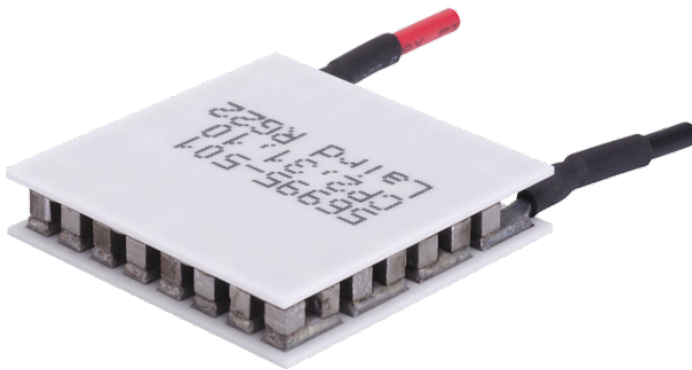


### Ceramic Plate Series Thermoelectric Cooler

The CP2-31-10-L2-RT-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 18.8 Watts when  $\Delta T = 0$  and a maximum  $\Delta T$  of 70.5 °C at  $Q_c = 0$ .

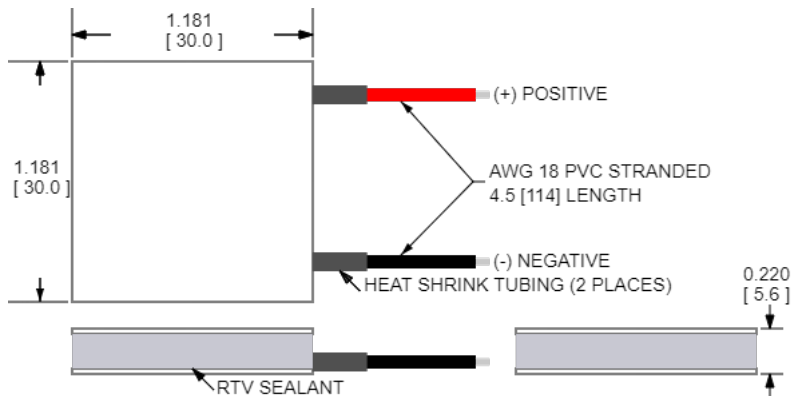


### Features

- Compact geometric sizes
- DC Operation
- RoHS-compliant

### Applications

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



CERAMIC MATERIAL:  $Al_2O_3$

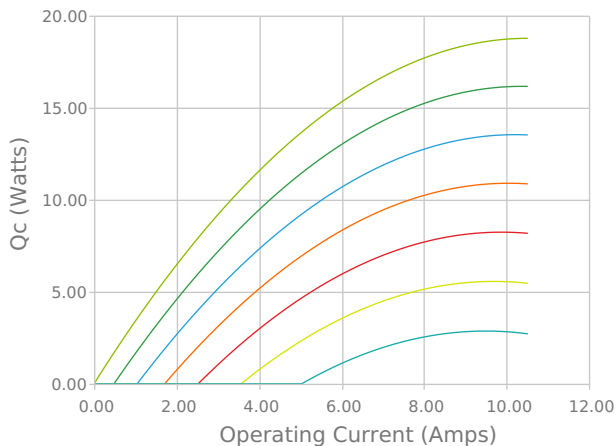
SOLDER CONSTRUCTION: 138°C, BiSn

INCHES [MM]

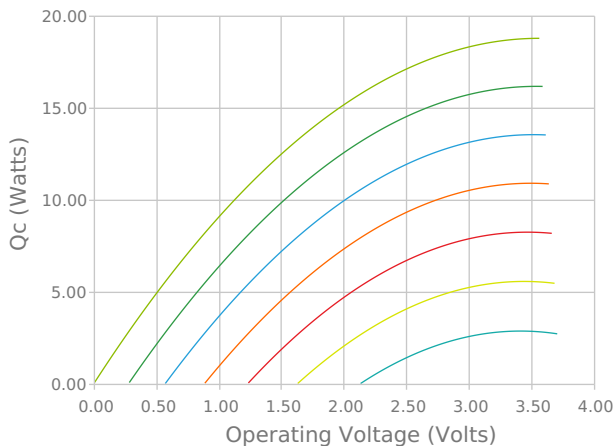
Note: Allow 0.020 in [0.5 mm] around perimeter of the thermoelectric cooler and lead wire attachment to accommodate sealant

## ELECTRICAL AND THERMAL PERFORMANCE

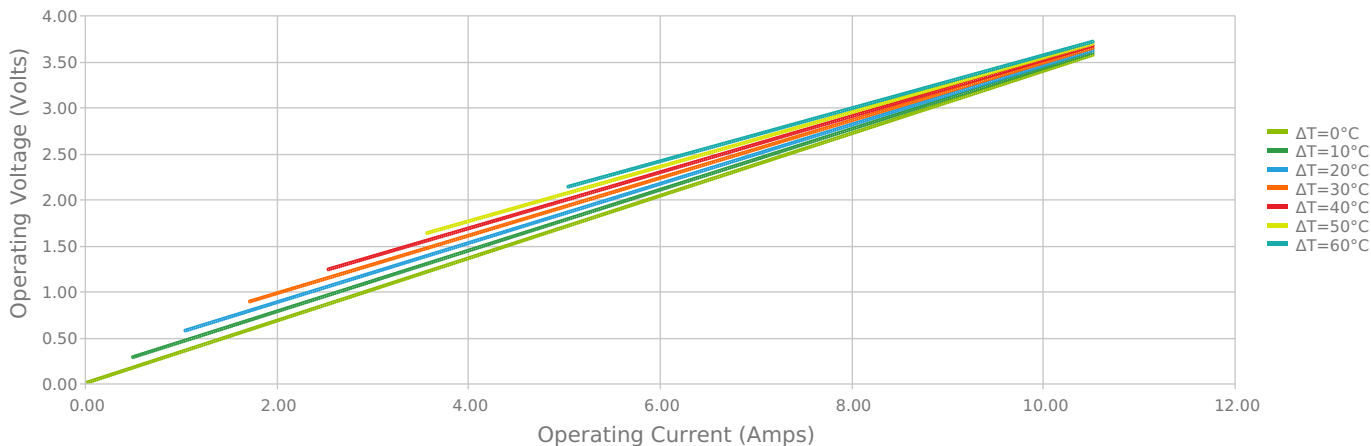
Heat Pumped at Cold Side  
 $T_{hot} = 27\text{ °C}$



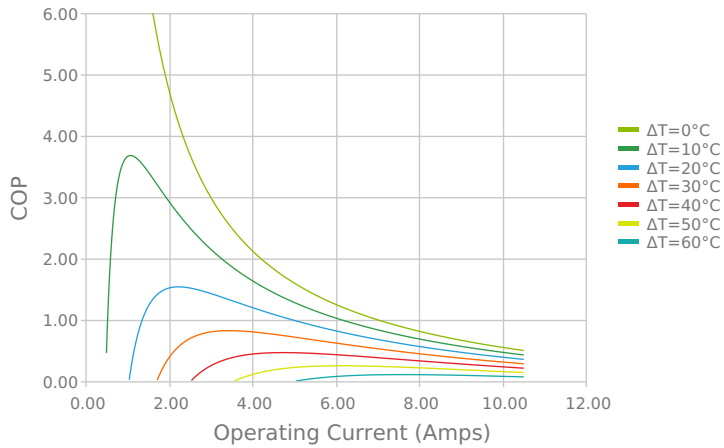
Heat Pumped at Cold Side  
 $T_{hot} = 27\text{ °C}$



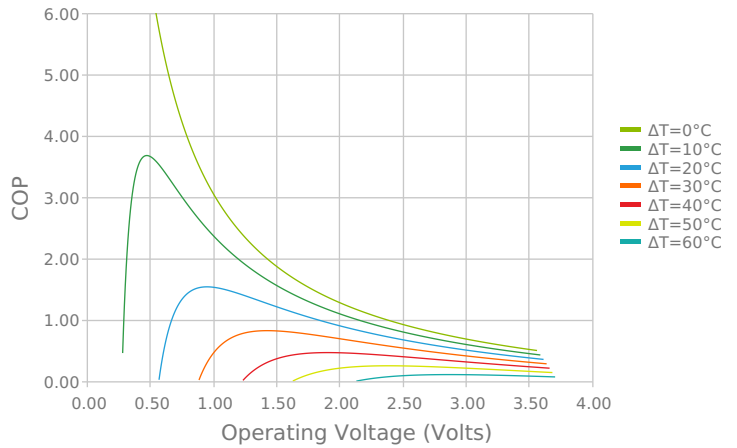
Current vs Voltage (I vs V)  
 $T_{hot} = 27\text{ °C}$



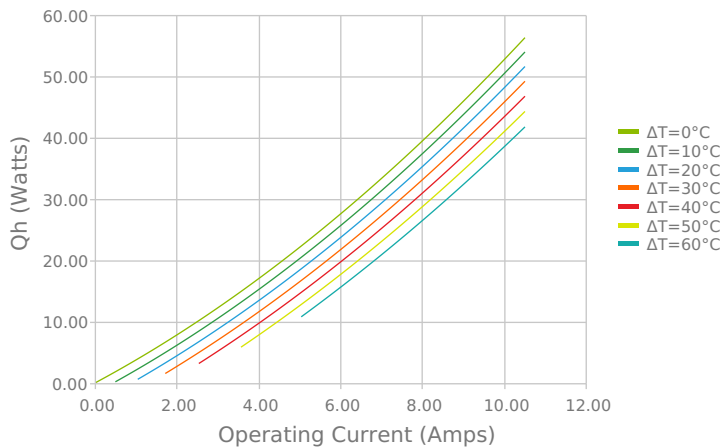
Coefficient of Performance (COP =  $Q_c/P_{in}$ )  
 $T_{hot} = 27\text{ }^{\circ}\text{C}$



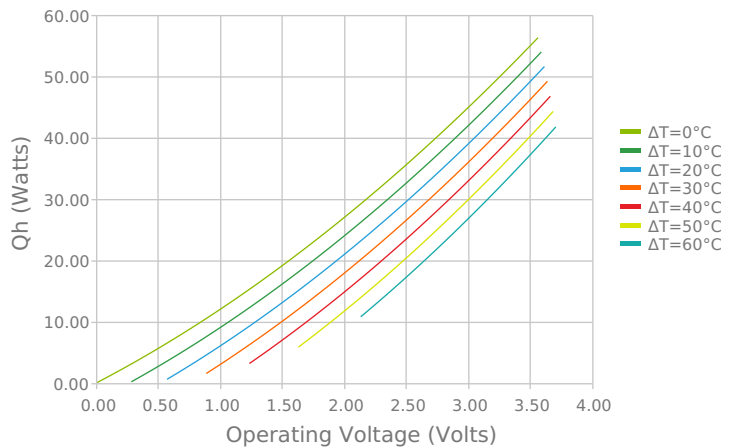
Coefficient of Performance (COP =  $Q_c/P_{in}$ )  
 $T_{hot} = 27\text{ }^{\circ}\text{C}$



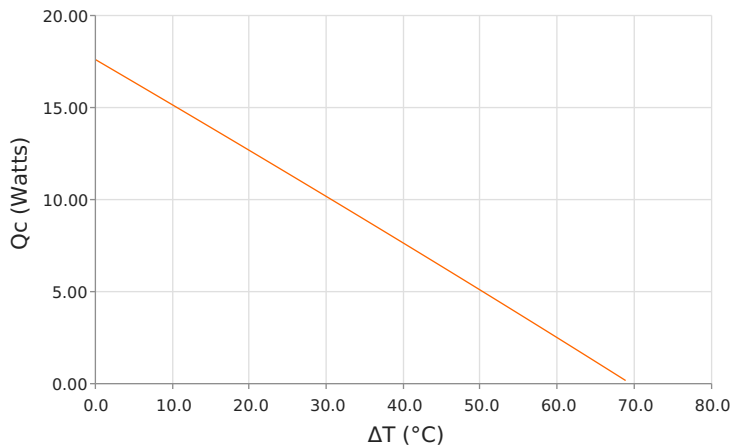
Total Heat Dissipated at Hot Side ( $Q_h = Q_c + P_{in}$ )  
 $T_{hot} = 27\text{ }^{\circ}\text{C}$



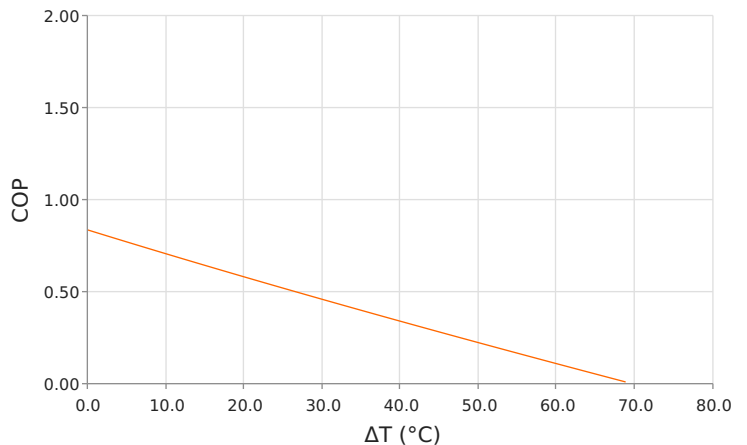
Total Heat Dissipated at Hot Side ( $Q_h = Q_c + P_{in}$ )  
 $T_{hot} = 27\text{ }^{\circ}\text{C}$



Heat Pumped at Cold Side ( $Q_c$ )  
 $T_{hot} = 27\text{ }^{\circ}\text{C}$  | Current = 7.9 Amps



Coefficient of Performance (COP =  $Q_c/P_{in}$ )  
 $T_{hot} = 27\text{ }^{\circ}\text{C}$  | Current = 7.9 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

	27.0 °C	35.0 °C	50.0 °C
Qcmax ( $\Delta T = 0$ )	18.8 Watts	19.3 Watts	20.3 Watts
$\Delta T_{max}$ ( $Q_c = 0$ )	70.5°C	73.5°C	78.8°C
I <sub>max</sub> (I @ $\Delta T_{max}$ )	9.3 Amps	9.2 Amps	9.1 Amps
V <sub>max</sub> (V @ $\Delta T_{max}$ )	3.4 Volts	3.5 Volts	3.8 Volts
Module Resistance	0.34 Ohms	0.35 Ohms	0.38 Ohms
Max Operating Temperature	80 °C		
Weight	20.0 gram(s)		

\* Specifications reflect thermoelectric coefficients updated March 2020

## FINISHING OPTIONS

Suffix	Thickness	Flatness / Parallelism	Hot Face	Cold Face	Lead Length
L2	5.588 ±0.013 mm 0.220 ± 0.0005 in	0.013 mm / 0.013 mm 0.0005 in / 0.0005 in	Lapped	Lapped	114.3 mm 4.50 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: 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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Date: 12/14/2021

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