

**Ceramic Plate Series Thermoelectric Cooler**

The CP14-199-045-L1-EP-W400MM is a high-performance and highly reliable standard Thermoelectric Cooler. Assembled with Bismuth Telluride semiconductor material and thermally conductive Aluminum Oxide ceramics. It has a maximum Qc of 111.8 Watts when  $\Delta T = 0$  and a maximum  $\Delta T$  of 70.5 °C at Qc = 0.

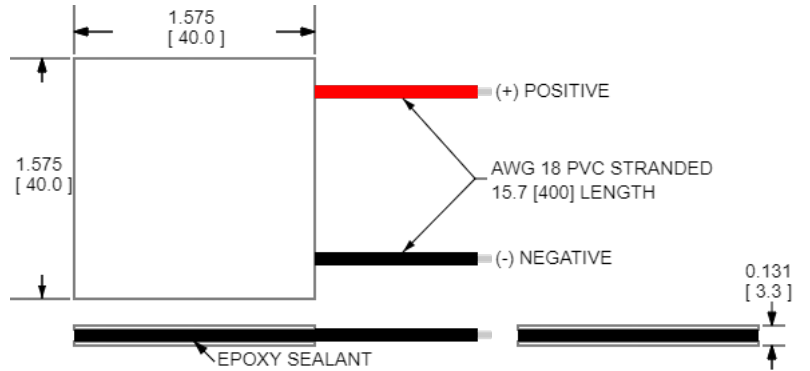


**Features**

- Compact geometric sizes
- DC Operation
- RoHS-compliant

**Applications**

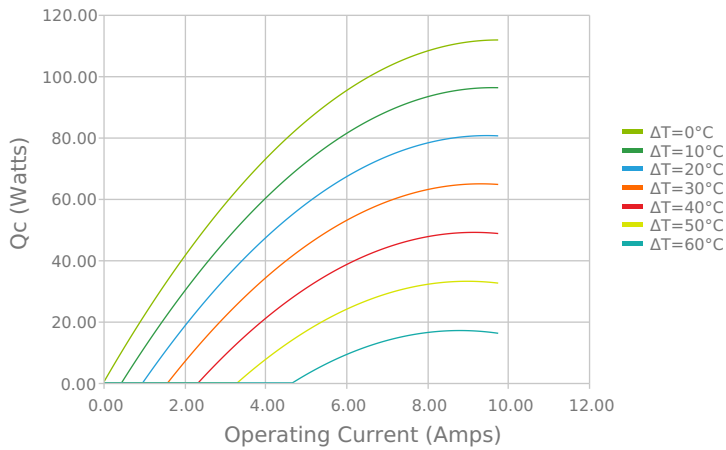
- Thermoelectric Coolers for Reagent Storage
- Thermoelectric Coolers for Handheld Cosmetic Lasers
- Cooling for Centrifuges
- Heads-Up Displays, Imaging Sensors
- Peltier Cooling for Machine Vision



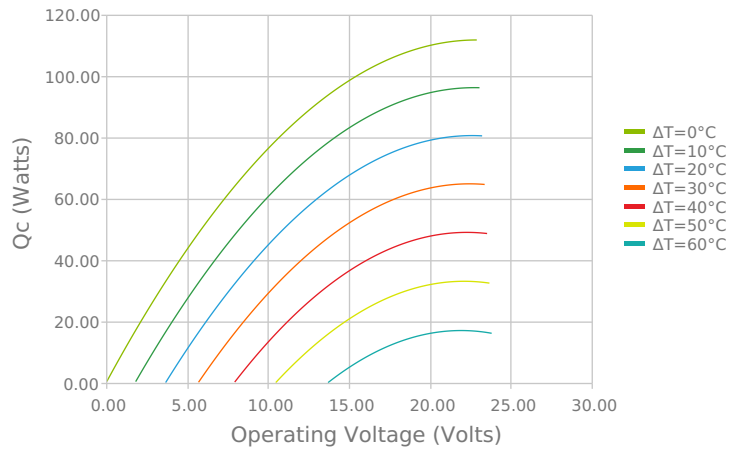
CERAMIC MATERIAL: Al<sub>2</sub>O<sub>3</sub>  
 SOLDER CONSTRUCTION: 138°C, BiSn  
 INCHES [ MM ]  
 Note: Allow 0.020 in [0.5 mm] around perimeter of the thermoelectric cooler and lead wire attachment to accommodate sealant

**ELECTRICAL AND THERMAL PERFORMANCE**

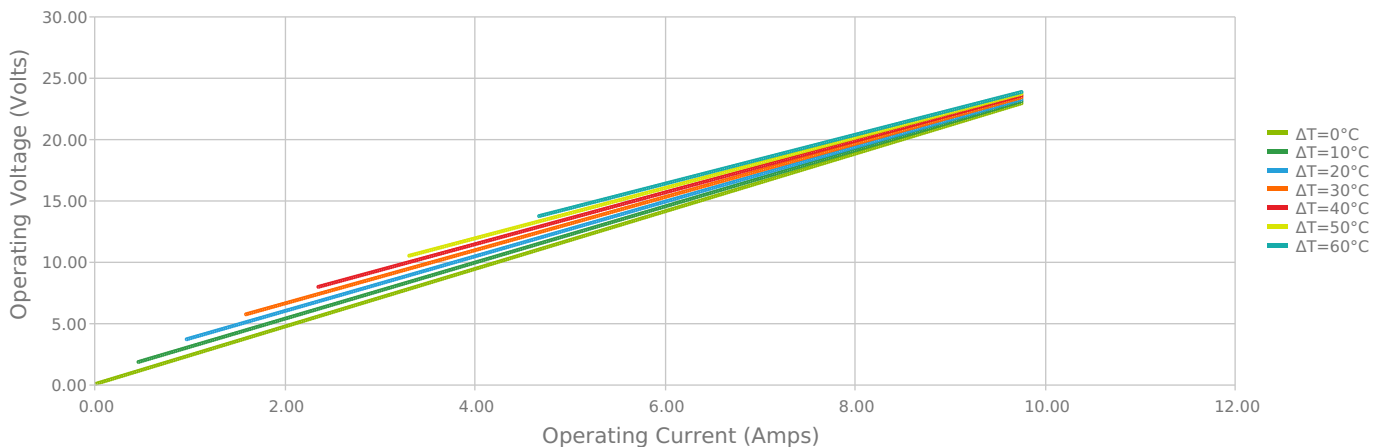
Heat Pumped at Cold Side  
 Thot = 27 °C



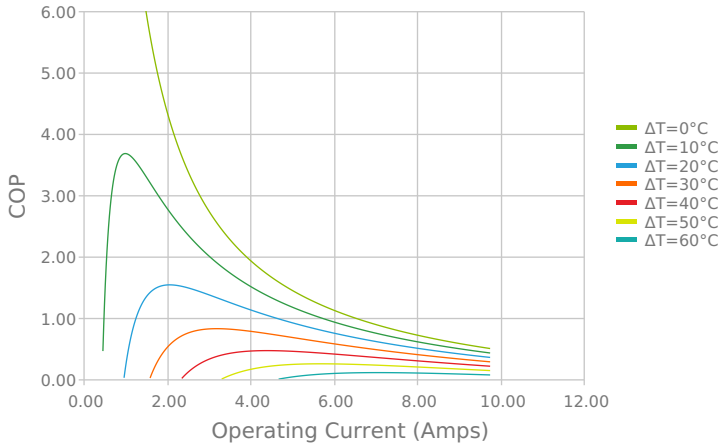
Heat Pumped at Cold Side  
 Thot = 27 °C



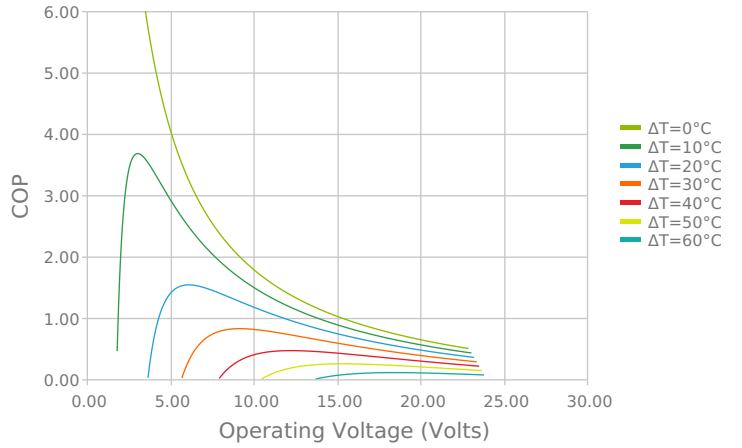
Current vs Voltage (I vs V)  
 Thot = 27 °C



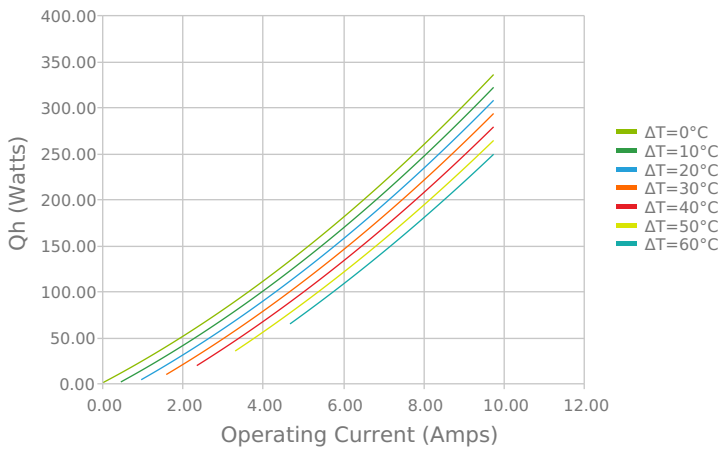
Coefficient of Performance (COP = Qc/Pin)  
 Thot = 27 °C



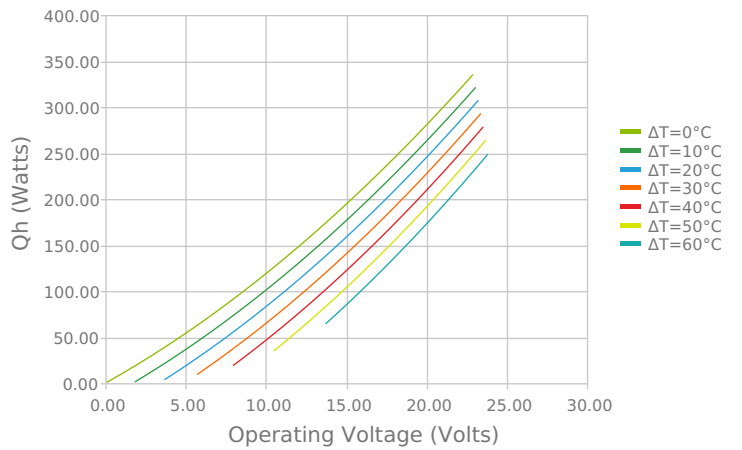
Coefficient of Performance (COP = Qc/Pin)  
 Thot = 27 °C



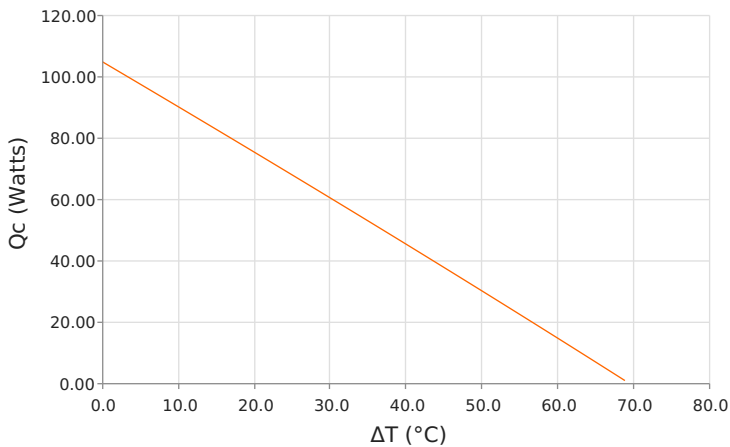
Total Heat Dissipated at Hot Side (Qh=Qc+Pin)  
 Thot = 27 °C



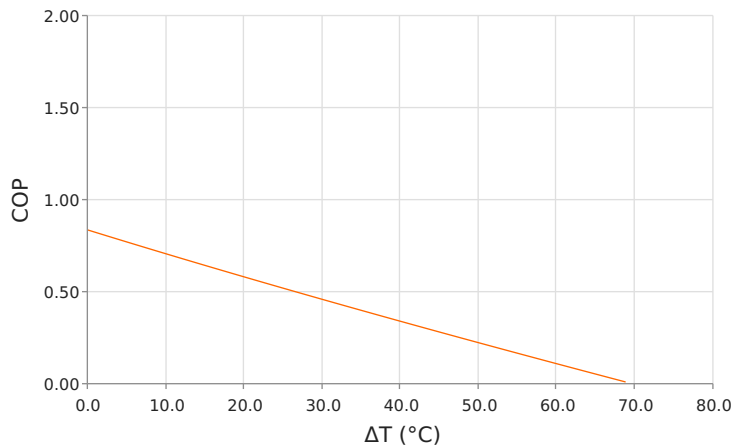
Total Heat Dissipated at Hot Side (Qh=Qc+Pin)  
 Thot = 27 °C



Heat Pumped at Cold Side (Qc)  
 Thot = 27 °C | Current = 7.3 Amps



Coefficient of Performance (COP = Qc/Pin)  
 Thot = 27 °C | Current = 7.3 Amps



## SPECIFICATIONS\*

Hot Side Temperature	27.0 °C	35.0 °C	50.0 °C
<b>Qcmax (<math>\Delta T = 0</math>)</b>	111.8 Watts	115.2 Watts	121.2 Watts
<b><math>\Delta T_{max}</math> (<math>Q_c = 0</math>)</b>	70.5°C	73.5°C	78.8°C
<b>I<sub>max</sub> (I @ <math>\Delta T_{max}</math>)</b>	8.6 Amps	8.6 Amps	8.5 Amps
<b>V<sub>max</sub> (V @ <math>\Delta T_{max}</math>)</b>	21.7 Volts	22.6 Volts	24.1 Volts
<b>Module Resistance</b>	2.35 Ohms	2.44 Ohms	2.63 Ohms
<b>Max Operating Temperature</b>	80 °C		
<b>Weight</b>	25.0 gram(s)		

\* Specifications reflect thermoelectric coefficients updated March 2020

## FINISHING OPTIONS

Suffix	Thickness	Flatness / Parallelism	Hot Face	Cold Face	Lead Length
L1	3.327 ± 0.025 mm 0.131 ± 0.0010 in	0.025 mm / 0.025 mm 0.001 in / 0.001 in	Lapped	Lapped	114.3 mm 4.50 in

## SEALING OPTIONS

Suffix	Sealant	Color	Temp Range	Description
EP	Epoxy	Black	-55 to 150°C	Low density syntactic foam epoxy encapsulant

## NOTES

1. Max operating temperature: 80°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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