

**OptoTEC™ OTX Series Thermoelectric Cooler**

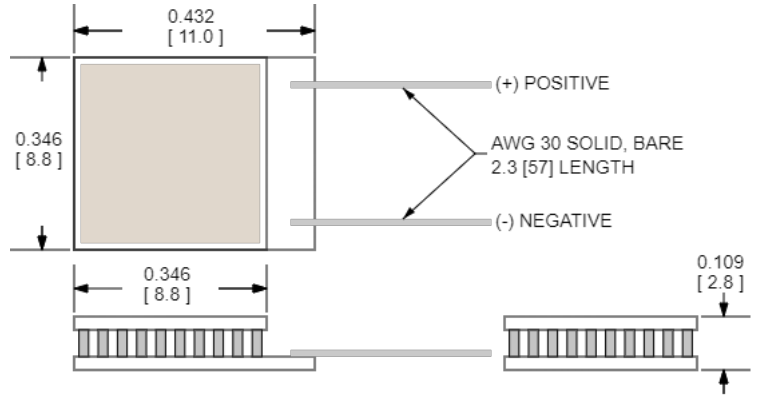
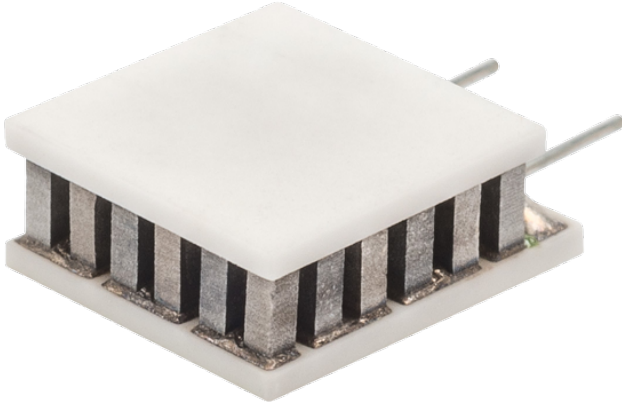
The OTX15-31-F2A-0909-20-W2.25 is a high-performance, miniature thermoelectric cooler. The OTX15-31-F2A-0909-20-W2.25 is primarily used in applications to stabilize the temperature of sensitive optical components in the telecom and photonics industries. It has a maximum Qc of 3.3 Watts when  $\Delta T = 0$  and a maximum  $\Delta T$  of 72.9 °C at Qc = 0.

**Features**

- Miniature footprint
- Precise temperature control
- Reliable solid-state operation
- 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

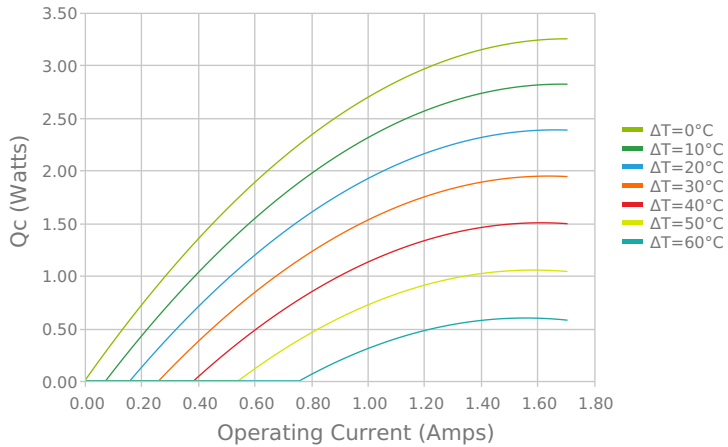


CERAMIC MATERIAL: Al<sub>2</sub>O<sub>3</sub>  
 SOLDER CONSTRUCTION: 232°C, SbSn

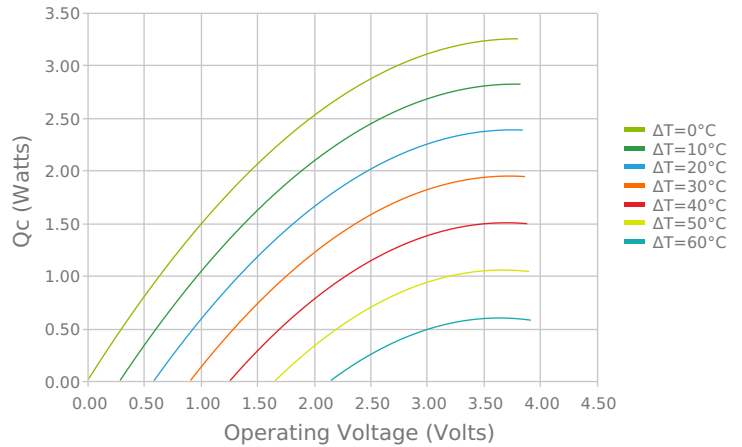
INCHES [MM]

**ELECTRICAL AND THERMAL PERFORMANCE**

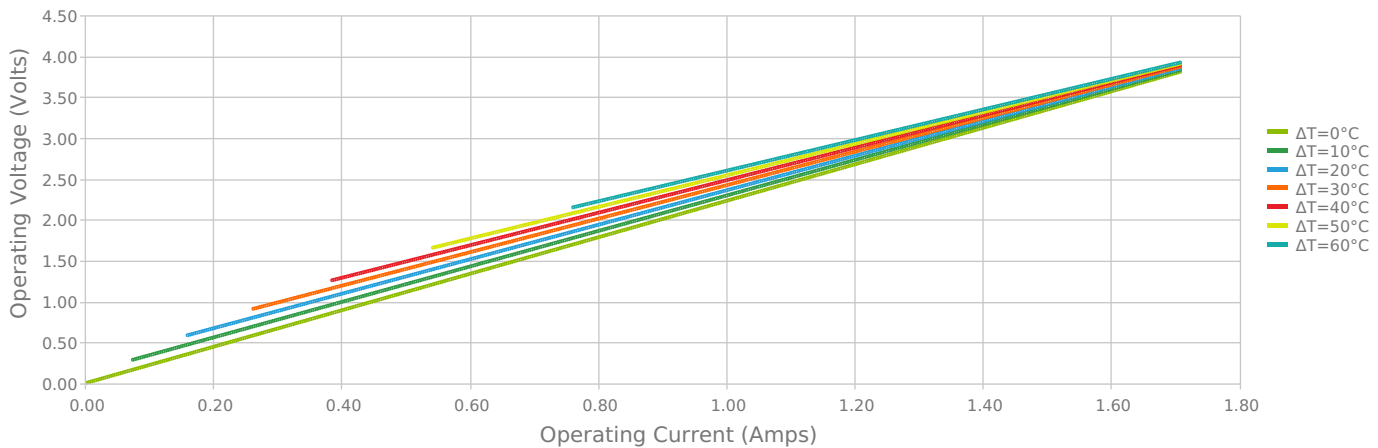
Heat Pumped at Cold Side  
 Thot = 27 °C



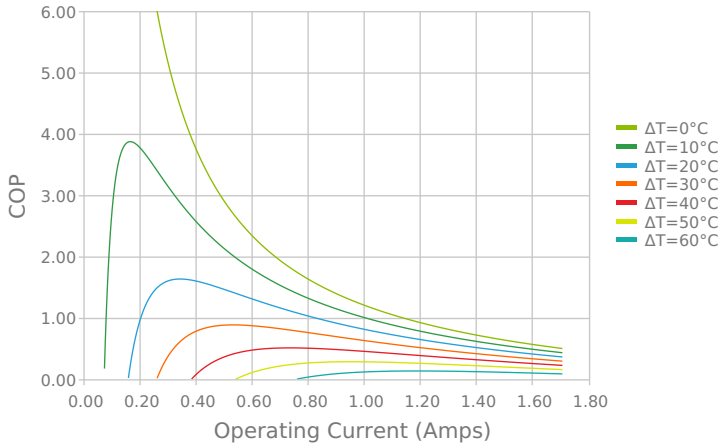
Heat Pumped at Cold Side  
 Thot = 27 °C



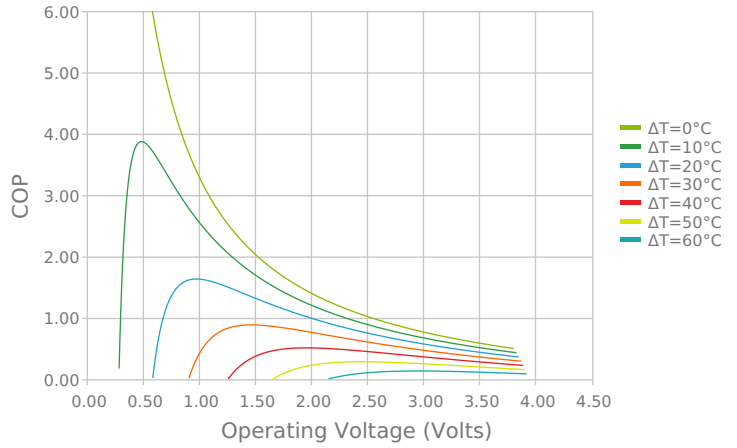
Current vs Voltage (I vs V)  
 Thot = 27 °C



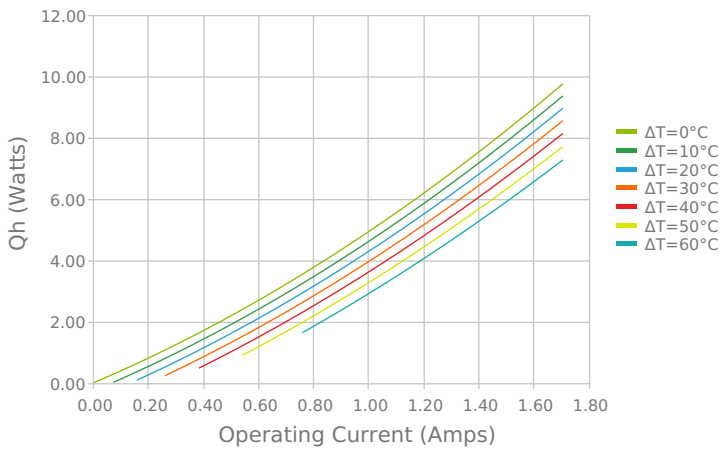
Coefficient of Performance (COP = Qc/Pin)  
 Thot = 27 °C



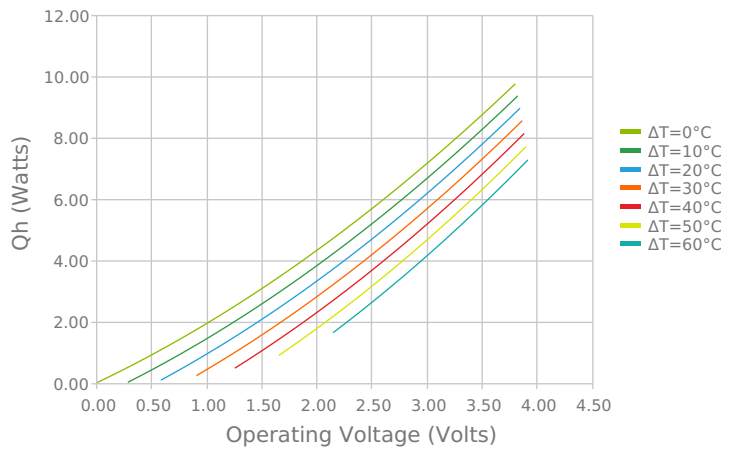
Coefficient of Performance (COP = Qc/Pin)  
 Thot = 27 °C



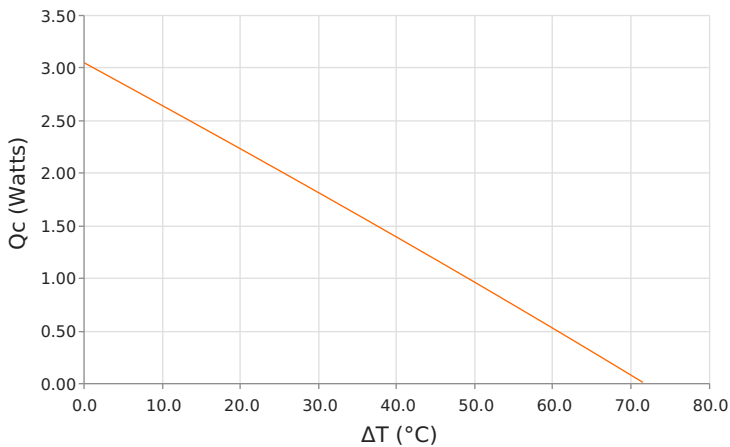
Total Heat Dissipated at Hot Side (Qh=Qc+Pin)  
 Thot = 27 °C



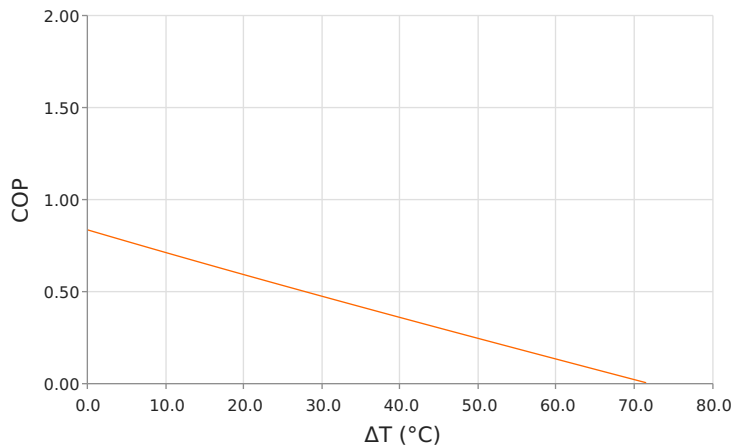
Total Heat Dissipated at Hot Side (Qh=Qc+Pin)  
 Thot = 27 °C



Heat Pumped at Cold Side (Qc)  
 Thot = 27 °C | Current = 1.3 Amps



Coefficient of Performance (COP = Qc/Pin)  
 Thot = 27 °C | Current = 1.3 Amps



## SPECIFICATIONS\*

|   | 27.0 °C     | 50.0 °C   | 80.0 °C   |
|---|-------------|-----------|-----------|
| <b>Hot Side Temperature</b>                               |             |           |           |
| <b>Qcmax (<math>\Delta T = 0</math>)</b>                  | 3.3 Watts   | 3.5 Watts | 3.8 Watts |
| <b><math>\Delta T_{max}</math> (<math>Q_c = 0</math>)</b> | 72.9°C      | 81.8°C    | 92.1°C    |
| <b>I<sub>max</sub> (I @ <math>\Delta T_{max}</math>)</b>  | 1.5 Amps    | 1.5 Amps  | 1.4 Amps  |
| <b>V<sub>max</sub> (V @ <math>\Delta T_{max}</math>)</b>  | 3.6 Volts   | 4.0 Volts | 4.5 Volts |
| <b>Module Resistance</b>                                  | 2.23 Ohms   | 2.51 Ohms | 2.87 Ohms |
| <b>Max Operating Temperature</b>                          | 120 °C      |           |           |
| <b>Weight</b>   | 1.0 gram(s) |           |           |

\* Specifications reflect thermoelectric coefficients updated March 2020

## FINISHING OPTIONS

| Suffix | Thickness                            | Flatness / Parallelism | Hot Face   | Cold Face  | Lead Length        |
|--------|--------------------------------------|------------------------|------------|------------|--------------------|
| 20     | 2.768 ±0.127 mm<br>0.109 ± 0.0050 in | N/A / N/A              | Pre-tinned | Metallized | 50.8 mm<br>2.00 in |

## SEALING OPTIONS

| Suffix | Sealant | Color | Temp Range | Description          |
|--------|---------|-------|------------|----------------------|
|        | None    |       |            | No sealing specified |

## NOTES

1. Max operating temperature: 120°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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