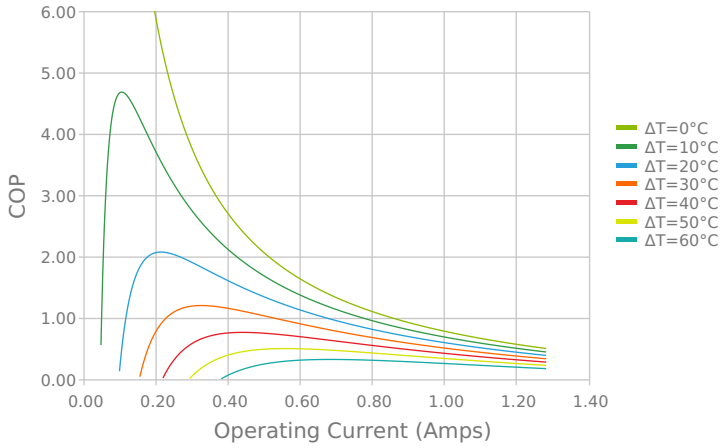
Heat Pumped at Cold Side  
 Thot = 85 °C



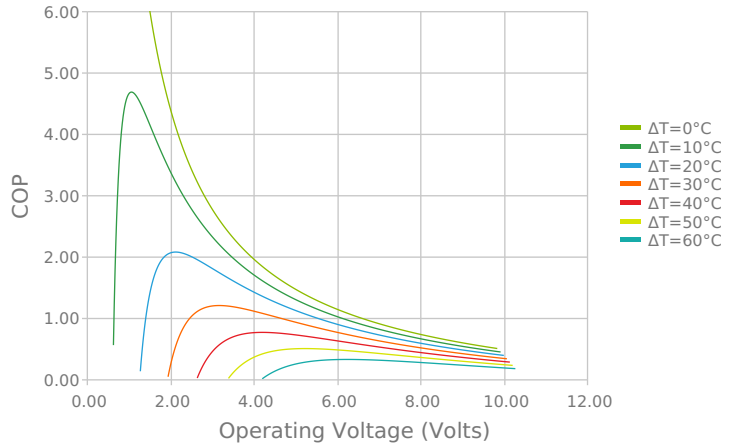
Current vs Voltage (I vs V)  
 Thot = 85 °C



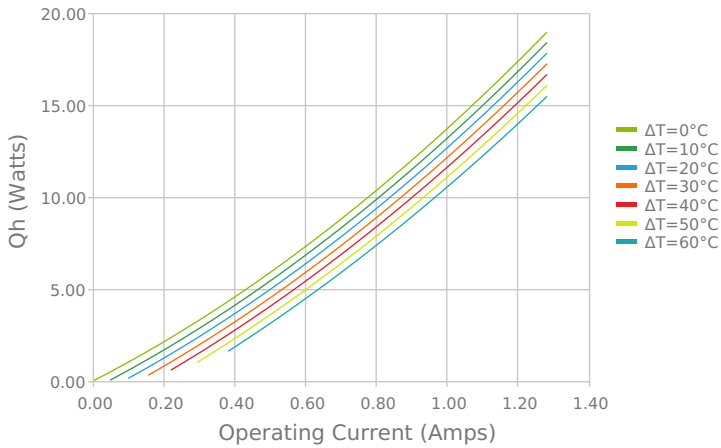
Coefficient of Performance (COP = Qc/Pin)  
 Thot = 85 °C



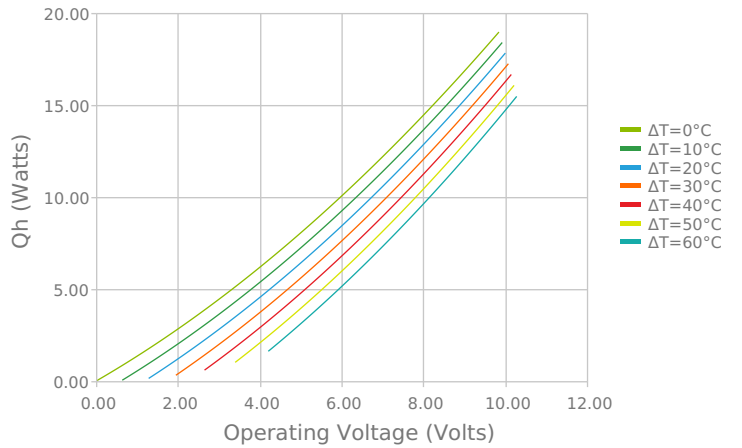
Coefficient of Performance (COP = Qc/Pin)  
 Thot = 85 °C



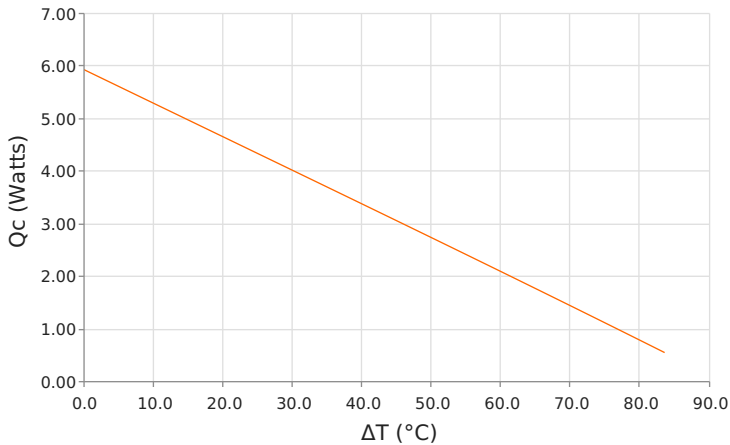
Total Heat Dissipated at Hot Side (Qh=Qc+Pin)  
 Thot = 85 °C



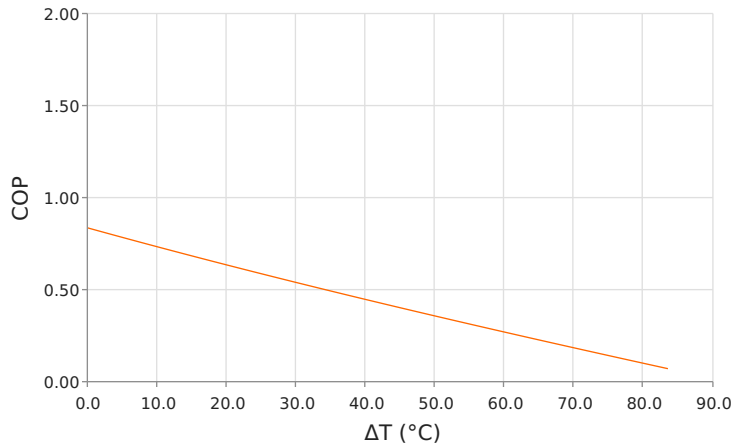
Total Heat Dissipated at Hot Side (Qh=Qc+Pin)  
 Thot = 85 °C



Heat Pumped at Cold Side (Qc)  
 Thot = 85 °C | Current = 1.0 Amps



Coefficient of Performance (COP = Qc/Pin)  
 Thot = 85 °C | Current = 1.0 Amps



## SPECIFICATIONS\*

| Hot Side Temperature                                      | 50.0 °C     | 85.0 °C   | 110.0 °C   |
|---|-------------|-----------|------------|
| <b>Qcmax (<math>\Delta T = 0</math>)</b>                  | 5.8 Watts   | 6.3 Watts | 6.5 Watts  |
| <b><math>\Delta T_{max}</math> (<math>Q_c = 0</math>)</b> | 81.6°C      | 93.4°C    | 99.9°C     |
| <b>I<sub>max</sub> (I @ <math>\Delta T_{max}</math>)</b>  | 1.2 Amps    | 1.1 Amps  | 1.1 Amps   |
| <b>V<sub>max</sub> (V @ <math>\Delta T_{max}</math>)</b>  | 8.4 Volts   | 9.6 Volts | 10.5 Volts |
| <b>Module Resistance</b>                                  | 6.58 Ohms   | 7.68 Ohms | 8.40 Ohms  |
| <b>Max Operating Temperature</b>                          | 150 °C      |           |            |
| <b>Weight</b>   | 2.0 gram(s) |           |            |

\* Specifications reflect thermoelectric coefficients updated March 2020

## FINISHING OPTIONS

| Suffix | Thickness                            | Flatness / Parallelism                       | Hot Face | Cold Face | Lead Length        |
|--------|--------------------------------------|--|----------|-----------|--------------------|
| TB     | 2.692 ±0.013 mm<br>0.106 ± 0.0005 in | 0.013 mm / 0.013 mm<br>0.0005 in / 0.0005 in | Lapped   | Lapped    | 50.8 mm<br>2.00 in |

## SEALING OPTIONS

| Suffix | Sealant | Color                | Temp Range   | Description                      |
|--------|---------|----------------------|--------------|----------------------------------|
| RT     | RTV     | Translucent or White | -60 to 204°C | Non-corrosive, silicone adhesive |

## NOTES

1. Max operating temperature: 150°C
2. Do not exceed I<sub>max</sub> or V<sub>max</sub> when operating module
3. Reference assembly guidelines for recommended installation
4. Solder tinning also available on metallized ceramics

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