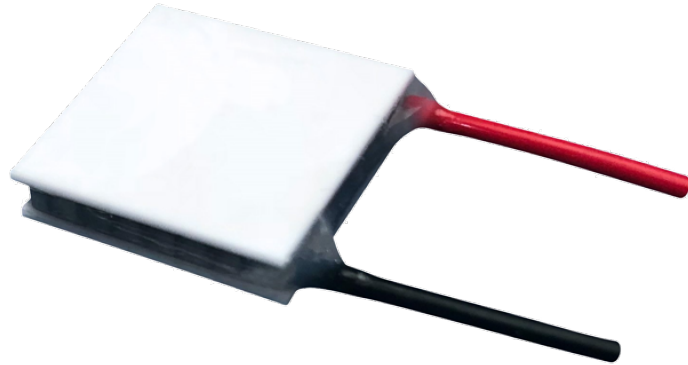


HiTemp ETX Series Thermoelectric Cooler

The ETX4-3-F1-1515-TA-EP-W6 high temperature, high-performance thermoelectric cooler uses Laird Thermal Systems' enhanced thermoelectric module construction preventing performance degrading diffusion, which is common in standard grade thermoelectric coolers operating in high temperature environments exceeding 80 °C. It has a maximum Qc of 9.5 Watts when $\Delta T = 0$ and a maximum ΔT of 83.2 °C at $Q_c = 0$.

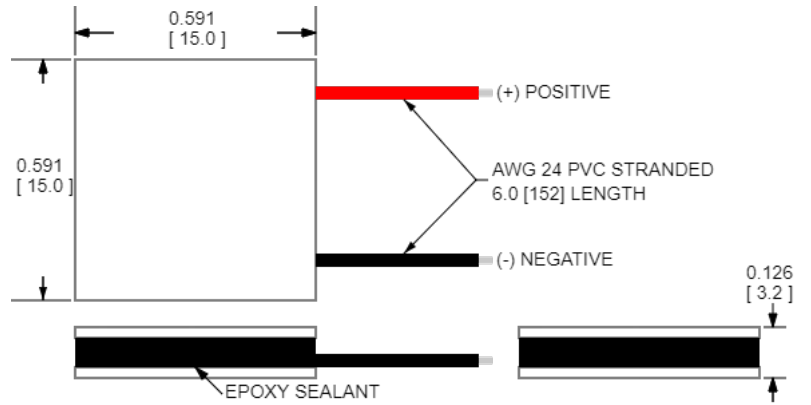


Features

- High-temperature operation
- Reliable solid-state
- No sound or vibration
- Environmentally-friendly
- RoHS-compliant

Applications

- Peltier Cooling for Refrigerated Centrifuges
- Peltier Cooling for Machine Vision
- Thermoelectric Cooling for CMOS Sensors
- Cooling Solutions for Autonomous Systems
- Peltier Cooling for Digital Light Processors
- Heating and Cooling for Liquid Chromatography Systems
- Thermoelectric Cooling for Security Cameras

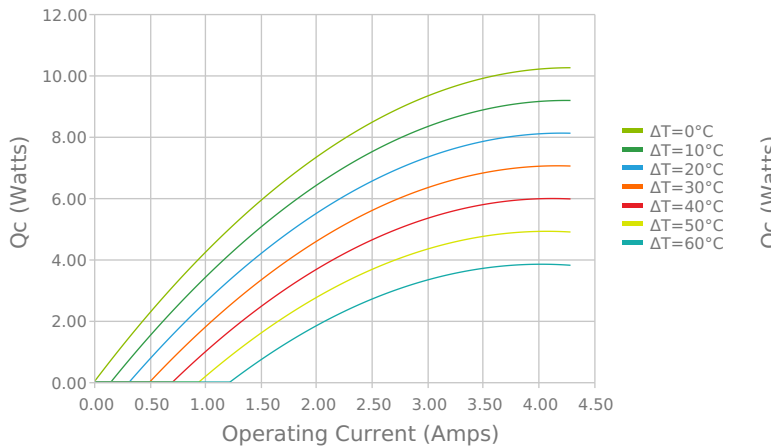


CERAMIC MATERIAL: Al_2O_3
 SOLDER CONSTRUCTION: 232°C, SbSn
 Note: Allow 0.020 in [0.5 mm] around perimeter of the thermoelectric cooler and lead wire attachment to accommodate sealant

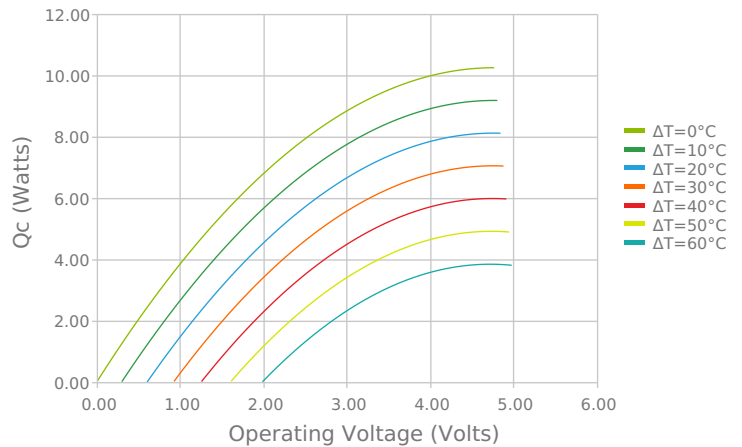
INCHES [MM]

ELECTRICAL AND THERMAL PERFORMANCE

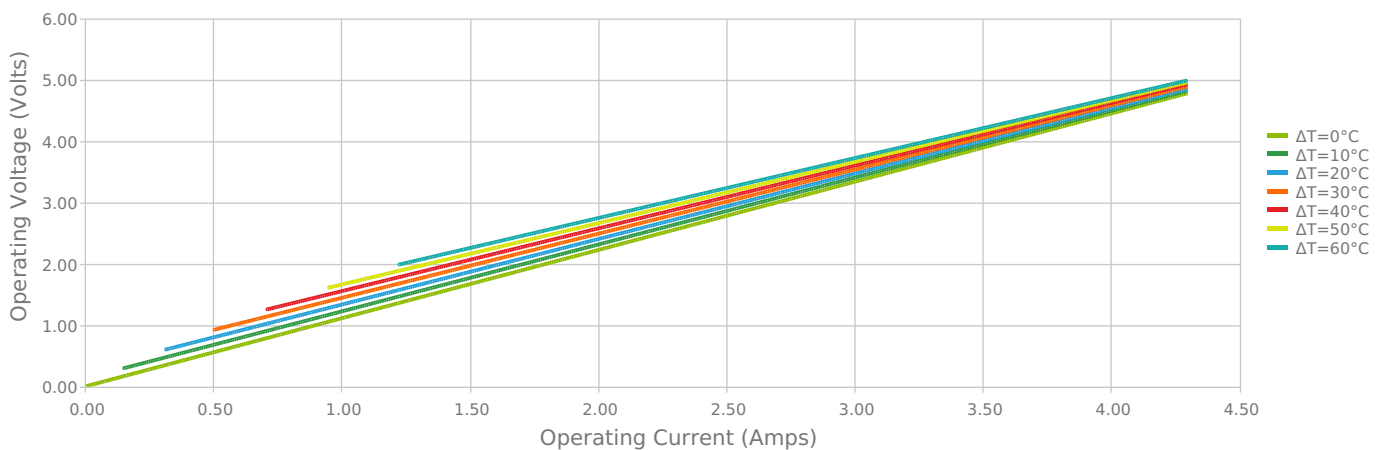
Heat Pumped at Cold Side
 $T_{hot} = 85\text{ °C}$



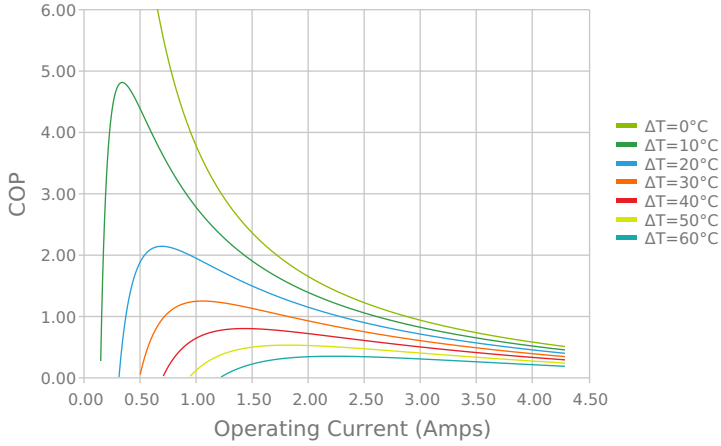
Heat Pumped at Cold Side
 $T_{hot} = 85\text{ °C}$



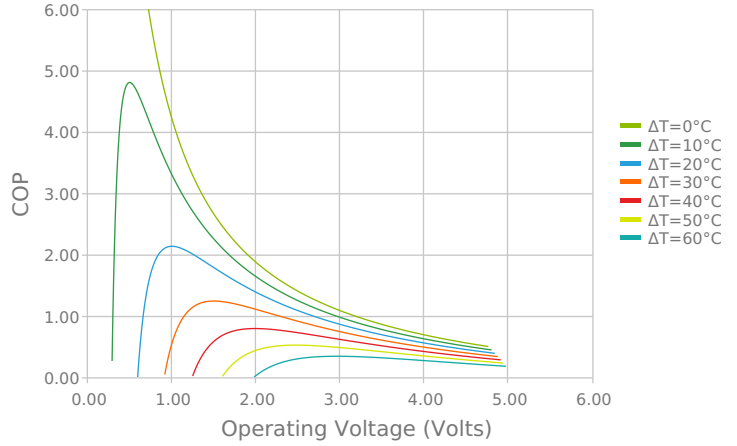
Current vs Voltage (I vs V)
 $T_{hot} = 85\text{ °C}$



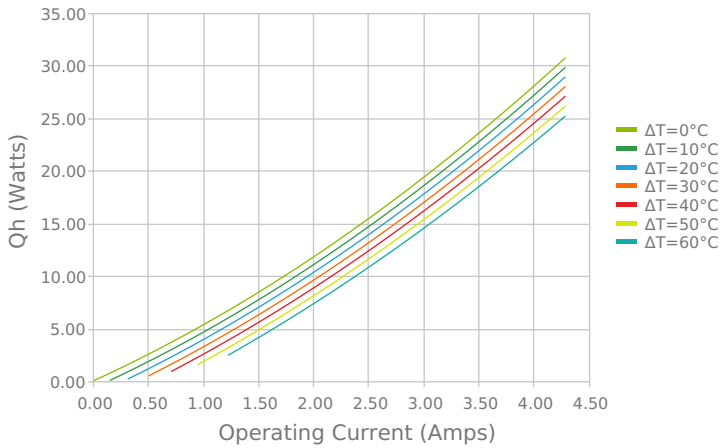
Coefficient of Performance (COP = Qc/Pin)
 Thot = 85 °C



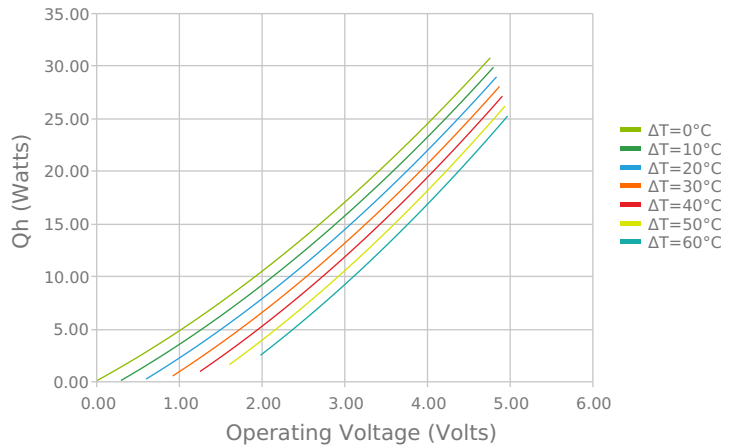
Coefficient of Performance (COP = Qc/Pin)
 Thot = 85 °C



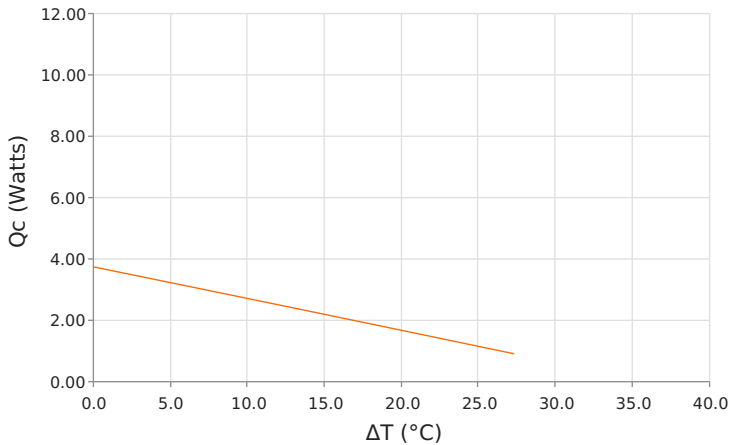
Total Heat Dissipated at Hot Side (Qh=Qc+Pin)
 Thot = 85 °C



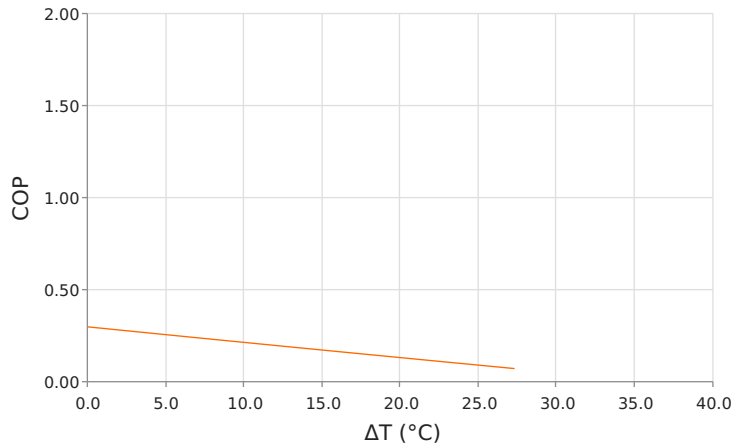
Total Heat Dissipated at Hot Side (Qh=Qc+Pin)
 Thot = 85 °C



Heat Pumped at Cold Side (Qc)
 Thot = 85 °C | Current = 3.2 Amps



Coefficient of Performance (COP = Qc/Pin)
 Thot = 85 °C | Current = 3.2 Amps



SPECIFICATIONS*

| Hot Side Temperature | 50.0 °C | 85.0 °C | 110.0 °C |
|---|-------------|------------|------------|
| Qcmax ($\Delta T = 0$) | 9.5 Watts | 10.2 Watts | 10.6 Watts |
| ΔT_{max} ($Q_c = 0$) | 83.2°C | 95.3°C | 102.0°C |
| I_{max} (I @ ΔT_{max}) | 4.0 Amps | 3.8 Amps | 3.7 Amps |
| V_{max} (V @ ΔT_{max}) | 4.1 Volts | 4.7 Volts | 5.1 Volts |
| Module Resistance | 0.95 Ohms | 1.11 Ohms | 1.22 Ohms |
| Max Operating Temperature | 150 °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 |
|--------|---------------------------------------|--|----------|-----------|---------------------|
| TA | 3.200 ± 0.254 mm 0.126 ± 0.0100 in | 0.025 mm / 0.025 mm 0.001 in / 0.001 in | Lapped | Lapped | 152.4 mm 6.00 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: 150°C
2. Do not exceed I_{max} or V_{max} when operating module
3. Reference assembly guidelines for recommended installation

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