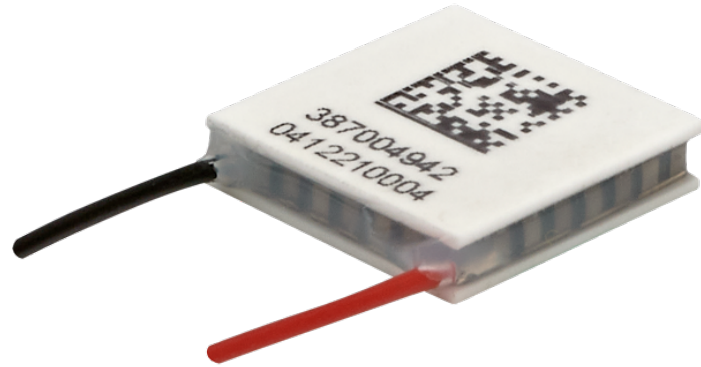


**HiTemp ETX Series Thermoelectric Cooler**

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  $\Delta T$  of 83.2 °C at  $Q_c = 0$ .

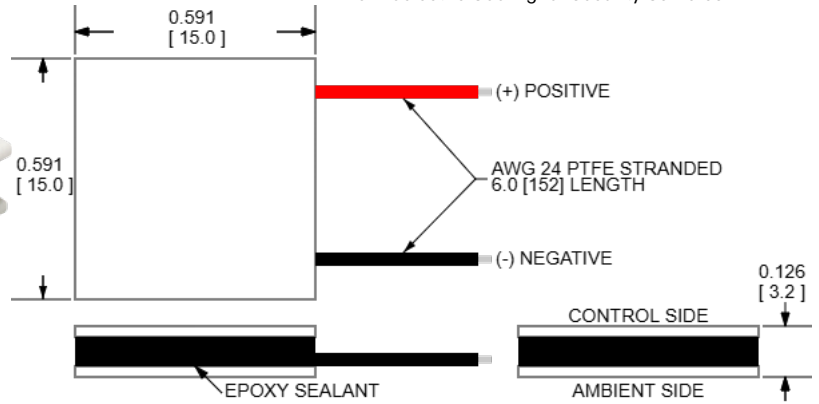


**Features**

- 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<sub>2</sub>O<sub>3</sub>  
 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

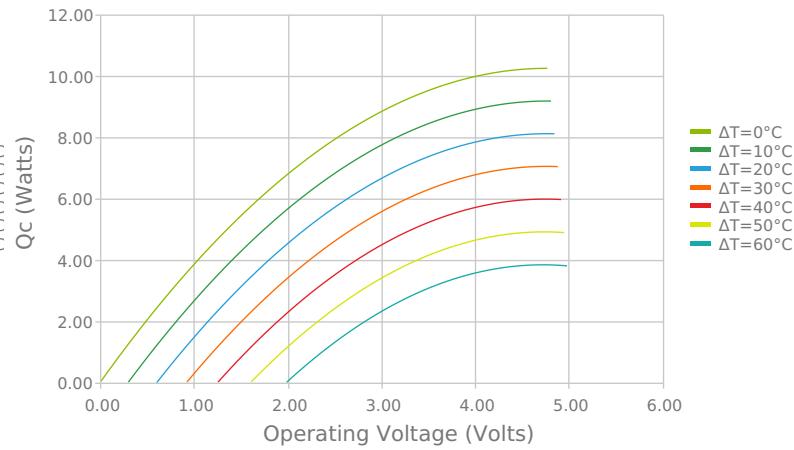
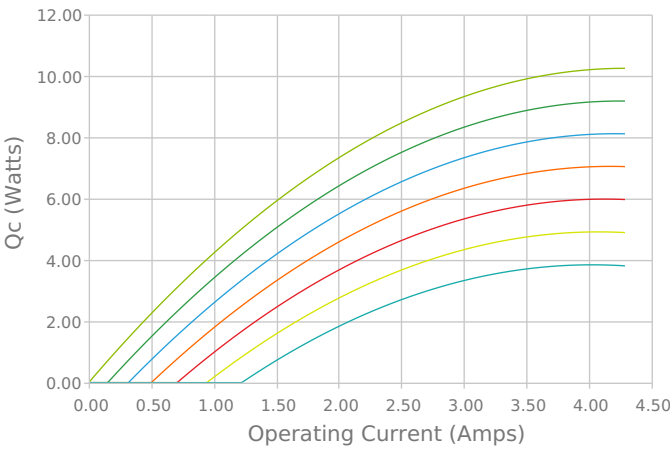
INCHES [MM]

**Electrical and Thermal Performance**

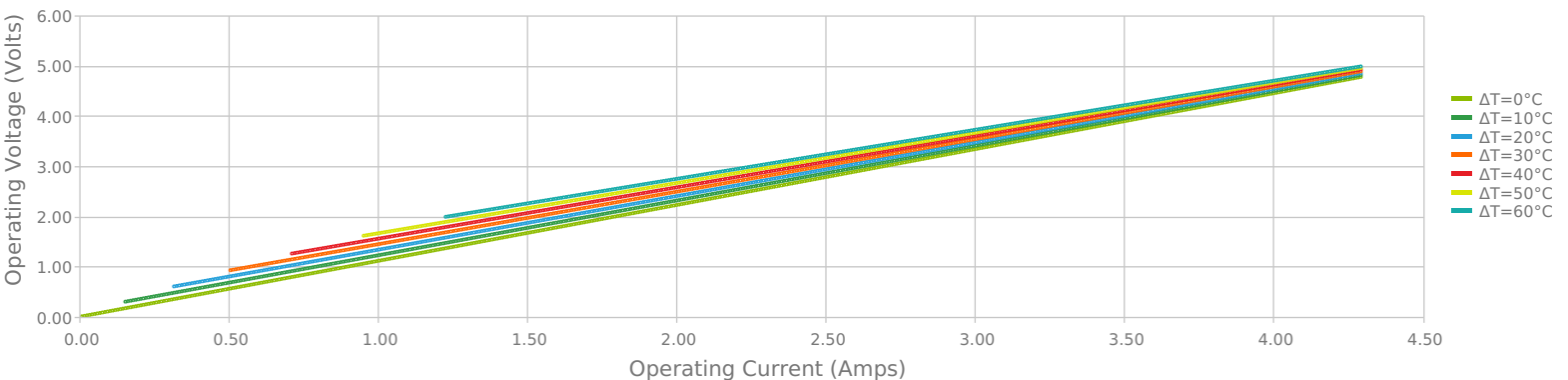
For maximum performance, be sure to orient the CONTROL side of the TEC against the application to be managed and the AMBIENT side against the heat sink or other heat rejection method. The CONTROL side is always opposite the side with lead attachments. Lead attachment is a passive heat loss and less impactful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

Heat Pumped at Cold Side  
Thot = 85 °C

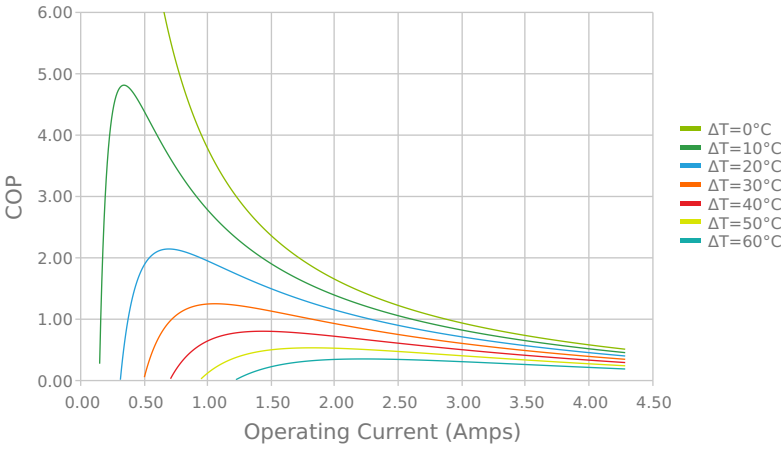
Heat Pumped at Cold Side  
Thot = 85 °C



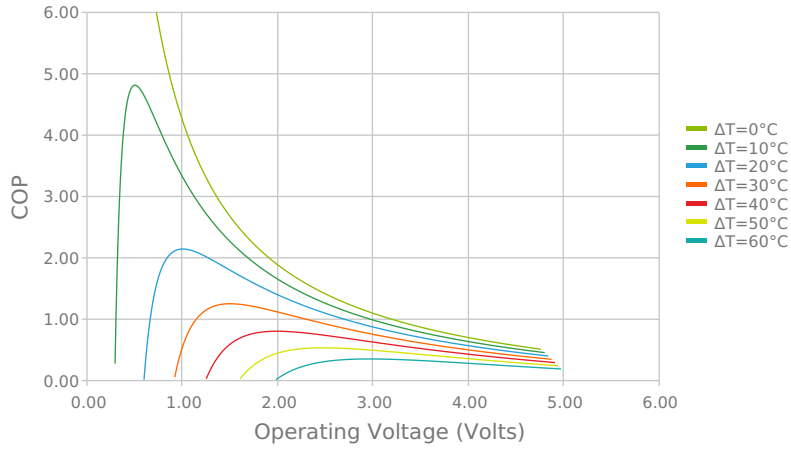
Current vs Voltage (I vs V)  
Thot = 85 °C



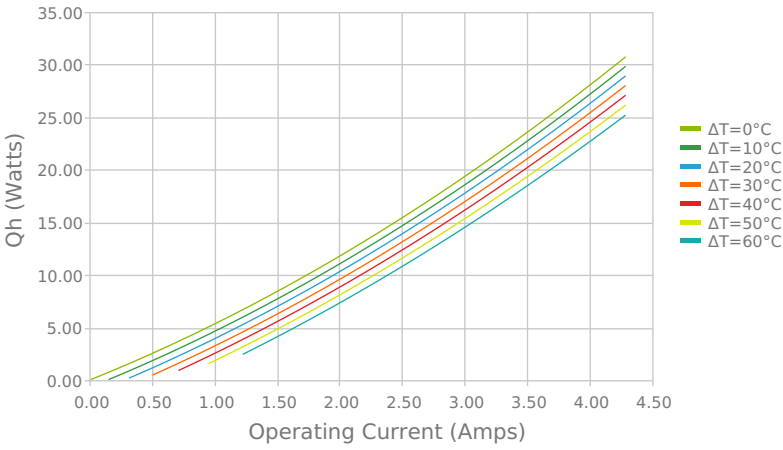
Coefficient of Performance (COP = Qc/Pin)  
Thot = 85 °C



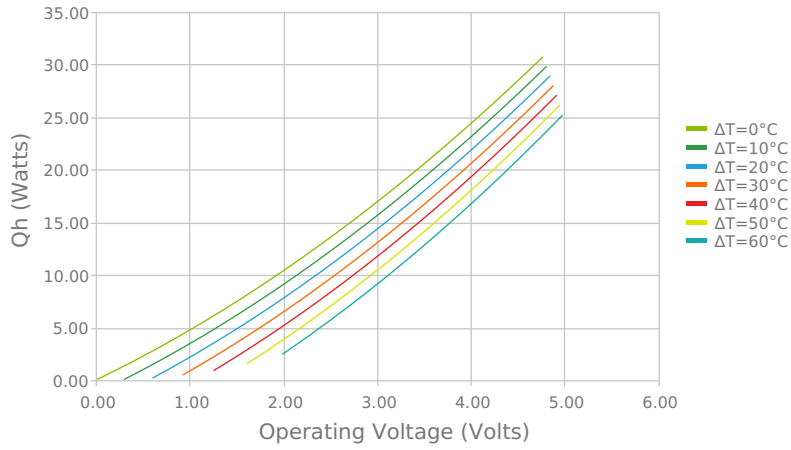
Coefficient of Performance (COP = Qc/Pin)  
Thot = 85 °C



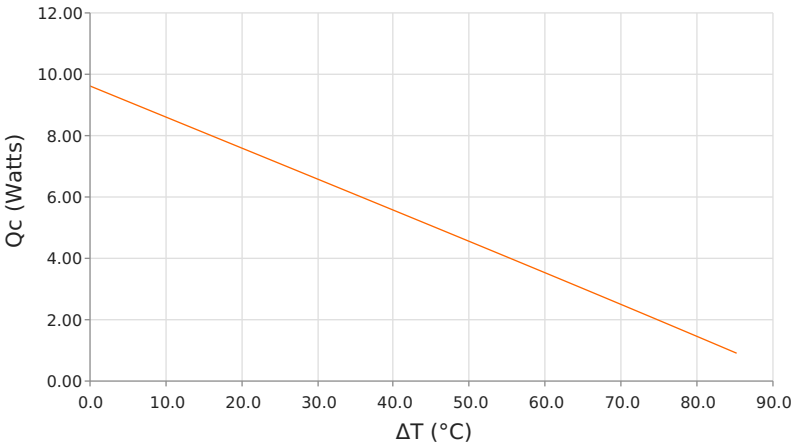
Total Heat Dissipated at Hot Side (Qh=Qc+Pin)  
Thot = 85 °C



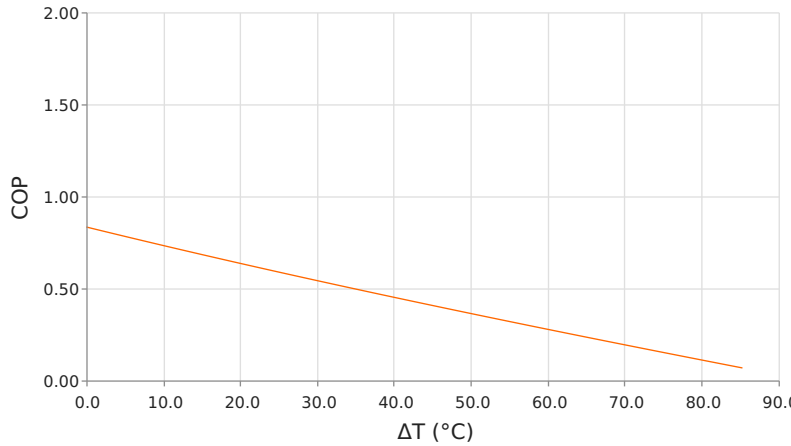
Total Heat Dissipated at Hot Side (Qh=Qc+Pin)  
Thot = 85 °C



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



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



## Specifications

Hot Side Temperature	50.0 °C	85.0 °C	110.0 °C
<b>Qcmax (<math>\Delta T = 0</math>)</b>	9.5 Watts	10.2 Watts	10.6 Watts
<b><math>\Delta T_{max}</math> (<math>Q_c = 0</math>)</b>	83.2°C	95.3°C	102.0°C
<b>I<sub>max</sub> (I @ <math>\Delta T_{max}</math>)</b>	4.0 Amps	3.8 Amps	3.7 Amps
<b>V<sub>max</sub> (V @ <math>\Delta T_{max}</math>)</b>	4.1 Volts	4.7 Volts	5.1 Volts
<b>Module Resistance</b>	0.95 Ohms	1.11 Ohms	1.22 Ohms
<b>Max Operating Temperature</b>	150 °C		
<b>Weight</b>	3.0 gram(s)		

## Finishing Options

Suffix	Thickness	Flatness / Parallelism	Hot Face	Cold Face	Lead Length
TA	3.200 ±0.025 mm 0.126 ± 0.0010 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

Max operating temperature: 150°C  
Do not exceed I<sub>max</sub> or V<sub>max</sub> when operating module  
Reference assembly guidelines for recommended installation

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