

## OptoTEC™ HTX Series Thermoelectric Cooler

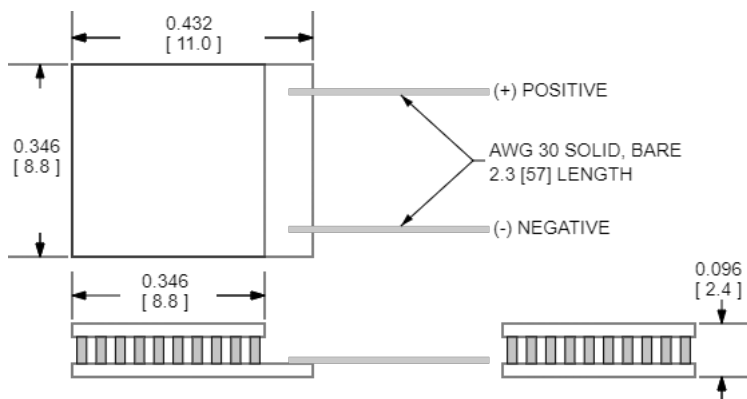
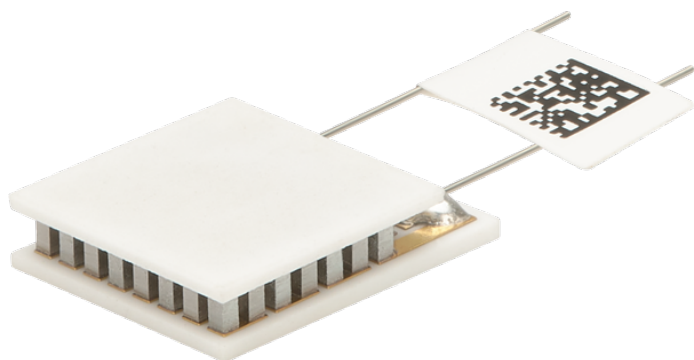
The HTX15-31-F2A-0909-TB-W2.25 is a high-performance, high-temperature, miniature thermoelectric cooler. The HTX15-31-F2A-0909-TB-W2.25 is primarily used in applications to stabilize the temperature of sensitive optical components in the telecom and photonics industries. It has a maximum  $Q_c$  of 3.5 Watts when  $\Delta T = 0$  and a maximum  $\Delta T$  of 81.6 °C at  $Q_c = 0$ .

## 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

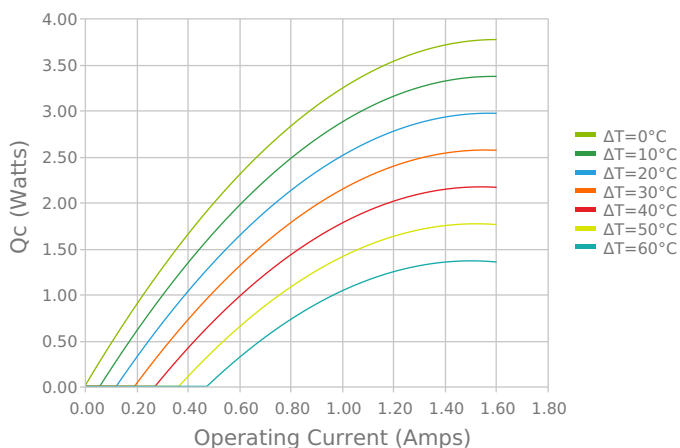


CERAMIC MATERIAL:  $Al_2O_3$   
SOLDER CONSTRUCTION: 280°C, AuSn

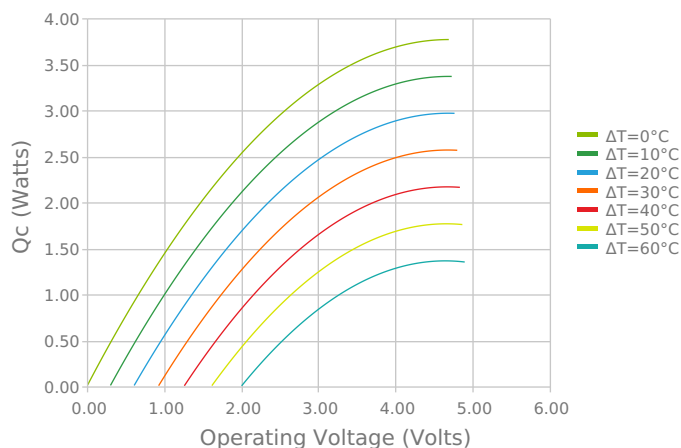
INCHES [MM]

## ELECTRICAL AND THERMAL PERFORMANCE

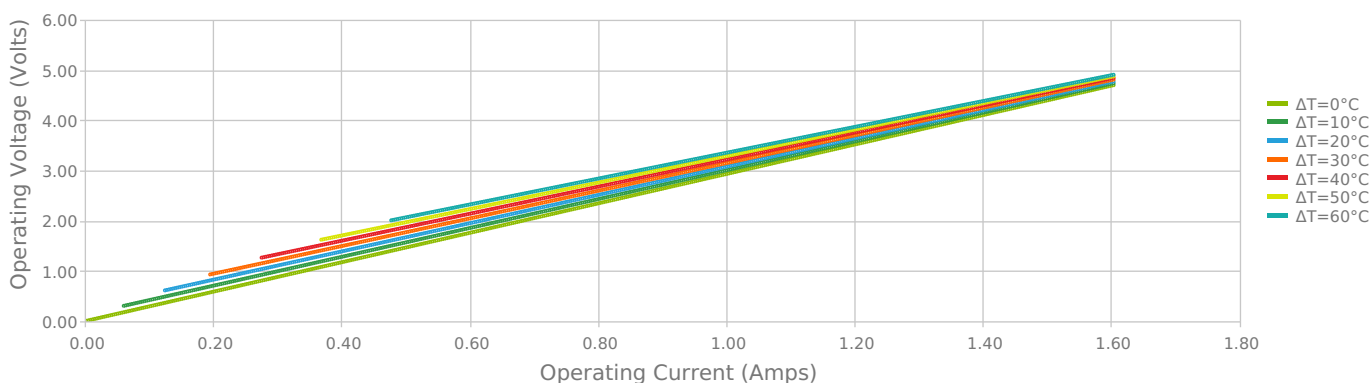
Heat Pumped at Cold Side  
 $T_{hot} = 85^\circ C$



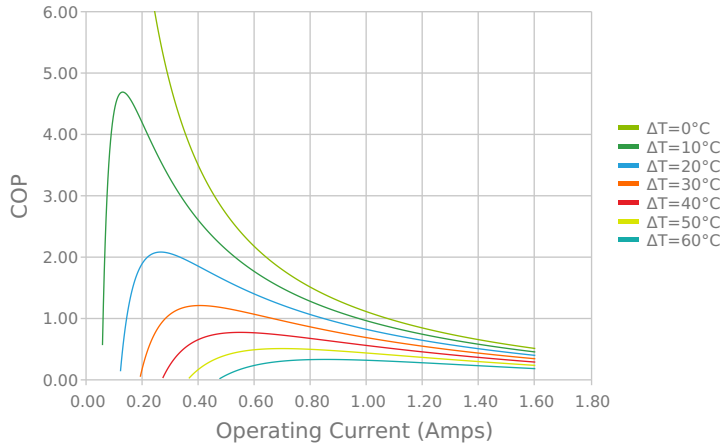
Heat Pumped at Cold Side  
 $T_{hot} = 85^\circ C$



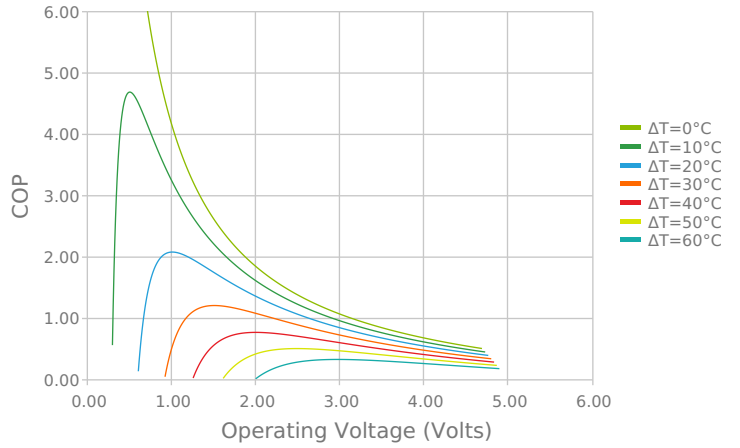
Current vs Voltage (I vs V)  
 $T_{hot} = 85^\circ C$



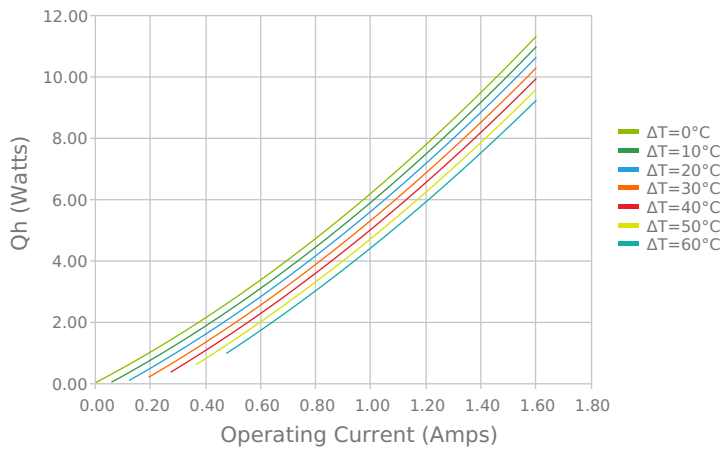
Coefficient of Performance (COP =  $Q_c/P_{in}$ )  
 $T_{hot} = 85\text{ }^{\circ}\text{C}$



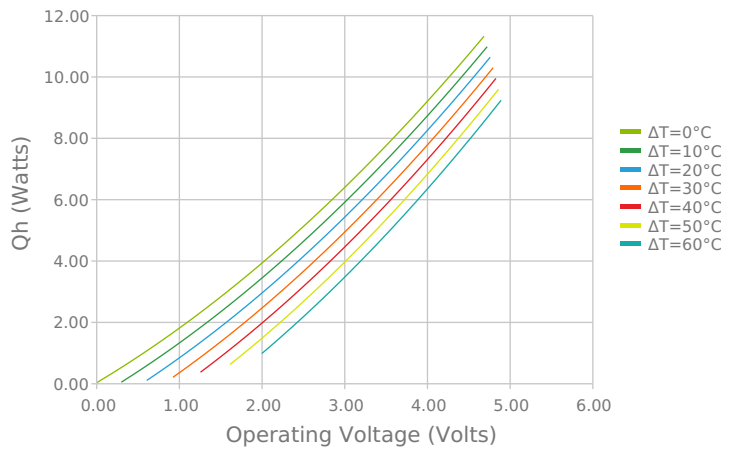
Coefficient of Performance (COP =  $Q_c/P_{in}$ )  
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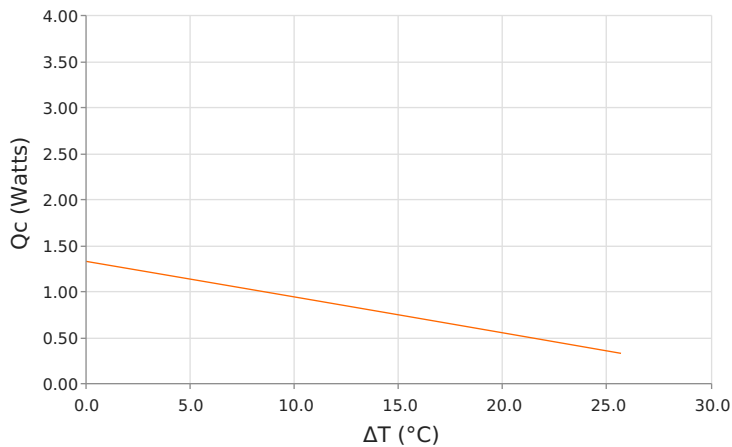
Total Heat Dissipated at Hot Side ( $Q_h=Q_c+P_{in}$ )  
 $T_{hot} = 85\text{ }^{\circ}\text{C}$



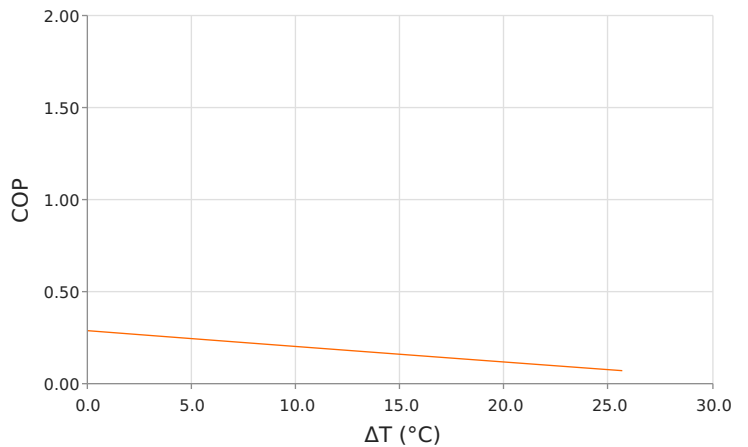
Total Heat Dissipated at Hot Side ( $Q_h=Q_c+P_{in}$ )  
 $T_{hot} = 85\text{ }^{\circ}\text{C}$



Heat Pumped at Cold Side ( $Q_c$ )  
 $T_{hot} = 85\text{ }^{\circ}\text{C}$  | Current = 1.2 Amps



Coefficient of Performance (COP =  $Q_c/P_{in}$ )  
 $T_{hot} = 85\text{ }^{\circ}\text{C}$  | Current = 1.2 Amps



## SPECIFICATIONS\*

### Hot Side Temperature

### Qcmax ( $\Delta T = 0$ )

### $\Delta T_{max}$ ( $Q_c = 0$ )

### I<sub>max</sub> (I @ $\Delta T_{max}$ )

### V<sub>max</sub> (V @ $\Delta T_{max}$ )

### Module Resistance

### Max Operating Temperature

### Weight

|                                          | 50.0 °C     | 85.0 °C   | 110.0 °C  |
|------------------------------------------|-------------|-----------|-----------|
| Qcmax ( $\Delta T = 0$ )                 | 3.5 Watts   | 3.8 Watts | 3.9 Watts |
| $\Delta T_{max}$ ( $Q_c = 0$ )           | 81.6°C      | 93.4°C    | 99.9°C    |
| I <sub>max</sub> (I @ $\Delta T_{max}$ ) | 1.5 Amps    | 1.4 Amps  | 1.4 Amps  |
| V <sub>max</sub> (V @ $\Delta T_{max}$ ) | 4.0 Volts   | 4.6 Volts | 5.0 Volts |
| Module Resistance                        | 2.51 Ohms   | 2.93 Ohms | 3.21 Ohms |
| Max Operating Temperature                | 150 °C      |           |           |
| Weight                                   | 1.0 gram(s) |           |           |

\* Specifications reflect thermoelectric coefficients updated March 2020

## FINISHING OPTIONS

| Suffix | Thickness                            | Flatness / Parallelism                       | Hot Face | Cold Face | Lead Length        |
|--------|--------------------------------------|----------------------------------------------|----------|-----------|--------------------|
| TB     | 2.438 ±0.013 mm<br>0.096 ± 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          |
|--------|---------|-------|------------|----------------------|
|        | None    |       |            | No sealing specified |

## 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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