

## HiTemp ETX Series Thermoelectric Cooler

The ETX11-12-F1-4040-TA-RT-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 109 Watts when  $\Delta T = 0$  and a maximum  $\Delta T$  of 83.2 °C at  $Q_c = 0$ .

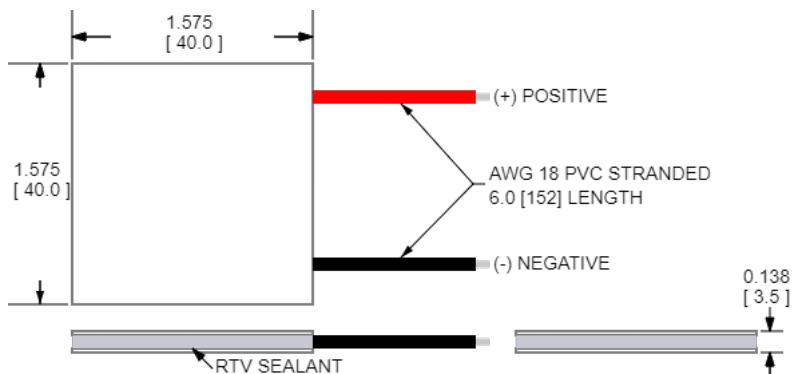


## Features

- 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:  $Al_2O_3$

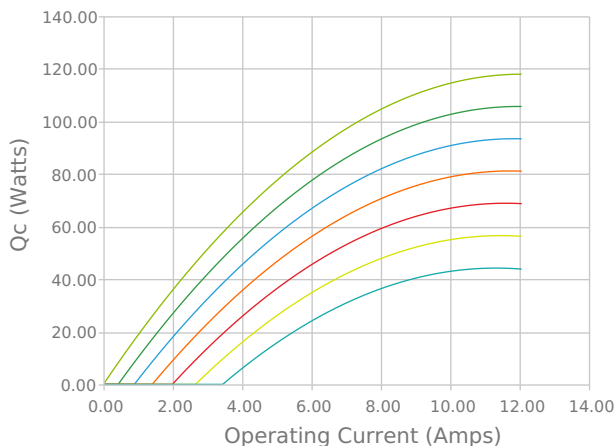
SOLDER CONSTRUCTION: 232°C, SbSn

INCHES [MM]

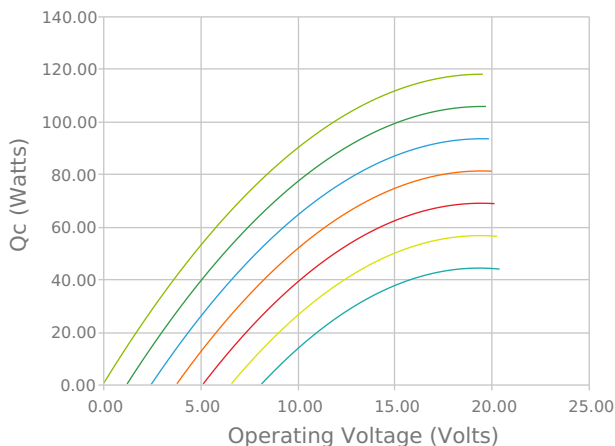
Note: Allow 0.020 in [0.5 mm] around perimeter of the thermoelectric cooler and lead wire attachment to accommodate sealant

## ELECTRICAL AND THERMAL PERFORMANCE

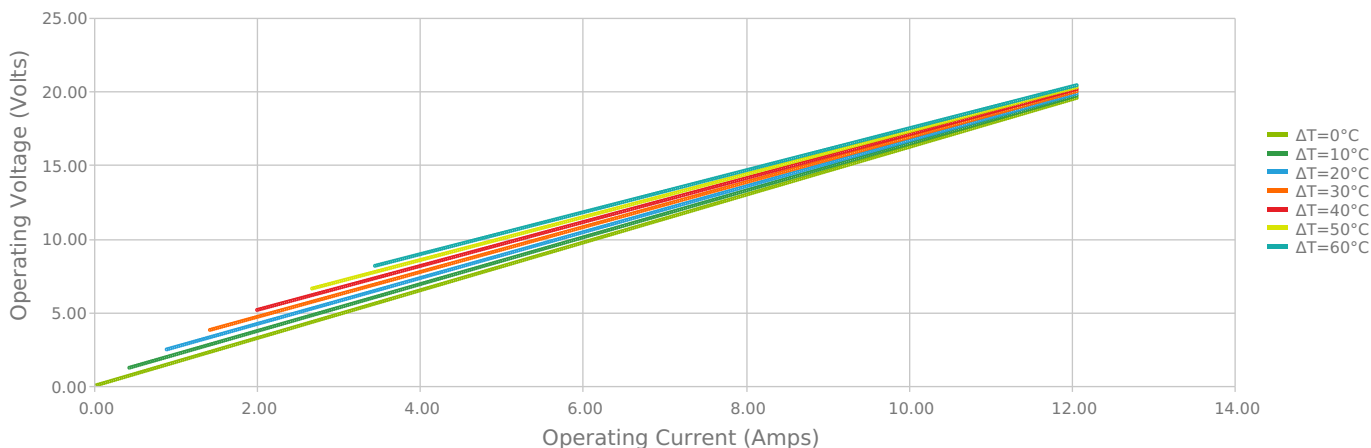
Heat Pumped at Cold Side  
 $T_{hot} = 85^\circ C$



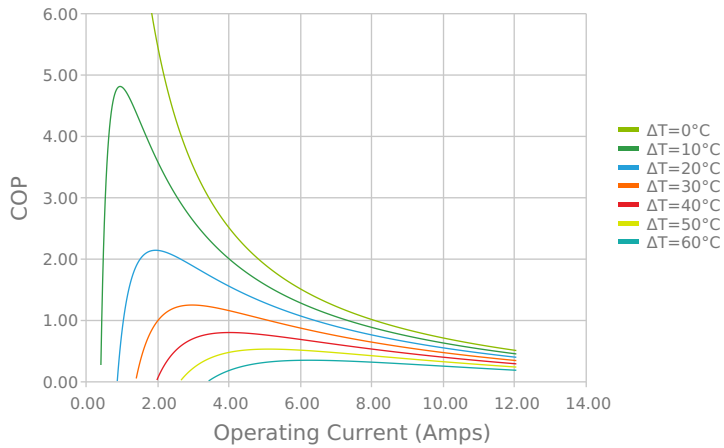
Heat Pumped at Cold Side  
 $T_{hot} = 85^\circ C$



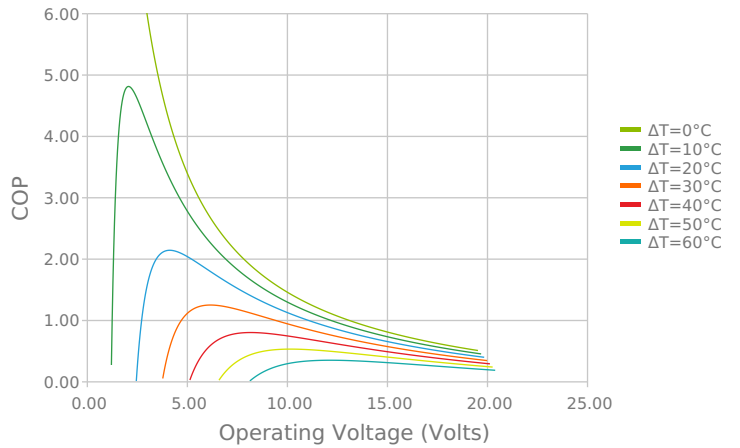
Current vs Voltage (I vs V)  
 $T_{hot} = 85^\circ C$



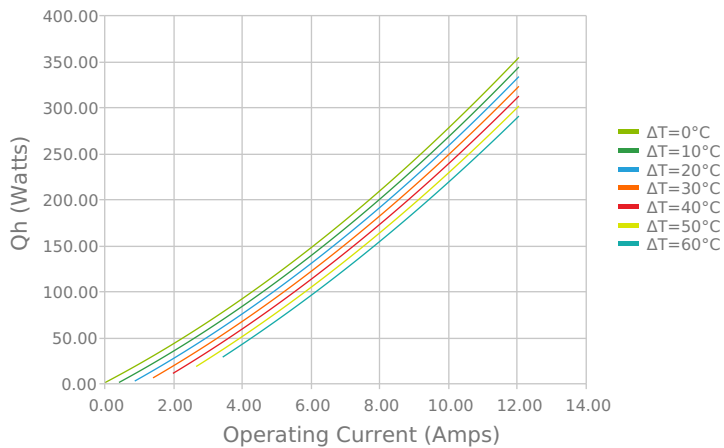
Coefficient of Performance (COP =  $Q_c/P_{in}$ )  
 $T_{hot} = 85\text{ }^{\circ}\text{C}$



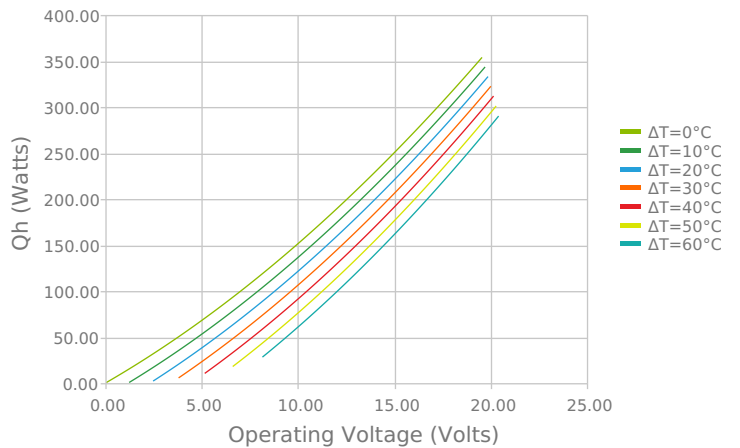
Coefficient of Performance (COP =  $Q_c/P_{in}$ )  
 $T_{hot} = 85\text{ }^{\circ}\text{C}$



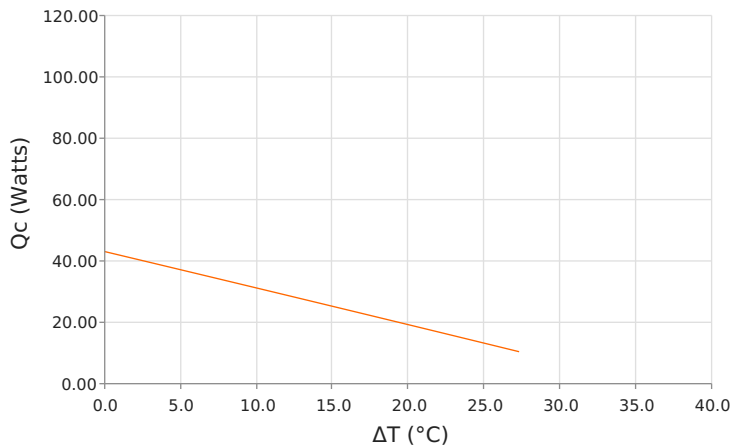
Total Heat Dissipated at Hot Side ( $Q_h = Q_c + P_{in}$ )  
 $T_{hot} = 85\text{ }^{\circ}\text{C}$



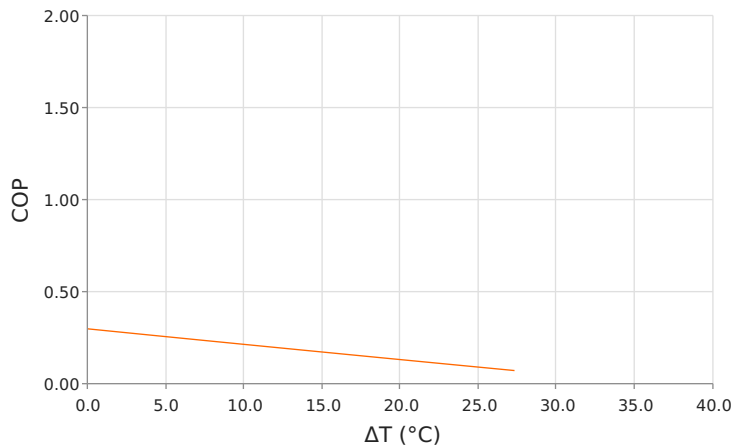
Total Heat Dissipated at Hot Side ( $Q_h = Q_c + P_{in}$ )  
 $T_{hot} = 85\text{ }^{\circ}\text{C}$



Heat Pumped at Cold Side ( $Q_c$ )  
 $T_{hot} = 85\text{ }^{\circ}\text{C}$  | Current = 9.0 Amps



Coefficient of Performance (COP =  $Q_c/P_{in}$ )  
 $T_{hot} = 85\text{ }^{\circ}\text{C}$  | Current = 9.0 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**

	50.0 °C	85.0 °C	110.0 °C
Qcmax ( $\Delta T = 0$ )	109.0 Watts	117.9 Watts	121.6 Watts
$\Delta T_{max}$ ( $Q_c = 0$ )	83.2°C	95.3°C	102.0°C
I <sub>max</sub> (I @ $\Delta T_{max}$ )	11.1 Amps	10.7 Amps	10.5 Amps
V <sub>max</sub> (V @ $\Delta T_{max}$ )	16.6 Volts	19.1 Volts	20.8 Volts
Module Resistance	1.39 Ohms	1.62 Ohms	1.77 Ohms
Max Operating Temperature	150 °C		
Weight	11.0 gram(s)		

\* Specifications reflect thermoelectric coefficients updated March 2020

## FINISHING OPTIONS

Suffix	Thickness	Flatness / Parallelism	Hot Face	Cold Face	Lead Length
TA	3.500 ±0.025 mm 0.138 ± 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
RT	RTV	Translucent or White	-60 to 204°C	Non-corrosive, silicone adhesive

## NOTES

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

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Date: 12/14/2021