

## OptoTEC™ OT Series Thermoelectric Cooler

**Note: This product is not recommended for new designs.**

The recommended replacement is:

MFG Part Number: 387006904

Description: OTX20-12-F0-0406-22-W2.25

The OT20-12-F0-0406-22-W2.25 is a miniature thermoelectric cooler. The OT20-12-F0-0406-22-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 1.5 Watts when  $\Delta T = 0$  and a maximum  $\Delta T$  of 68 °C at Qc = 0.

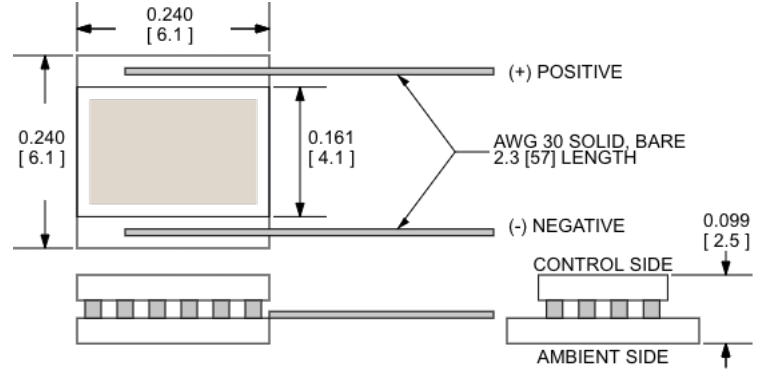


## Features

- Miniature geometric sizes
- Precise temperature control
- Reliable solid-state operation
- No sound or vibration
- DC operation
- RoHS-compliant

## Applications

- Thermoelectric Cooling for CMOS Sensors
- Cooling Solutions for Autonomous Systems



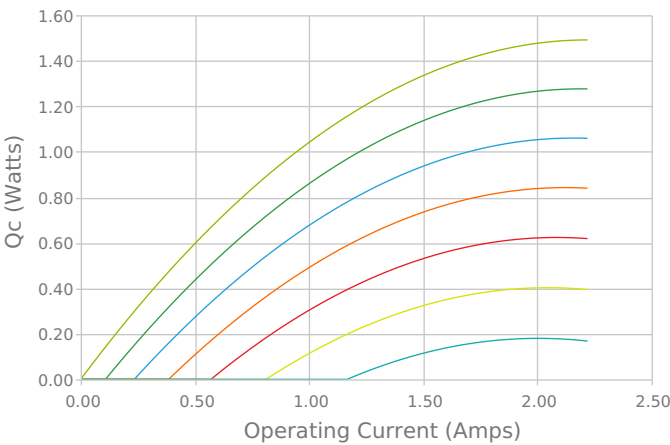
CERAMIC MATERIAL:  $Al_2O_3$   
SOLDER CONSTRUCTION: 138°C, BiSn

INCHES [ MM ]

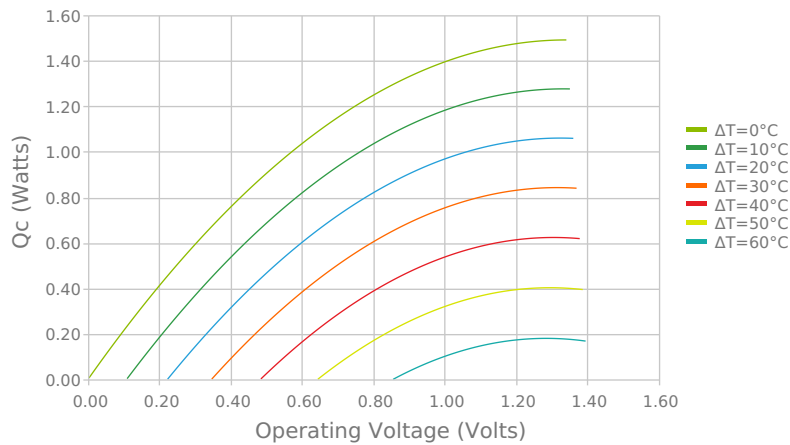
## Electrical and Thermal Performance

For maximum performance, be sure to orient the CONTROL side of the TEC against the application to be managed and the AMBIENT 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.

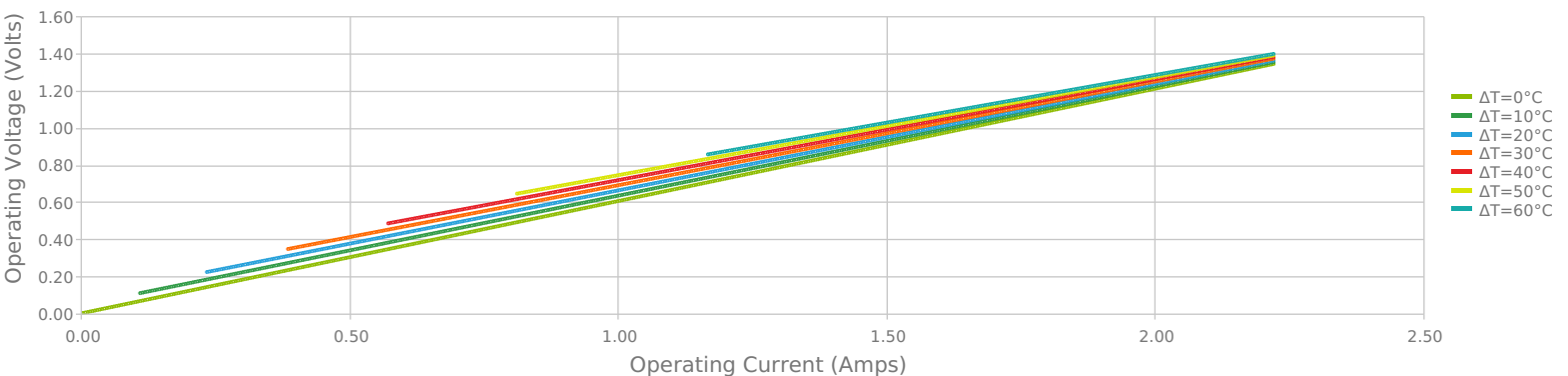
Heat Pumped at Cold Side  
Thot = 27 °C



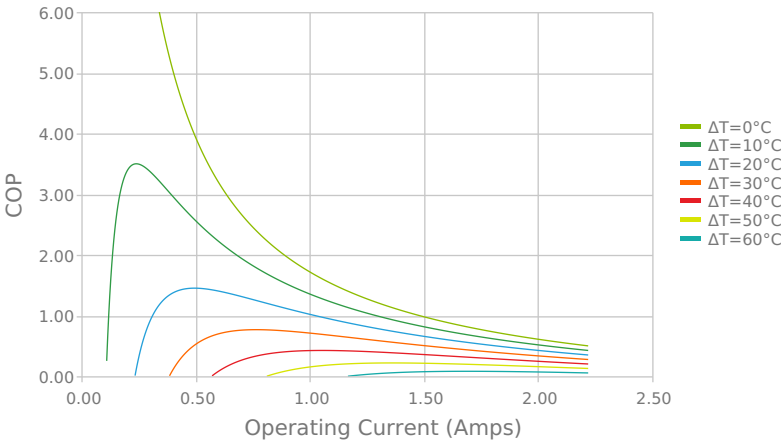
Heat Pumped at Cold Side  
Thot = 27 °C



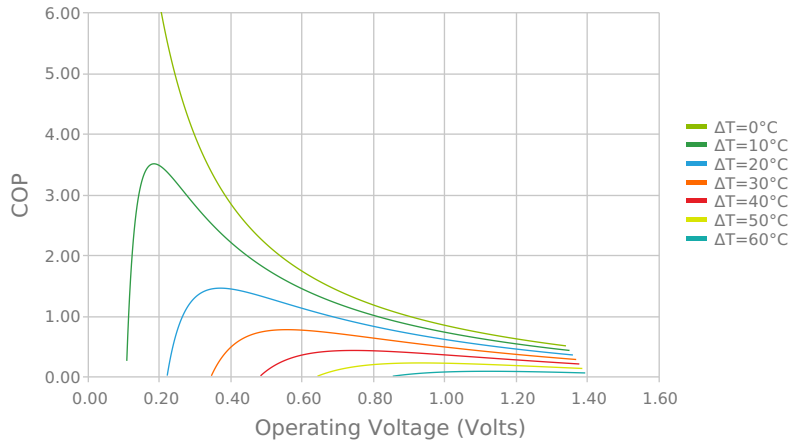
Current vs Voltage (I vs V)  
Thot = 27 °C



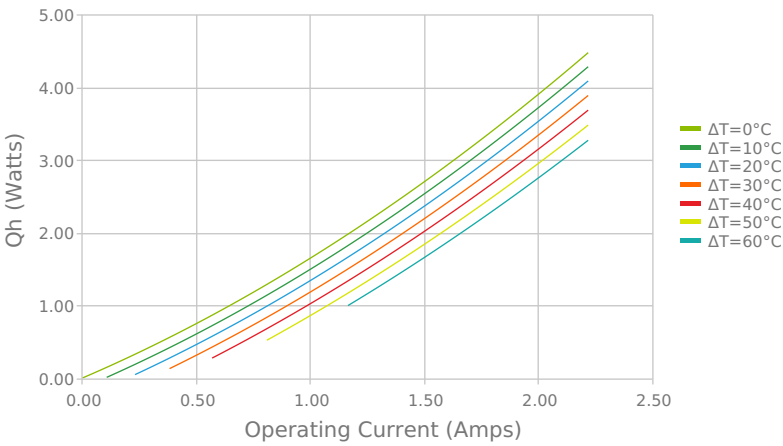
Coefficient of Performance (COP =  $Q_c/P_{in}$ )  
 $T_{hot} = 27\text{ }^{\circ}\text{C}$



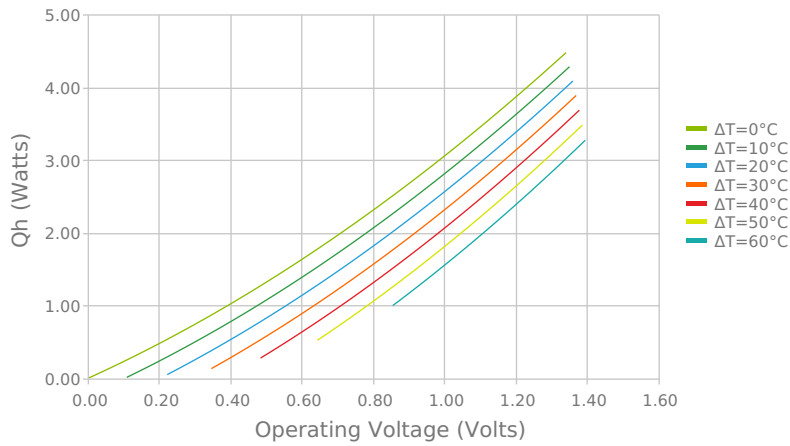
Coefficient of Performance (COP =  $Q_c/P_{in}$ )  
 $T_{hot} = 27\text{ }^{\circ}\text{C}$



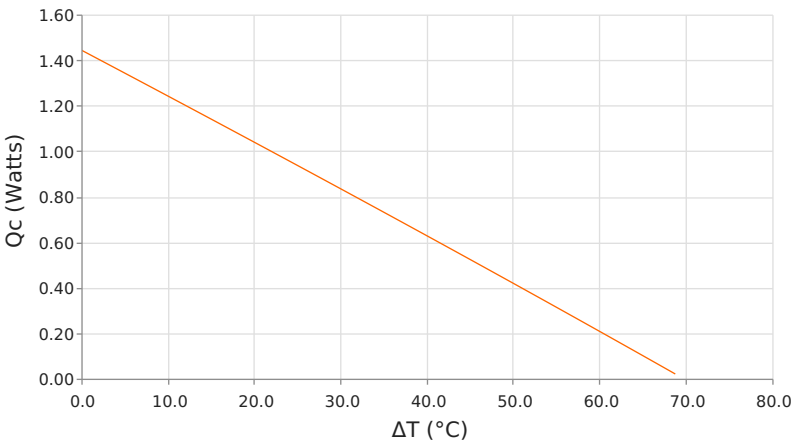
Total Heat Dissipated at Hot Side ( $Q_h = Q_c + P_{in}$ )  
 $T_{hot} = 27\text{ }^{\circ}\text{C}$



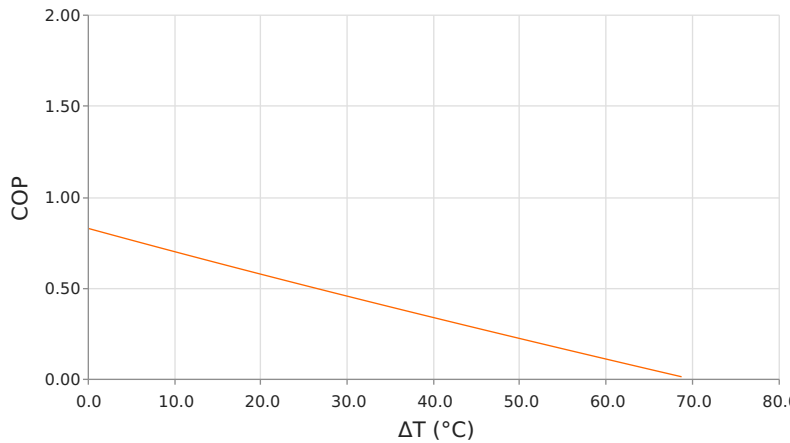
Total Heat Dissipated at Hot Side ( $Q_h = Q_c + P_{in}$ )  
 $T_{hot} = 27\text{ }^{\circ}\text{C}$



Heat Pumped at Cold Side ( $Q_c$ )  
 $T_{hot} = 35\text{ }^{\circ}\text{C}$  | operating = 1.7 Amps



Coefficient of Performance (COP =  $Q_c/P_{in}$ )  
 $T_{hot} = 35\text{ }^{\circ}\text{C}$  | operating = 1.7 Amps



Specifications

Hot Side Temperature	27.0 °C	35.0 °C	50.0 °C
Qcmax (ΔT = 0)	1.5 Watts	1.5 Watts	1.6 Watts
ΔTmax (Qc = 0)	68.0°C	70.9°C	76.0°C
Imax (I @ ΔTmax)	2.0 Amps	2.0 Amps	1.9 Amps
Vmax (V @ ΔTmax)	1.3 Volts	1.3 Volts	1.4 Volts
Module Resistance	0.60 Ohms	0.63 Ohms	0.68 Ohms
Max Operating Temperature	80 °C		
Weight	1.0 gram(s)		

Finishing Options

Suffix	Thickness	Flatness / Parallelism	Hot Face	Cold Face	Lead Length
22	2.515 ±0.127 mm 0.099 ± 0.0050 in	N/A / N/A	Pre-tinned	Pre-tinned	50.8 mm 2.00 in

Sealing Options

Suffix	Sealant	Color	Temp Range	Description
	None			No sealing specified

Notes

Max operating temperature: 80°C  
Do not exceed Imax or Vmax when operating module  
Reference assembly guidelines for recommended installation  
Solder tinning also available on metallized ceramics

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Revision: 00 Date: 06-01-2022

Print Date: 05-29-2025