

### HiTemp ETX Series Thermolectric 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  $Q_c$  of 109 Watts when  $\Delta T = 0$  and a maximum  $\Delta T$  of 83.2 °C at  $Q_c = 0$ .

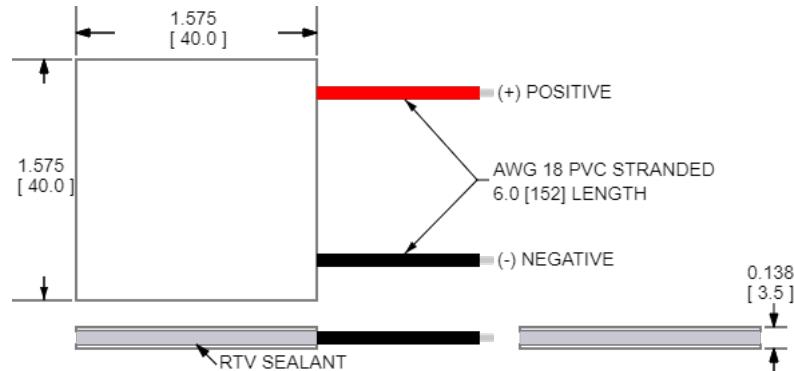


### Features

- 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:  $\text{Al}_2\text{O}_3$

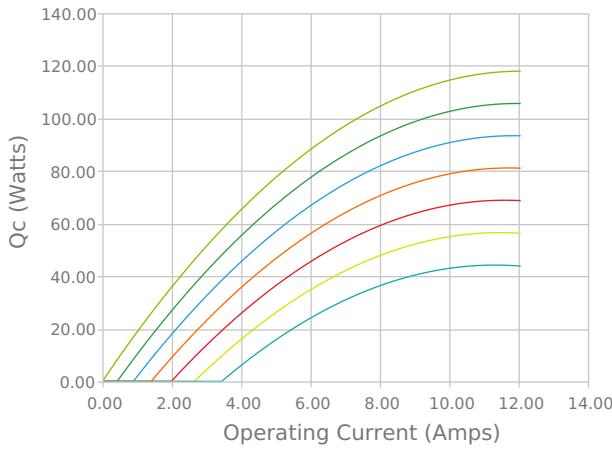
SOLDER CONSTRUCTION: 232°C, SbSn

INCHES [ MM ]

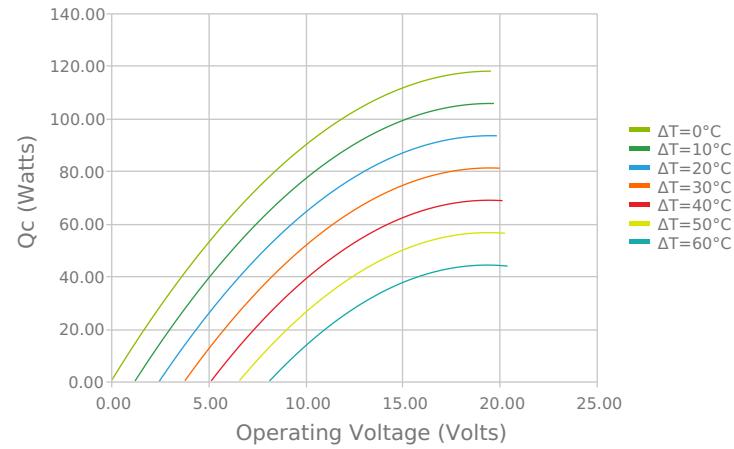
Note: Allow 0.020 in [0.5 mm] around perimeter of the thermoelectric cooler and lead wire attachment to accommodate sealant

## ELECTRICAL AND THERMAL PERFORMANCE

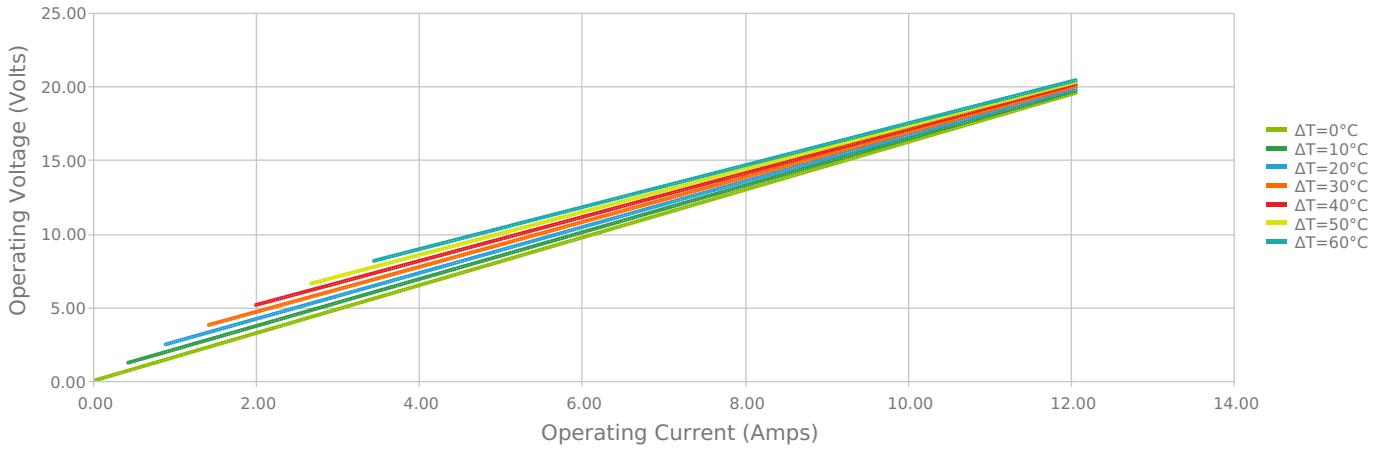
Heat Pumped at Cold Side  
Thot = 85 °C



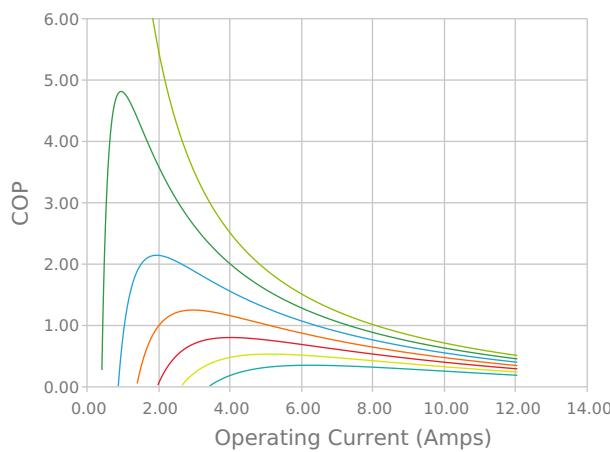
Heat Pumped at Cold Side  
Thot = 85 °C



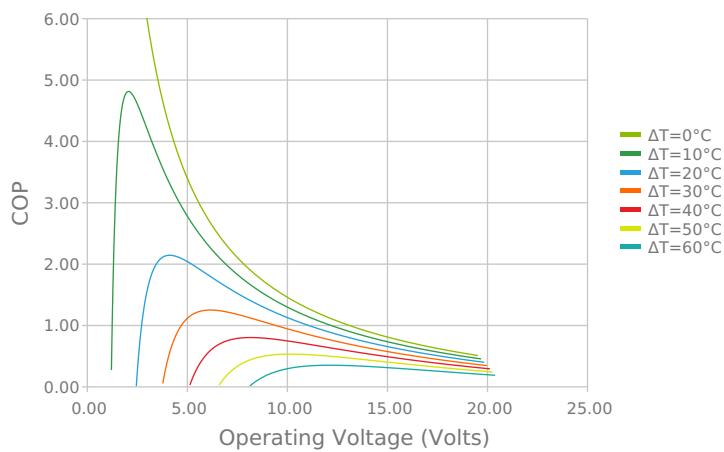
Current vs Voltage (I vs V)  
Thot = 85 °C



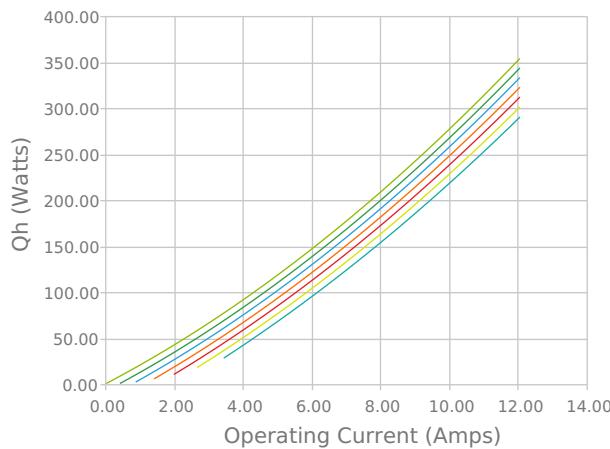
Coefficient of Performance (COP =  $Q_c/P_{in}$ )  
 $T_{hot} = 85^\circ\text{C}$



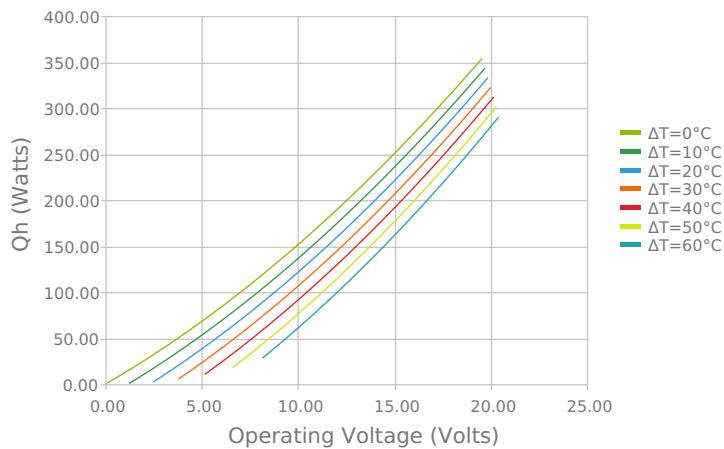
Coefficient of Performance (COP =  $Q_c/P_{in}$ )  
 $T_{hot} = 85^\circ\text{C}$



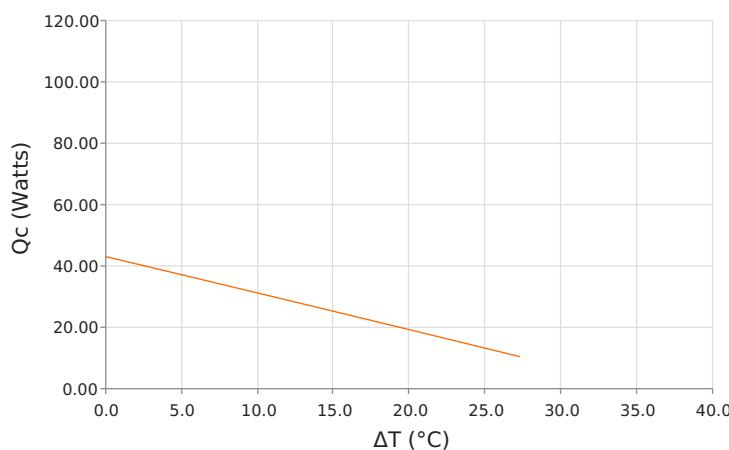
Total Heat Dissipated at Hot Side ( $Q_h = Q_c + P_{in}$ )  
 $T_{hot} = 85^\circ\text{C}$



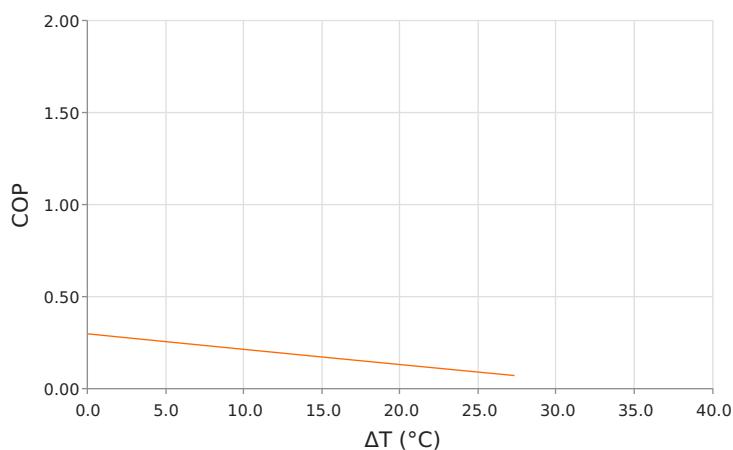
Total Heat Dissipated at Hot Side ( $Q_h = Q_c + P_{in}$ )  
 $T_{hot} = 85^\circ\text{C}$



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



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



## SPECIFICATIONS\*

	50.0 °C	85.0 °C	110.0 °C
<b>Qcmax (ΔT = 0)</b>	109.0 Watts	117.9 Watts	121.6 Watts
<b>ΔTmax (Qc = 0)</b>	83.2°C	95.3°C	102.0°C
<b>I<sub>max</sub> (I @ ΔT<sub>max</sub>)</b>	11.1 Amps	10.7 Amps	10.5 Amps
<b>V<sub>max</sub> (V @ ΔT<sub>max</sub>)</b>	16.6 Volts	19.1 Volts	20.8 Volts
<b>Module Resistance</b>	1.39 Ohms	1.62 Ohms	1.77 Ohms
<b>Max Operating Temperature</b>	150 °C		
<b>Weight</b>	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

Any information furnished by Laird and its agents, whether in specifications, data sheets, product catalogues or otherwise, is believed to be (but is not warranted as being) accurate and reliable, is provided for information only and does not form part of any contract with Laird. All specifications are subject to change without notice. Laird assumes no responsibility and disclaims all liability for losses or damages resulting from use of or reliance on this information. All Laird products are sold subject to the Laird Terms and Conditions of sale (including Laird's limited warranty) in effect from time to time, a copy of which will be furnished upon request.

© Copyright 2019-2021 Laird Thermal Systems, Inc. All rights reserved. Laird™, the Laird Ring Logo, and Laird Thermal Systems™ are trademarks or registered trademarks of Laird Limited or its subsidiaries.

Date: 12/14/2021