

### OptoTEC™ HTX Series Thermoelectric Cooler

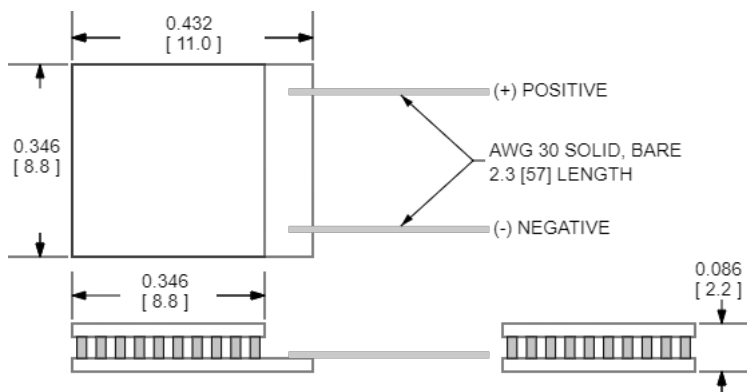
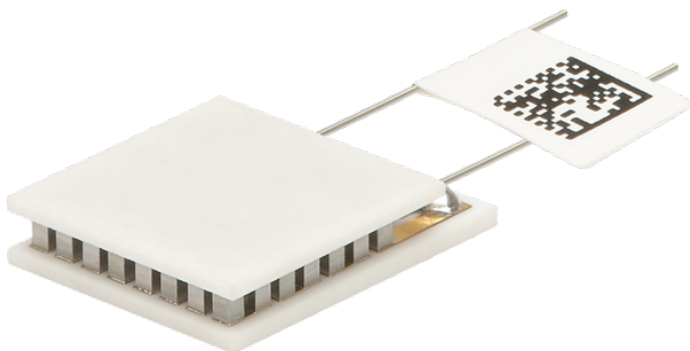
The HTX20-31-F2A-0909-11-W2.25 is a high-performance, high-temperature, miniature thermoelectric cooler. The HTX20-31-F2A-0909-11-W2.25 is primarily used in applications to stabilize the temperature of sensitive optical components in the telecom and photonics industries. It has a maximum  $Q_c$  of 4.6 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

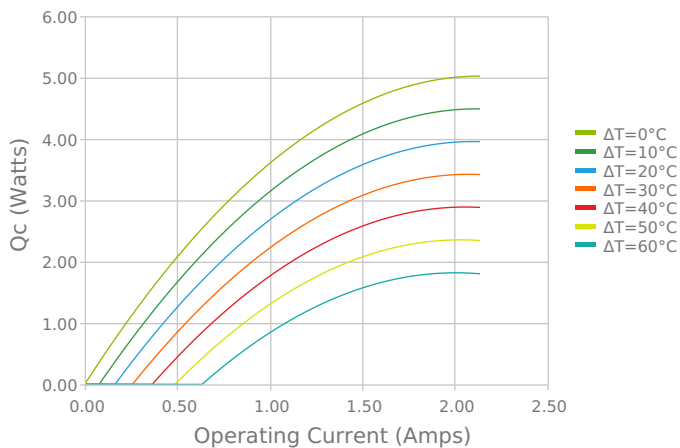


CERAMIC MATERIAL:  $Al_2O_3$   
 SOLDER CONSTRUCTION: 280°C, AuSn

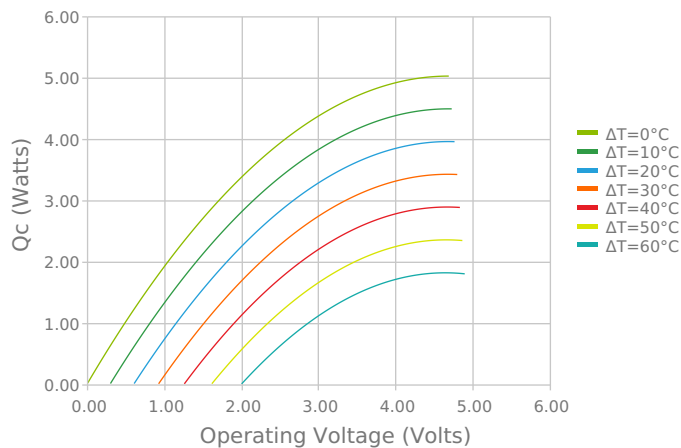
INCHES [MM]

## ELECTRICAL AND THERMAL PERFORMANCE

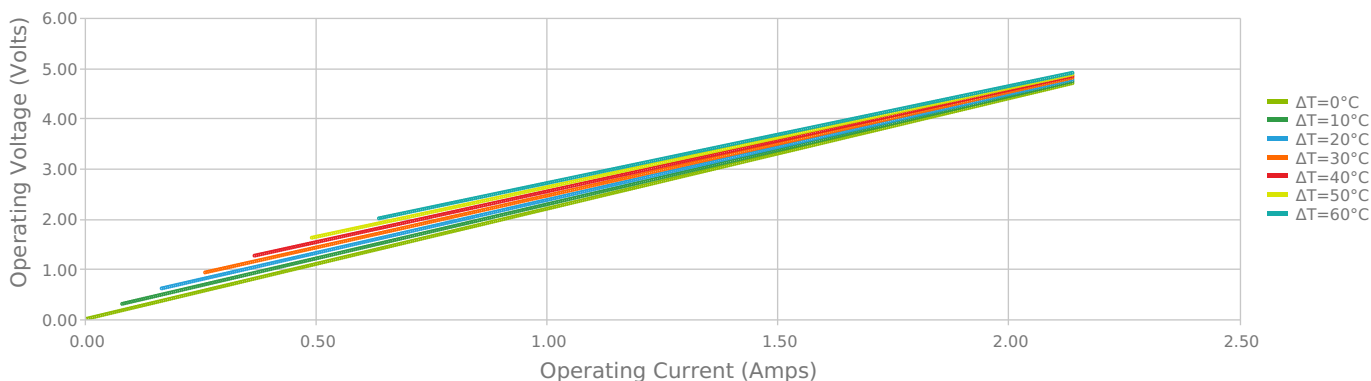
Heat Pumped at Cold Side  
 $T_{hot} = 85^\circ C$



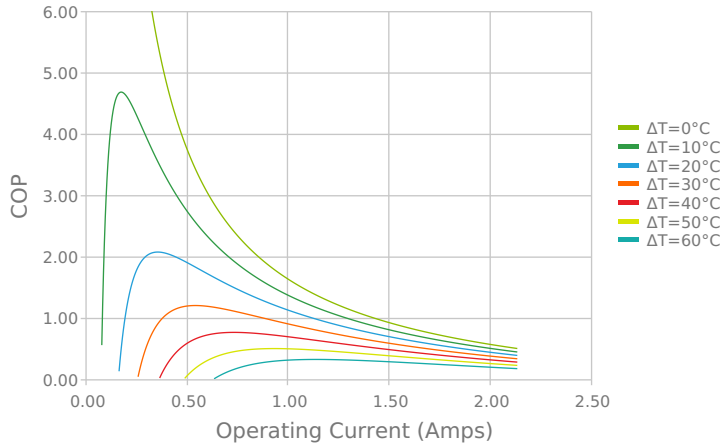
Heat Pumped at Cold Side  
 $T_{hot} = 85^\circ C$



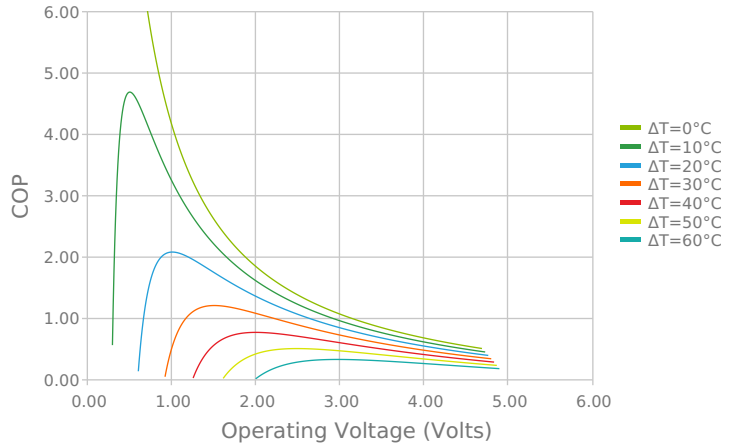
Current vs Voltage (I vs V)  
 $T_{hot} = 85^\circ C$



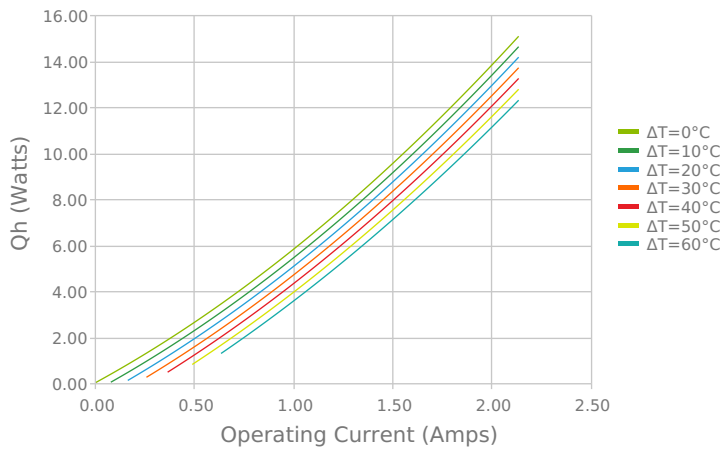
Coefficient of Performance (COP =  $Q_c/P_{in}$ )  
 $T_{hot} = 85^\circ\text{C}$



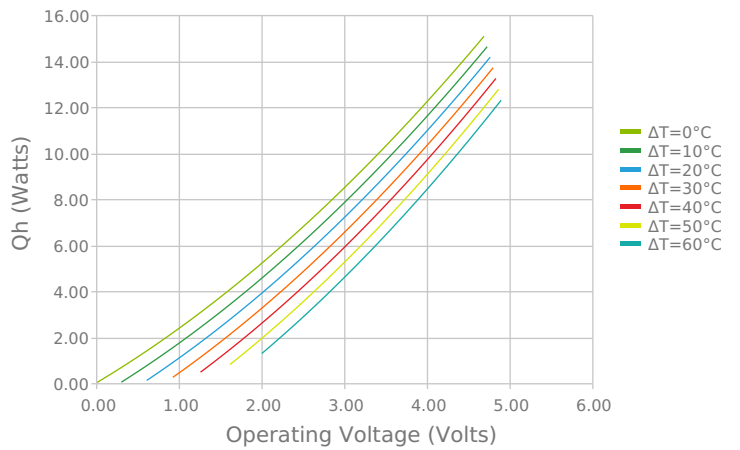
Coefficient of Performance (COP =  $Q_c/P_{in}$ )  
 $T_{hot} = 85^\circ\text{C}$



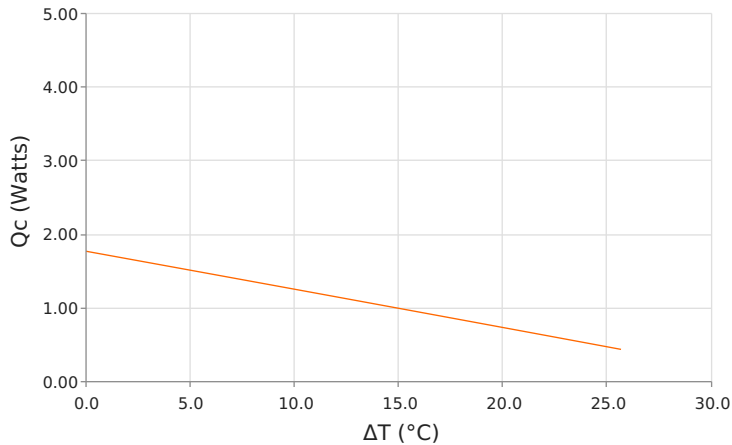
Total Heat Dissipated at Hot Side ( $Q_h = Q_c + P_{in}$ )  
 $T_{hot} = 85^\circ\text{C}$



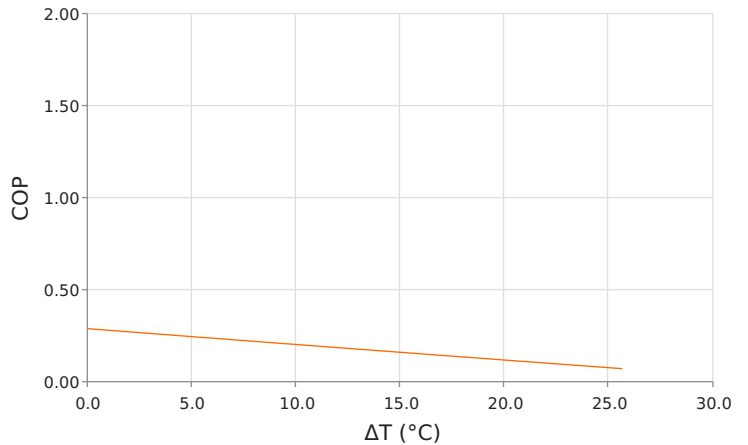
Total Heat Dissipated at Hot Side ( $Q_h = Q_c + P_{in}$ )  
 $T_{hot} = 85^\circ\text{C}$



Heat Pumped at Cold Side ( $Q_c$ )  
 $T_{hot} = 85^\circ\text{C}$  | Current = 1.6 Amps



Coefficient of Performance (COP =  $Q_c/P_{in}$ )  
 $T_{hot} = 85^\circ\text{C}$  | Current = 1.6 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 ( $\Delta T = 0$ )	4.6 Watts	5.0 Watts	5.2 Watts
$\Delta T_{max}$ ( $Q_c = 0$ )	81.6°C	93.4°C	99.9°C
I <sub>max</sub> (I @ $\Delta T_{max}$ )	2.0 Amps	1.9 Amps	1.9 Amps
V <sub>max</sub> (V @ $\Delta T_{max}$ )	4.0 Volts	4.6 Volts	5.0 Volts
Module Resistance	1.88 Ohms	2.20 Ohms	2.40 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
11	2.184 ±0.127 mm 0.086 ± 0.0050 in	0.051 mm / 0.051 mm 0.002 in / 0.002 in	Lapped	Lapped	50.8 mm 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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