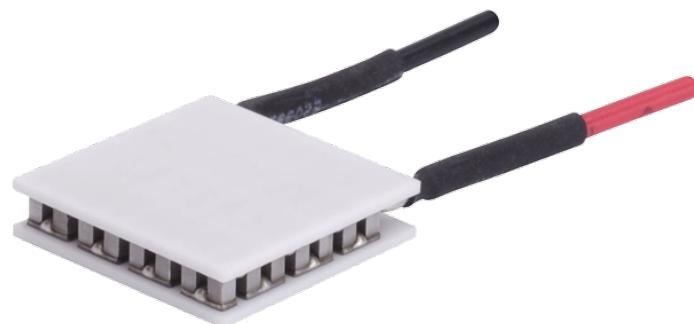


Ceramic Plate Series Thermoelectric Cooler

The CP10-31-05-L-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 8.1 Watts when $\Delta T = 0$ and a maximum ΔT of 70.5 °C at $Q_c = 0$.

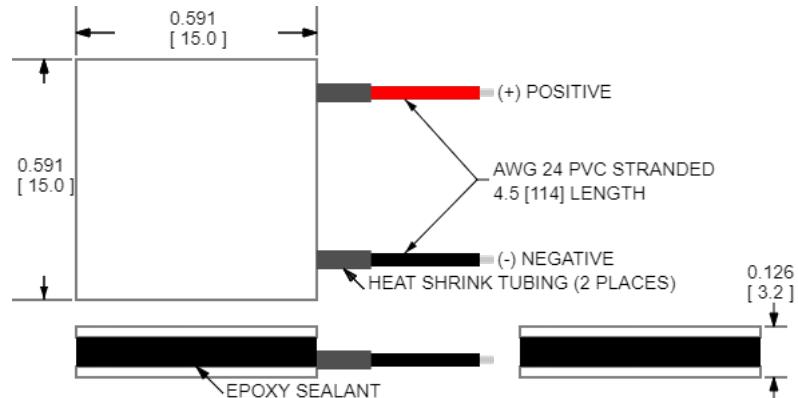


Features

- 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

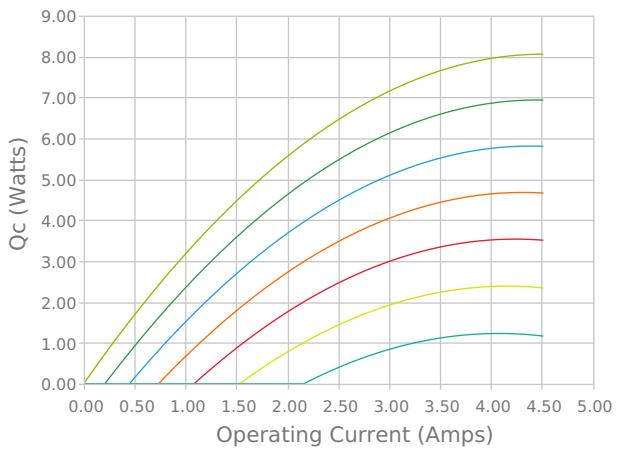
SOLDER CONSTRUCTION: 138°C, BiSn

INCHES [MM]

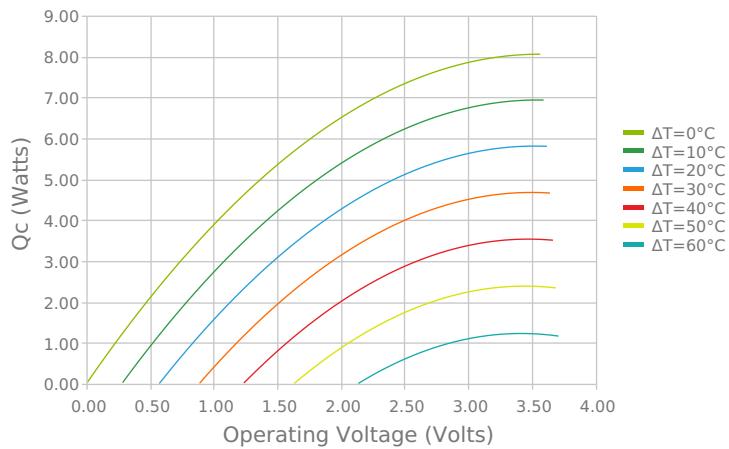
Note: Allow 0.020 in [0.5 mm] around perimeter of the thermoelectric cooler and lead wire attachment to accommodate sealant

ELECTRICAL AND THERMAL PERFORMANCE

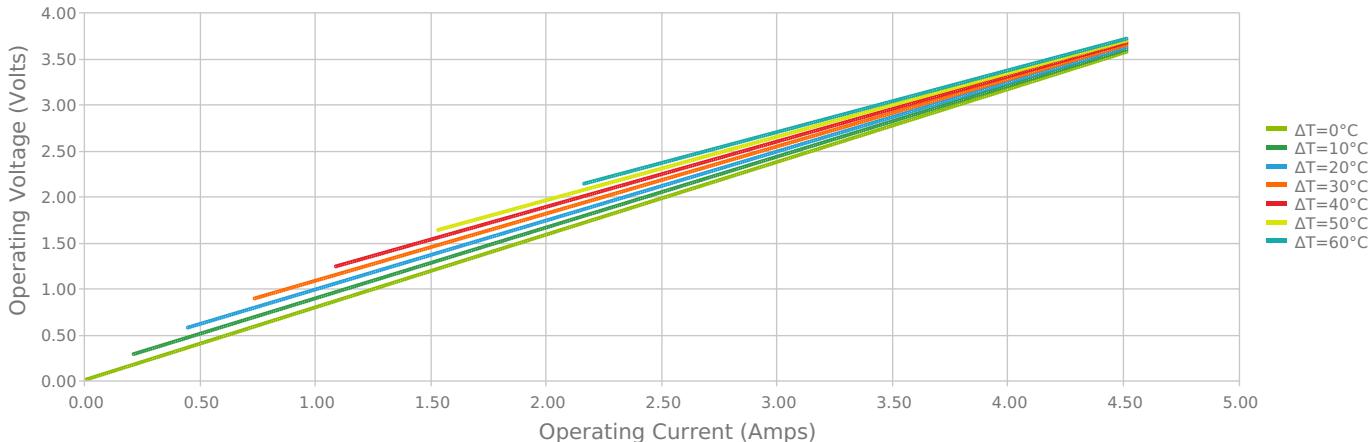
Heat Pumped at Cold Side
 $T_{\text{hot}} = 27^\circ\text{C}$

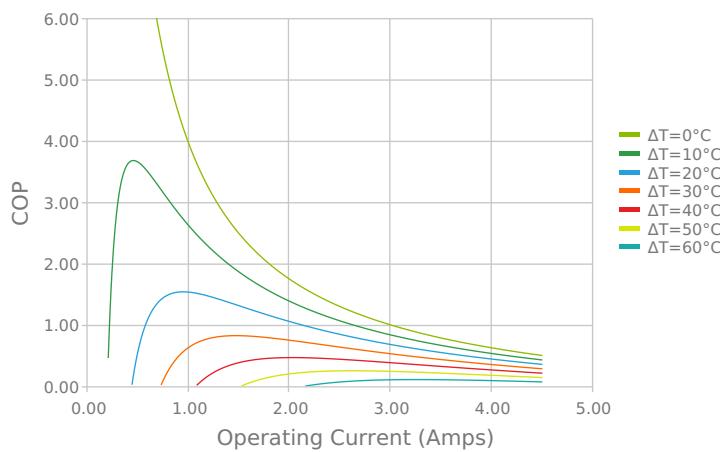
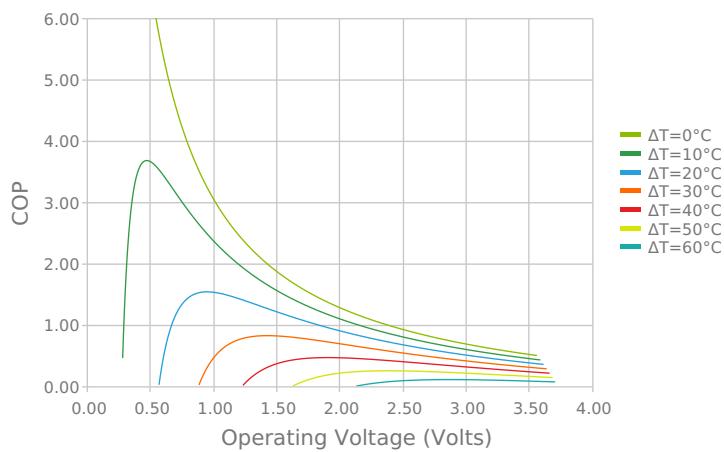
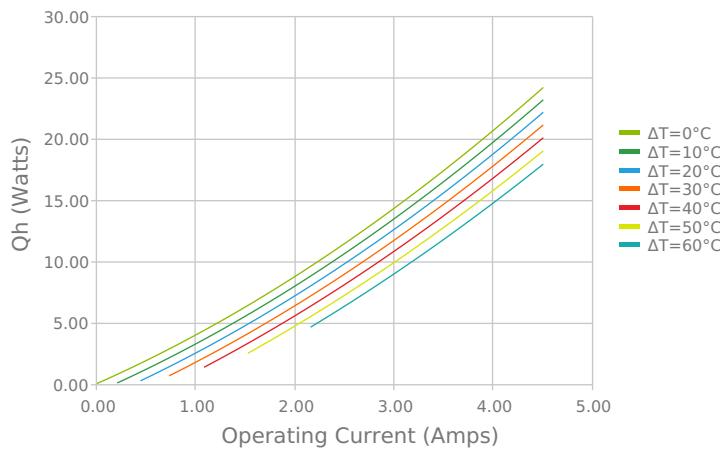
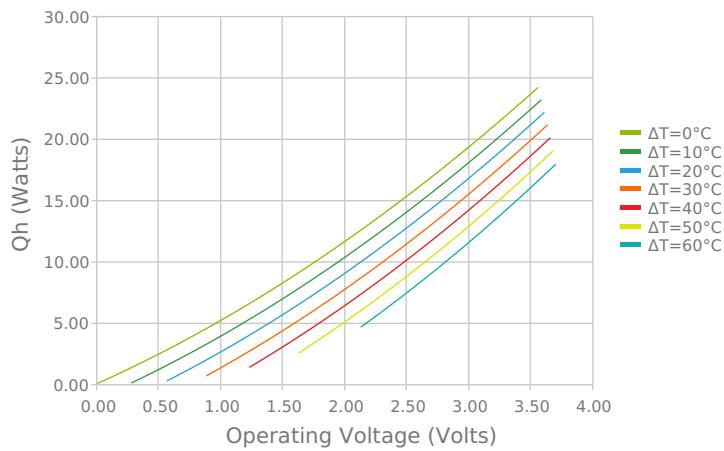
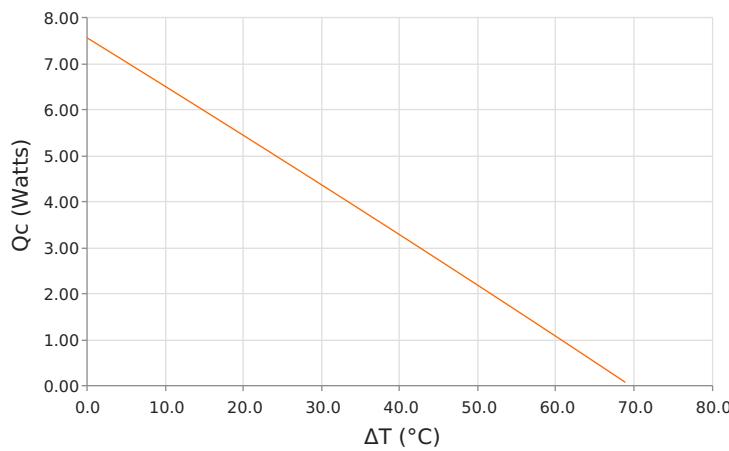
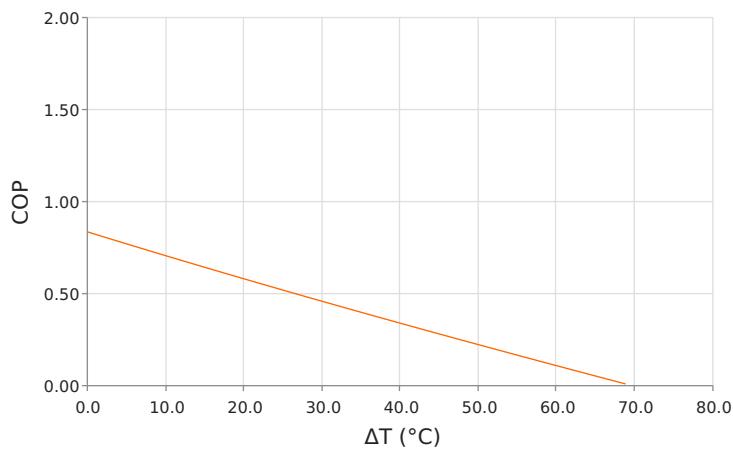


Heat Pumped at Cold Side
 $T_{\text{hot}} = 27^\circ\text{C}$



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



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

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

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

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

 Heat Pumped at Cold Side (Q_c)
 $T_{hot} = 27^\circ C$ | Current = 3.4 Amps

 Coefficient of Performance (COP = Q_c/P_{in})
 $T_{hot} = 27^\circ C$ | Current = 3.4 Amps


SPECIFICATIONS*

	27.0 °C	35.0 °C	50.0 °C
Qcmax (ΔT = 0)	8.1 Watts	8.3 Watts	8.7 Watts
ΔTmax (Qc = 0)	70.5°C	73.5°C	78.8°C
I_{max} (I @ ΔT_{max})	4.0 Amps	4.0 Amps	3.9 Amps
V_{max} (V @ ΔT_{max})	3.4 Volts	3.5 Volts	3.8 Volts
Module Resistance	0.79 Ohms	0.82 Ohms	0.88 Ohms
Max Operating Temperature	80 °C		
Weight	3.0 gram(s)		

* Specifications reflect thermoelectric coefficients updated March 2020

FINISHING OPTIONS

Suffix	Thickness	Flatness / Parallelism	Hot Face	Cold Face	Lead Length
L	3.200 ± 0.254 mm 0.126 ± 0.0100 in	0.004 mm / 0.004 mm 0.00015 in / 0.00015 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_{max} or V_{max} when operating module
3. Reference assembly guidelines for recommended installation
4. Solder tinning also available on metallized ceramics

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Date: 12/13/2021