Ceramic Plate Series CP10-71-05-L1-EP-W4.5
MFG Part Number: 430252-512

Ceramic Plate Series Thermoelectric Cooler

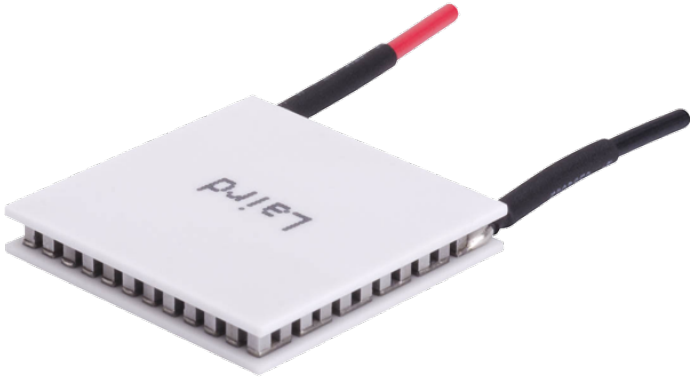
The CP10-71-05-L1-EP-W4.5 is a high-performance and highly reliable standard Thermoelectric Cooler. Assembled with Bismuth Telluride semiconductor material and thermally conductive Aluminum Oxide ceramics. It has a maximum Qc of 18.5 Watts when ΔT = 0 and a maximum ΔT of 70.5 °C at Qc = 0.

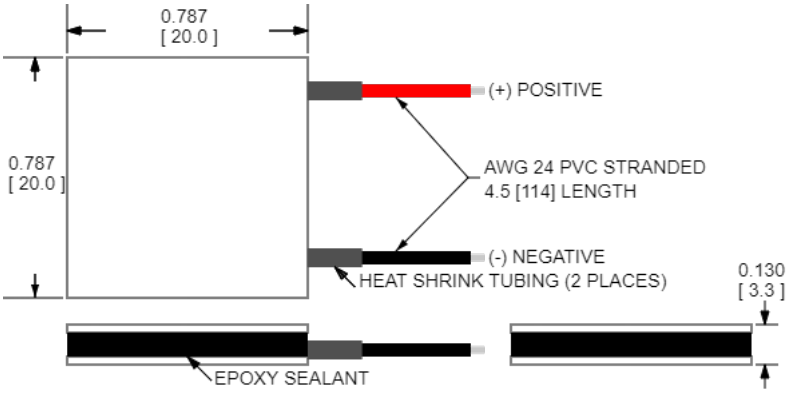
Features

- Compact geometric sizes
- DC Operation
- RoHS-compliant

Applications

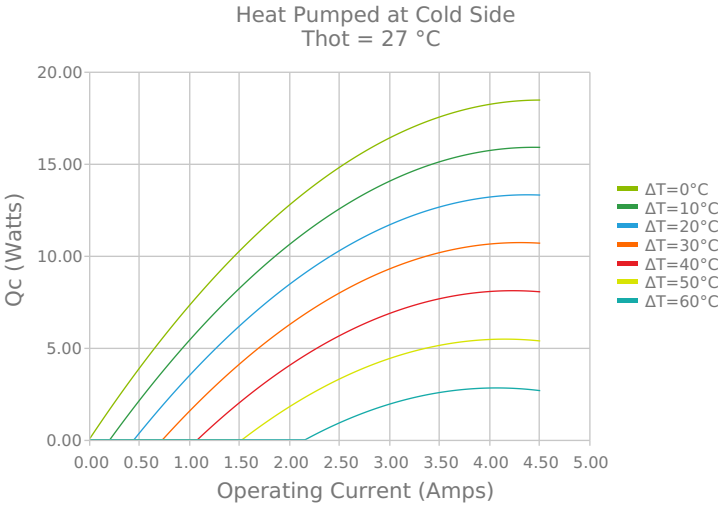
- Thermoelectric Coolers for Reagent Storage
- Thermoelectric Coolers for Handheld Cosmetic Lasers
- Cooling for Centrifuges
- Heads-Up Displays, Imaging Sensors
- Peltier Cooling for Machine Vision

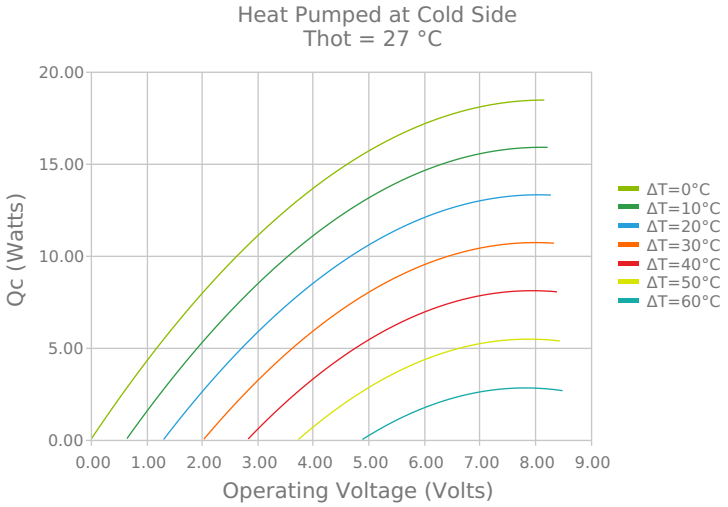


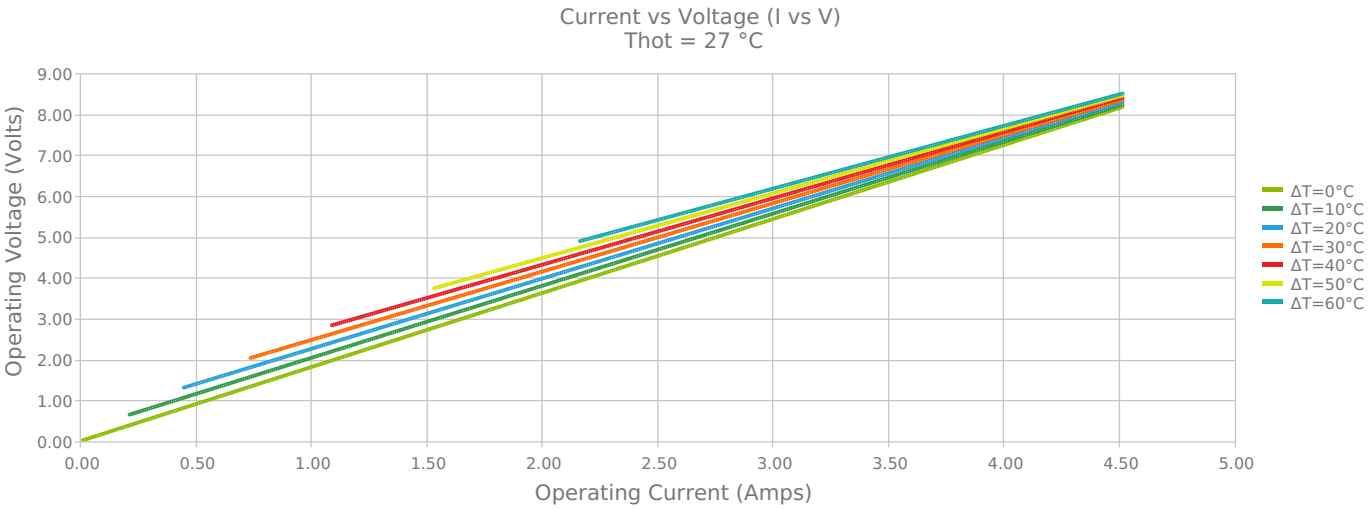


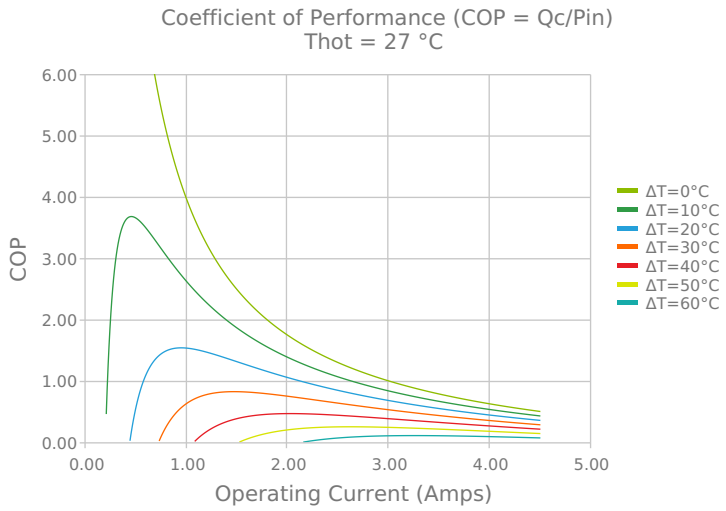
CERAMIC MATERIAL: Al_2O_3
SOLDER CONSTRUCTION: 138°C, BiSn
INCHES [MM]
Note: Allow 0.020 in [0.5 mm] around perimeter of the thermoelectric cooler and lead wire attachment to accommodate sealant

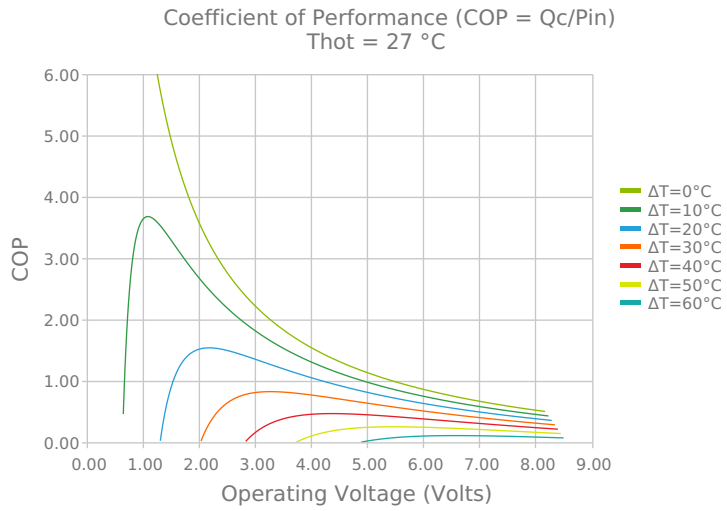
ELECTRICAL AND THERMAL PERFORMANCE

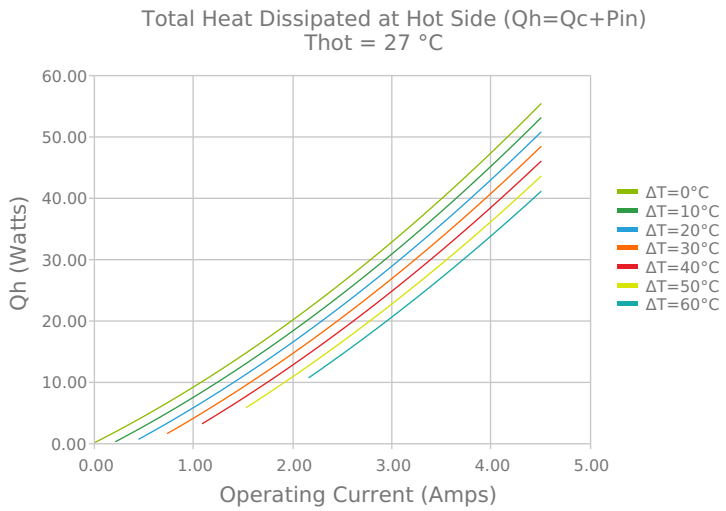


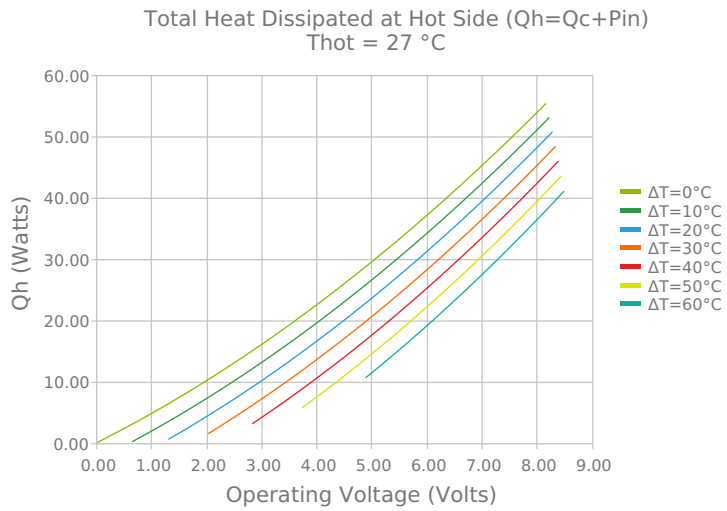


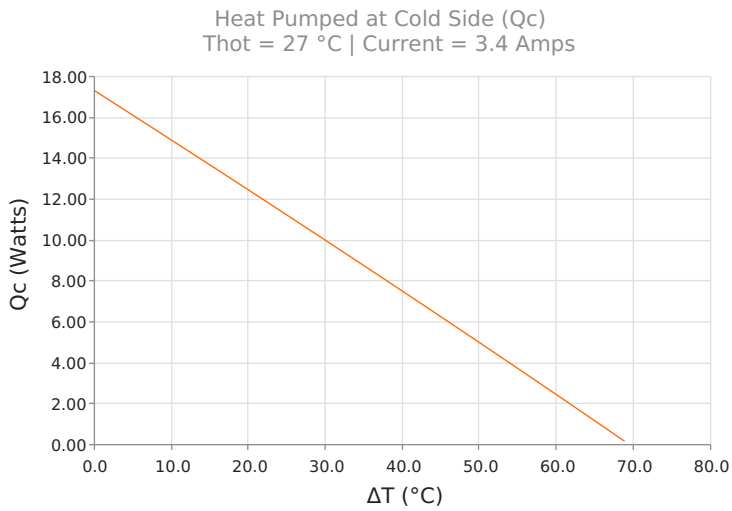


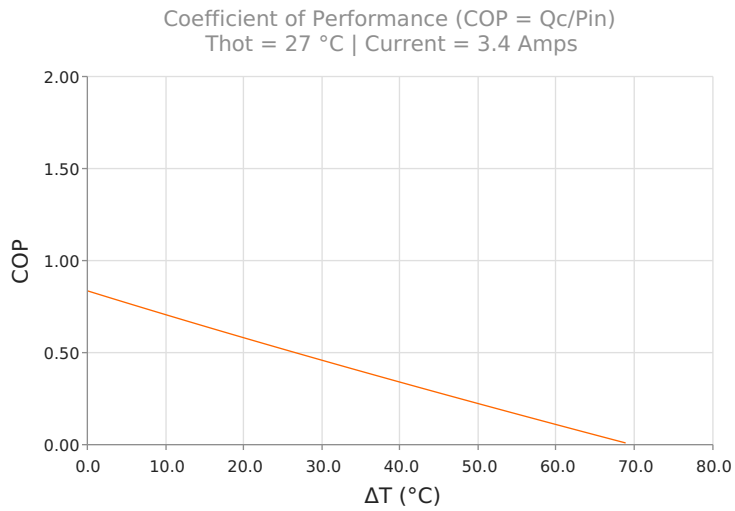

Coefficient of Performance (COP = Qc/Pin)
Thot = 27 °C
COP
Operating Current (Amps)
ΔT=0°C
ΔT=10°C
ΔT=20°C
ΔT=30°C
ΔT=40°C
ΔT=50°C
ΔT=60°C


Coefficient of Performance (COP = Qc/Pin)
Thot = 27 °C
COP
Operating Voltage (Volts)
ΔT=0°C
ΔT=10°C
ΔT=20°C
ΔT=30°C
ΔT=40°C
ΔT=50°C
ΔT=60°C


Total Heat Dissipated at Hot Side (Qh=Qc+Pin)
Thot = 27 °C
Qh (Watts)
Operating Current (Amps)
ΔT=0°C
ΔT=10°C
ΔT=20°C
ΔT=30°C
ΔT=40°C
ΔT=50°C
ΔT=60°C


Total Heat Dissipated at Hot Side (Qh=Qc+Pin)
Thot = 27 °C
Qh (Watts)
Operating Voltage (Volts)
ΔT=0°C
ΔT=10°C
ΔT=20°C
ΔT=30°C
ΔT=40°C
ΔT=50°C
ΔT=60°C


Heat Pumped at Cold Side (Qc)
Thot = 27 °C | Current = 3.4 Amps
Qc (Watts)
ΔT (°C)


Coefficient of Performance (COP = Qc/Pin)
Thot = 27 °C | Current = 3.4 Amps
COP
ΔT (°C)

SPECIFICATIONS*

Hot Side Temperature	27.0 °C	35.0 °C	50.0 °C
Qcmax (ΔT = 0)	18.5 Watts	19.0 Watts	20.0 Watts
ΔTmax (Qc = 0)	70.5°C	73.5°C	78.8°C
Imax (I @ ΔTmax)	4.0 Amps	4.0 Amps	3.9 Amps
Vmax (V @ ΔTmax)	7.8 Volts	8.1 Volts	8.6 Volts
Module Resistance	1.81 Ohms	1.88 Ohms	2.03 Ohms
Max Operating Temperature	80 °C		
Weight	6.0 gram(s)		

* Specifications reflect thermoelectric coefficients updated March 2020

FINISHING OPTIONS

Suffix	Thickness	Flatness / Parallelism	Hot Face	Cold Face	Lead Length
L1	3.300 ±0.025 mm 0.130 ± 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 Imax or Vmax when operating module
3. Reference assembly guidelines for recommended installation
4. Solder tinning also available on metallized ceramics

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