

**Ceramic Plate Series Thermoelectric Cooler**

The CP2-127-06-L2-EP-W4.5 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  $Q_c$  of 117.8 Watts when  $\Delta T = 0$  and a maximum  $\Delta T$  of 70.5 °C at  $Q_c = 0$ .

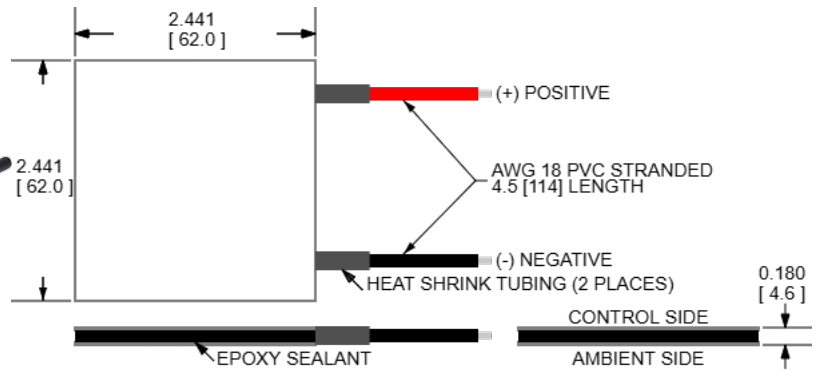


**Features**

- Compact geometric sizes
- DC Operation
- RoHS-compliant

**Applications**

- Thermoelectric Coolers for Reagent Storage
- Thermoelectric Coolers for Handheld Cosmetic Lasers
- Cooling for Centrifuges
- Peltier Cooling for Machine Vision



CERAMIC MATERIAL:  $Al_2O_3$

SOLDER CONSTRUCTION: 138°C, BiSn

INCHES [MM]

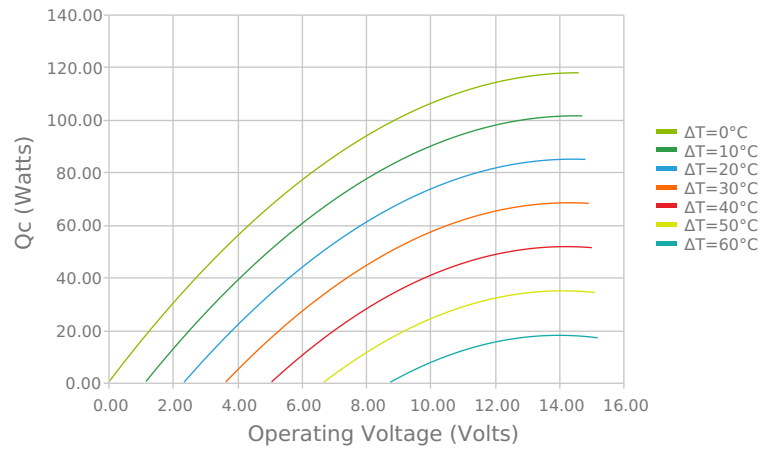
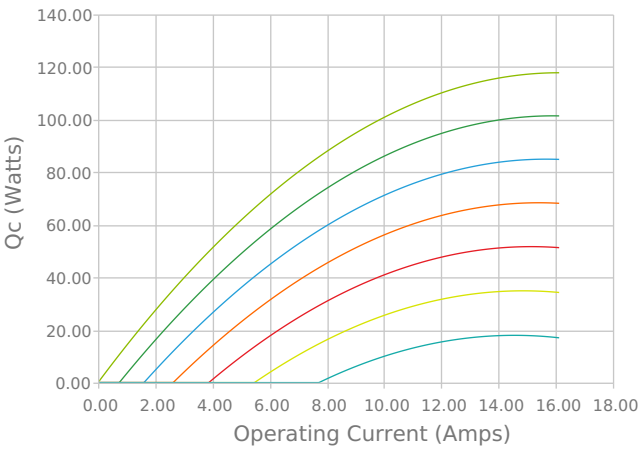
Note: Allow 0.020 in [0.5 mm] around perimeter of the thermoelectric cooler and lead wire attachment to accommodate sealant

**Electrical and Thermal Performance**

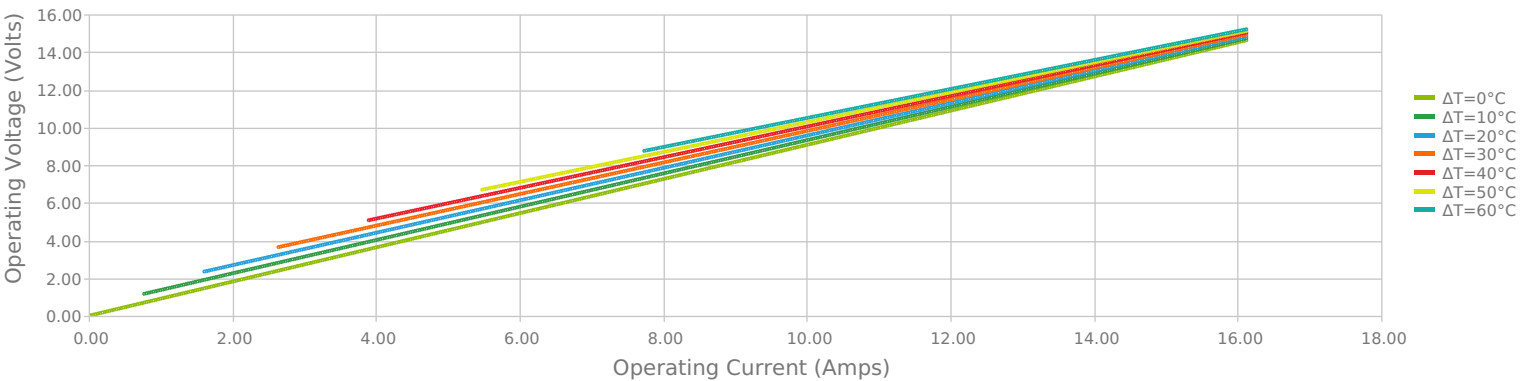
For maximum performance, be sure to orient the CONTROL side of the TEC against the application to be managed and the AMBIENT side against the heat sink or other heat rejection method. The CONTROL side is always opposite the side with lead attachments. Lead attachment is a passive heat loss and less impactful if located on the side that attaches to the heat exchanger.

Heat Pumped at Cold Side  
 $Thot = 27\text{ °C}$

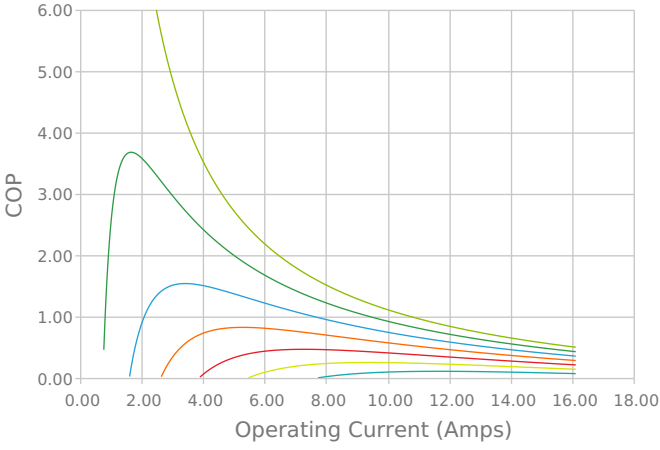
Heat Pumped at Cold Side  
 $Thot = 27\text{ °C}$



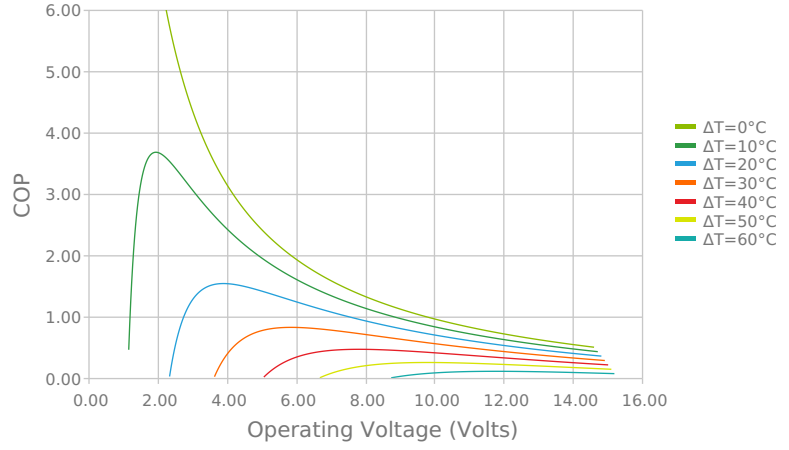
Current vs Voltage (I vs V)  
 $Thot = 27\text{ °C}$



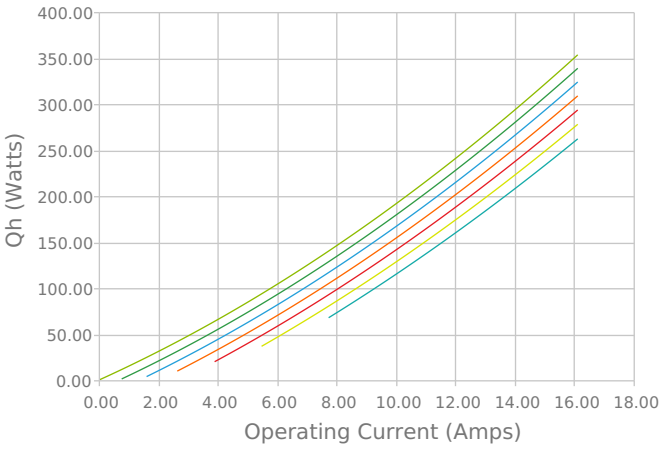
Coefficient of Performance (COP = Qc/Pin)  
Thot = 27 °C



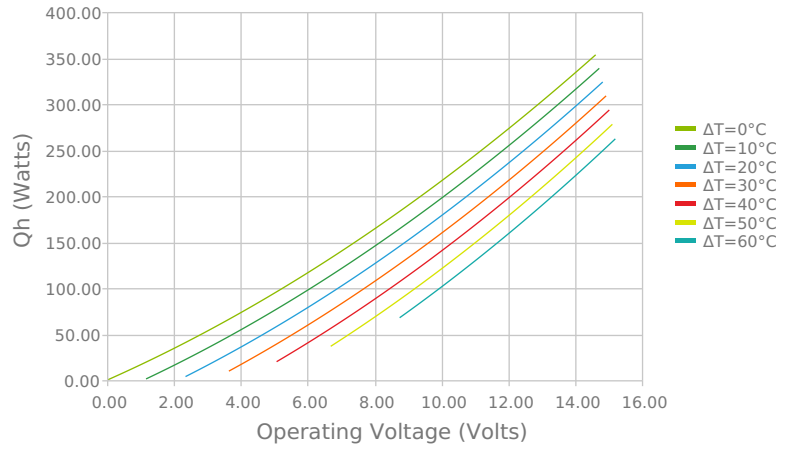
Coefficient of Performance (COP = Qc/Pin)  
Thot = 27 °C



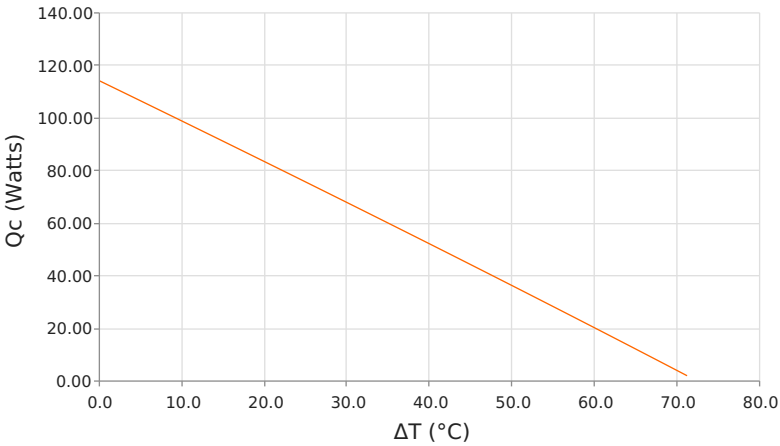
Total Heat Dissipated at Hot Side (Qh=Qc+Pin)  
Thot = 27 °C



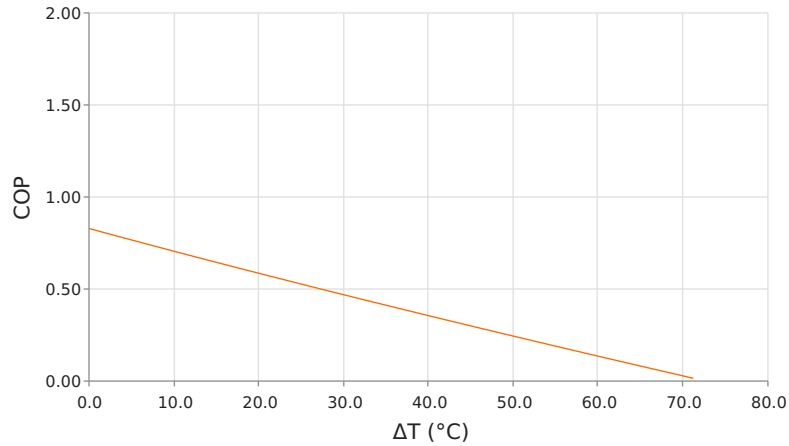
Total Heat Dissipated at Hot Side (Qh=Qc+Pin)  
Thot = 27 °C



Heat Pumped at Cold Side (Qc)  
Thot = 35 °C | Ioperating = 12.1 Amps



Coefficient of Performance (COP = Qc/Pin)  
Thot = 35 °C | Ioperating = 12.1 Amps



## Specifications

|   |                |                |                |
|---|----------------|----------------|----------------|
| <b>Hot Side Temperature</b>                               | <b>27.0 °C</b> | <b>35.0 °C</b> | <b>50.0 °C</b> |
| <b>Qcmax (<math>\Delta T = 0</math>)</b>                  | 117.8 Watts    | 121.4 Watts    | 127.7 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>  | 14.2 Amps      | 14.2 Amps      | 14.0 Amps      |
| <b>V<sub>max</sub> (V @ <math>\Delta T_{max}</math>)</b>  | 13.9 Volts     | 14.4 Volts     | 15.4 Volts     |
| <b>Module Resistance</b>                                  | 0.91 Ohms      | 0.94 Ohms      | 1.02 Ohms      |
| <b>Max Operating Temperature</b>                          | 80 °C          |                |                |
| <b>Weight</b>   | 68.0 gram(s)   |                |                |

## Finishing Options

| Suffix | Thickness                            | Flatness / Parallelism                       | Hot Face | Cold Face | Lead Length         |
|--------|--------------------------------------|--|----------|-----------|---------------------|
| L2     | 4.572 ±0.013 mm<br>0.180 ± 0.0005 in | 0.013 mm / 0.013 mm<br>0.0005 in / 0.0005 in | Lapped   | Lapped    | 114.3 mm<br>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

Max operating temperature: 80°C  
Do not exceed I<sub>max</sub> or V<sub>max</sub> when operating module  
Reference assembly guidelines for recommended installation  
Solder tinning also available on metallized ceramics

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