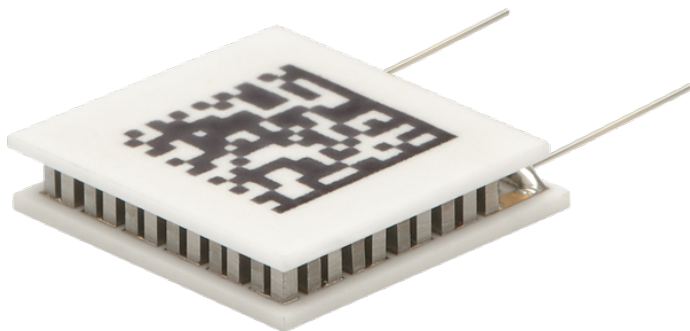


## OptoTEC™ HTX Series Thermoelectric Cooler

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  $Q_c$  of 5.8 Watts when  $\Delta T = 0$  and a maximum  $\Delta T$  of 81.6 °C at  $Q_c = 0$ .

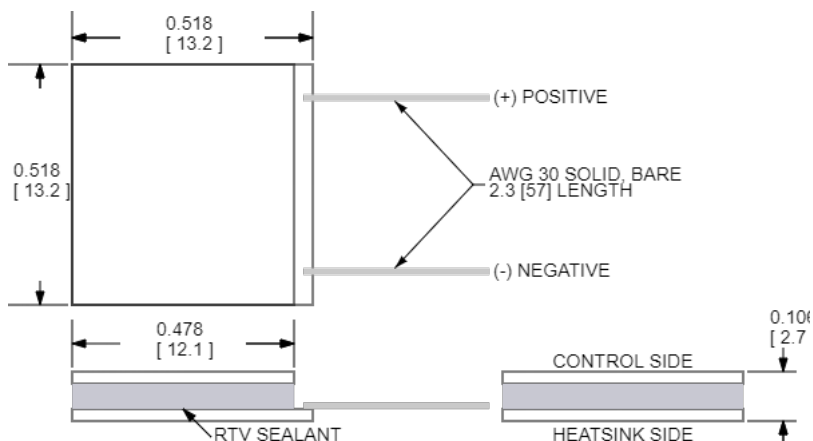


## Features

- 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

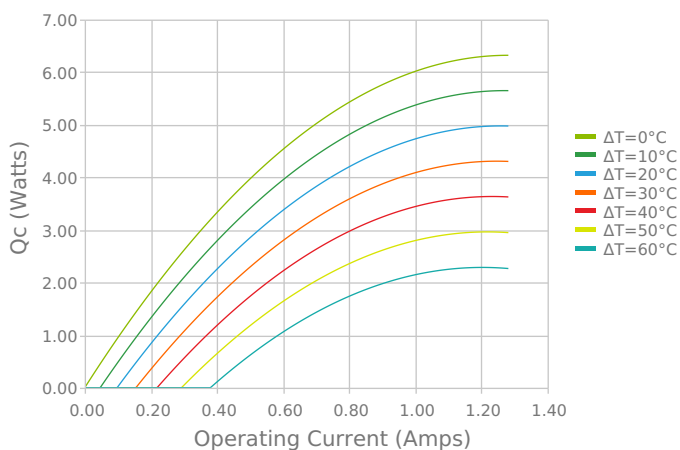
INCHES [MM]

Note: Allow 0.020 in [0.5 mm] around perimeter of the thermoelectric cooler and lead wire attachment to accommodate sealant

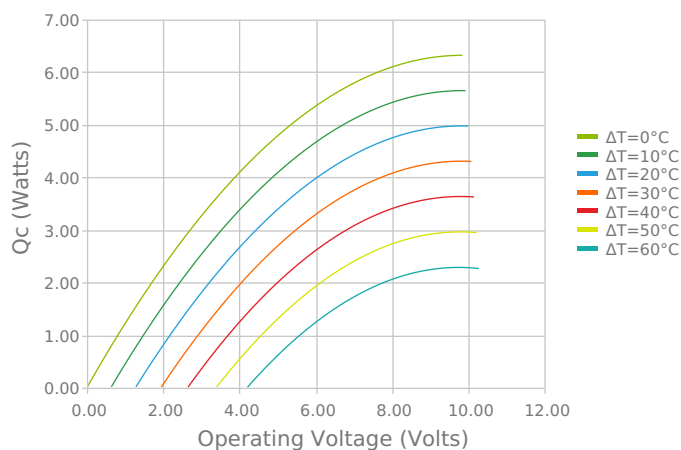
## ELECTRICAL AND THERMAL PERFORMANCE

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.

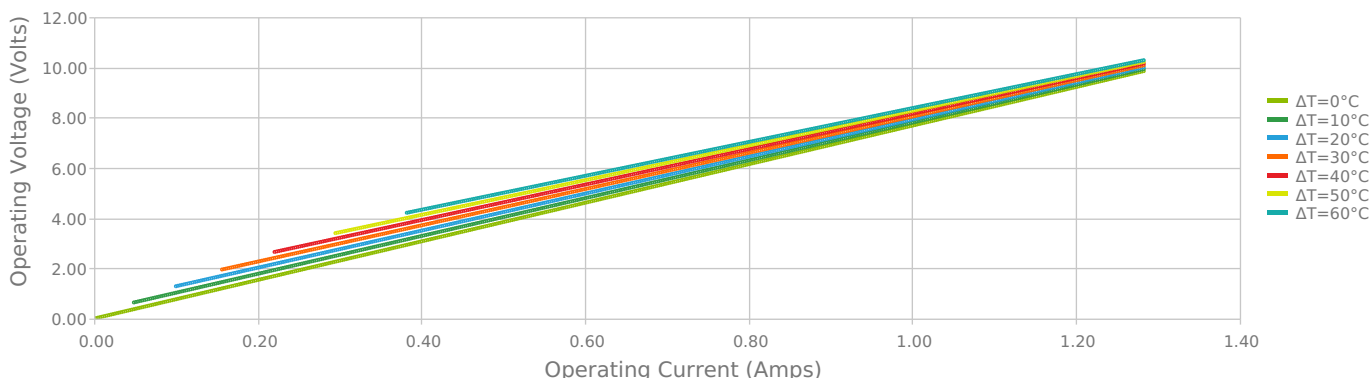
Heat Pumped at Cold Side  
 $T_{hot} = 85^\circ C$



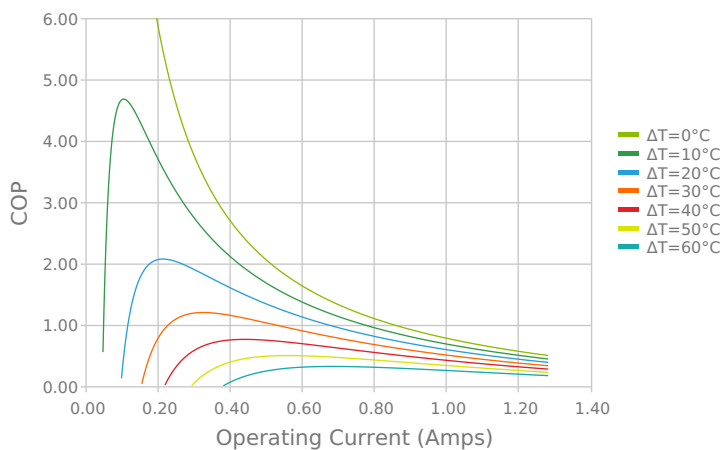
Heat Pumped at Cold Side  
 $T_{hot} = 85^\circ C$



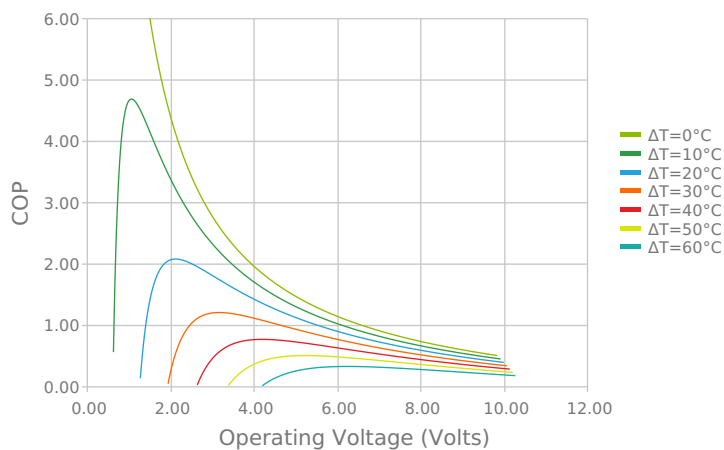
Current vs Voltage (I vs V)  
 $T_{hot} = 85^\circ C$



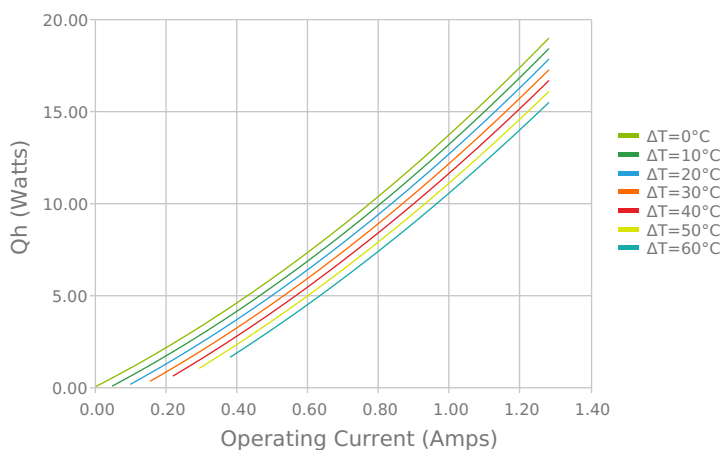
Coefficient of Performance (COP =  $Q_c/P_{in}$ )  
 $T_{hot} = 85\text{ }^{\circ}\text{C}$



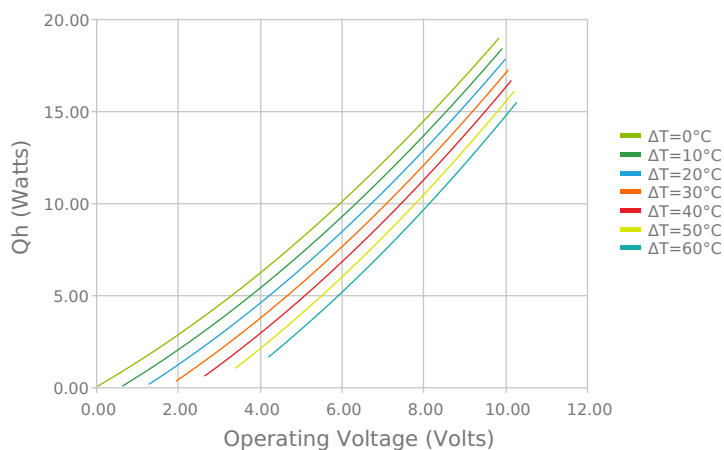
Coefficient of Performance (COP =  $Q_c/P_{in}$ )  
 $T_{hot} = 85\text{ }^{\circ}\text{C}$



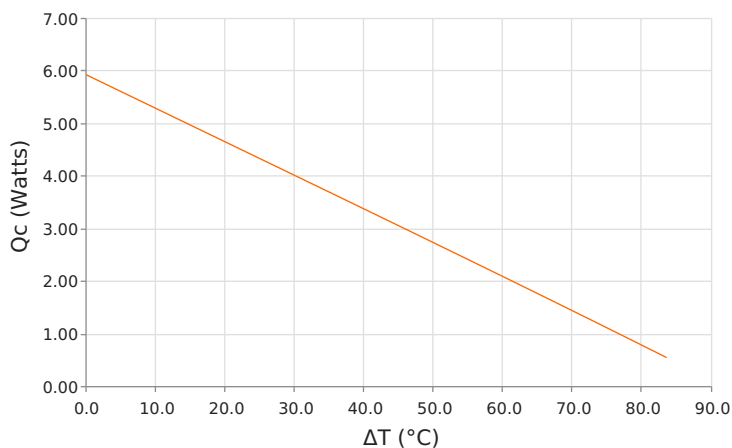
Total Heat Dissipated at Hot Side ( $Q_h = Q_c + P_{in}$ )  
 $T_{hot} = 85\text{ }^{\circ}\text{C}$



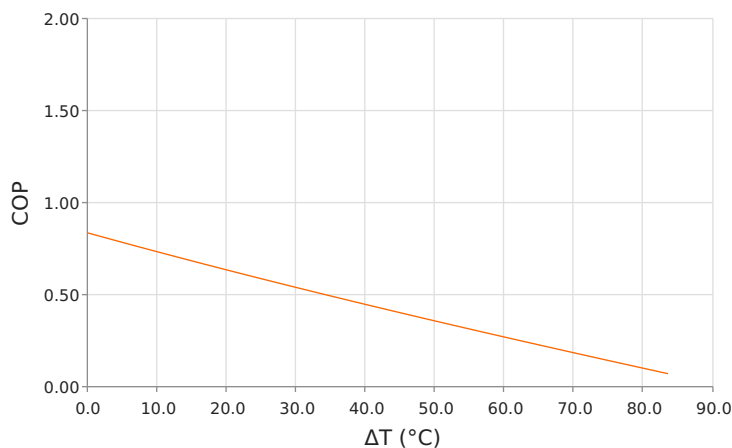
Total Heat Dissipated at Hot Side ( $Q_h = Q_c + P_{in}$ )  
 $T_{hot} = 85\text{ }^{\circ}\text{C}$



Heat Pumped at Cold Side ( $Q_c$ )  
 $T_{hot} = 85\text{ }^{\circ}\text{C}$  | Current = 1.0 Amps



Coefficient of Performance (COP =  $Q_c/P_{in}$ )  
 $T_{hot} = 85\text{ }^{\circ}\text{C}$  | Current = 1.0 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 ( $\Delta T = 0$ )	5.8 Watts	6.3 Watts	6.5 Watts
$\Delta T_{max}$ ( $Q_c = 0$ )	81.6°C	93.4°C	99.9°C
I <sub>max</sub> (I @ $\Delta T_{max}$ )	1.2 Amps	1.1 Amps	1.1 Amps
V <sub>max</sub> (V @ $\Delta T_{max}$ )	8.4 Volts	9.6 Volts	10.5 Volts
Module Resistance	6.58 Ohms	7.68 Ohms	8.40 Ohms
Max Operating Temperature	150 °C		
Weight	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 0.106 ± 0.0005 in	0.013 mm / 0.013 mm 0.0005 in / 0.0005 in	Lapped	Lapped	50.8 mm 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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