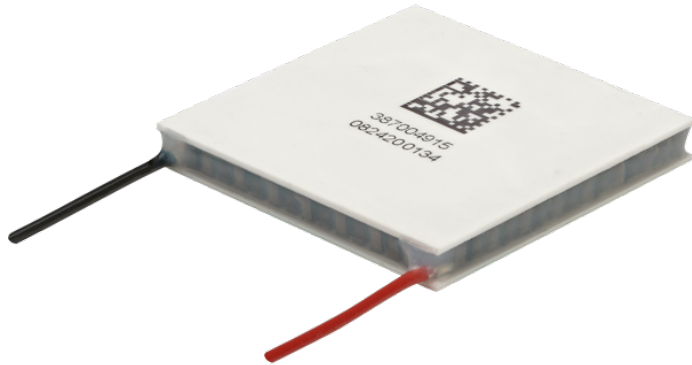


HiTemp ETX Series Thermoelectric Cooler

The ETX4-12-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 37.8 Watts when $\Delta T = 0$ and a maximum ΔT of 83.2 °C at Qc = 0.

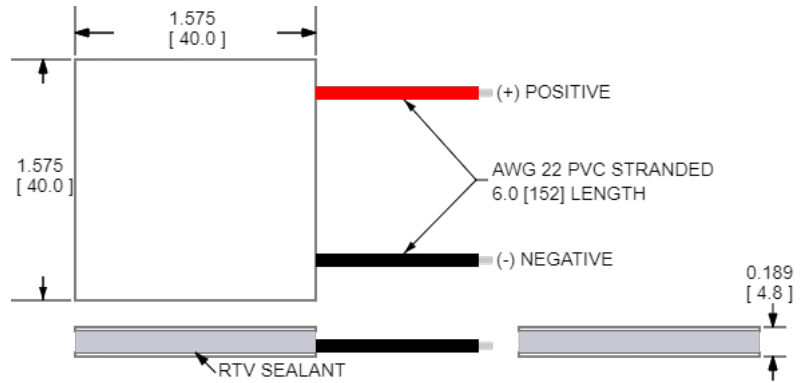


Features

- 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

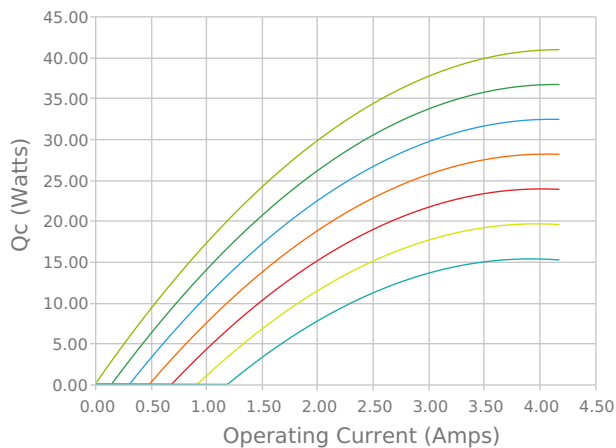
SOLDER CONSTRUCTION: 232°C, SbSn

INCHES [MM]

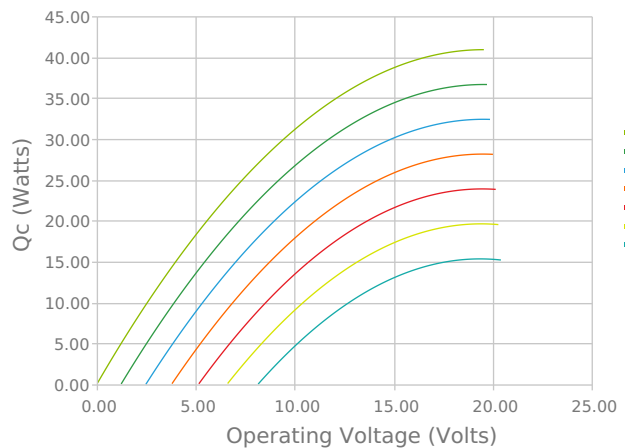
Note: Allow 0.020 in [0.5 mm] around perimeter of the thermoelectric cooler and lead wire attachment to accommodate sealant

ELECTRICAL AND THERMAL PERFORMANCE

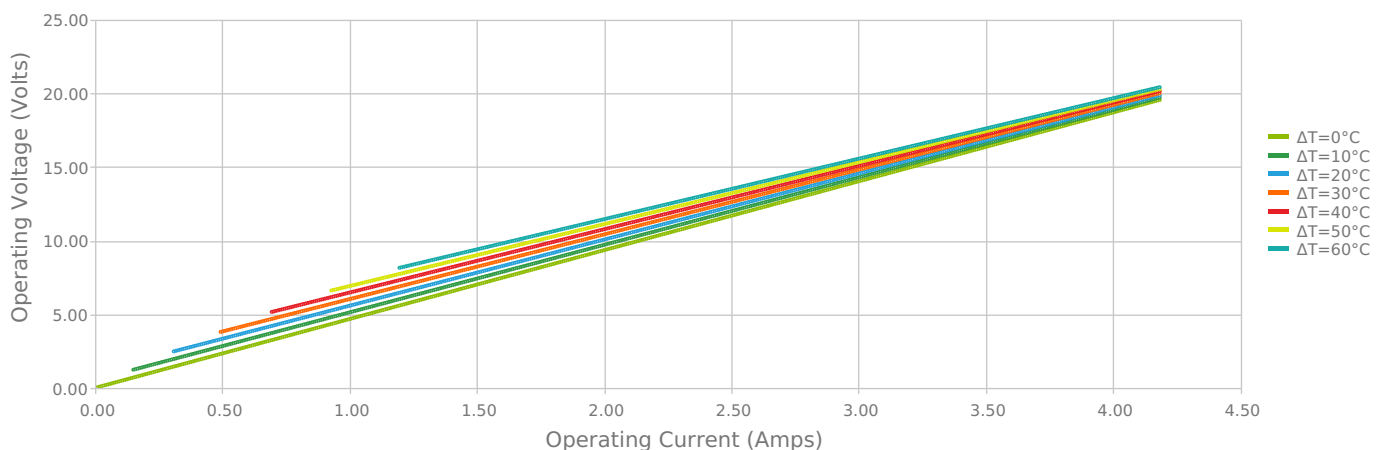
Heat Pumped at Cold Side
Thot = 85 °C



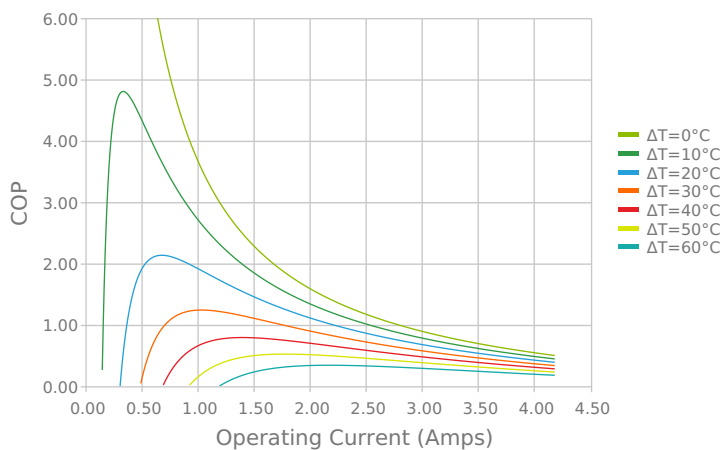
Heat Pumped at Cold Side
Thot = 85 °C



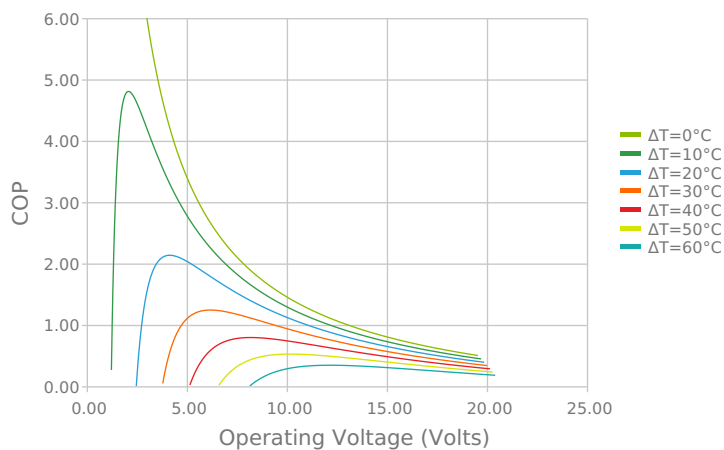
Current vs Voltage (I vs V)
Thot = 85 °C



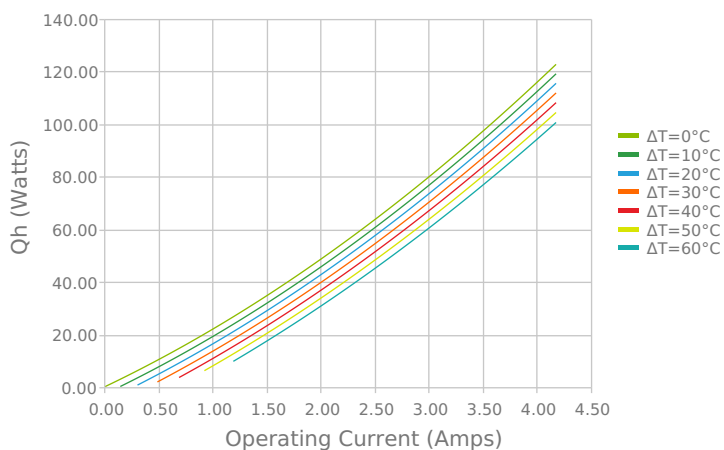
Coefficient of Performance (COP = Q_c/P_{in})
 $T_{hot} = 85^\circ\text{C}$



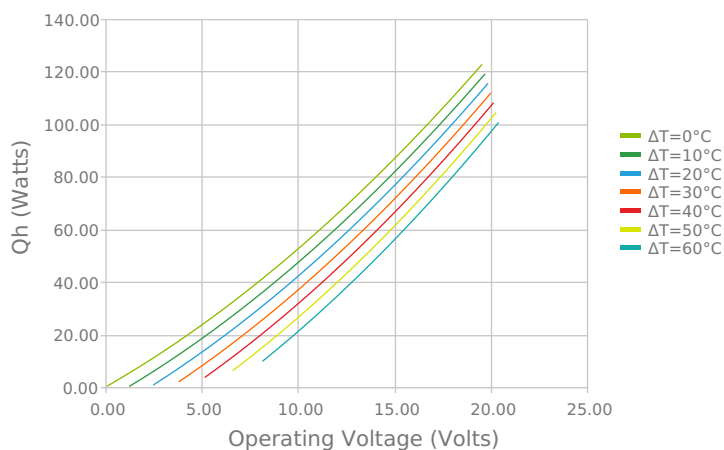
Coefficient of Performance (COP = Q_c/P_{in})
 $T_{hot} = 85^\circ\text{C}$



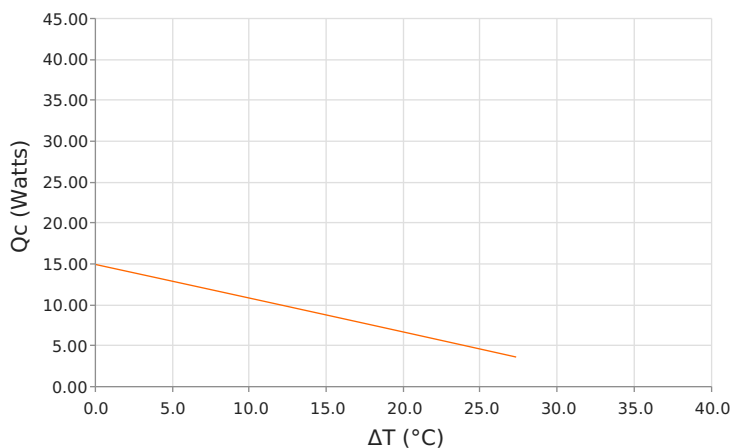
Total Heat Dissipated at Hot Side ($Q_h = Q_c + P_{in}$)
 $T_{hot} = 85^\circ\text{C}$



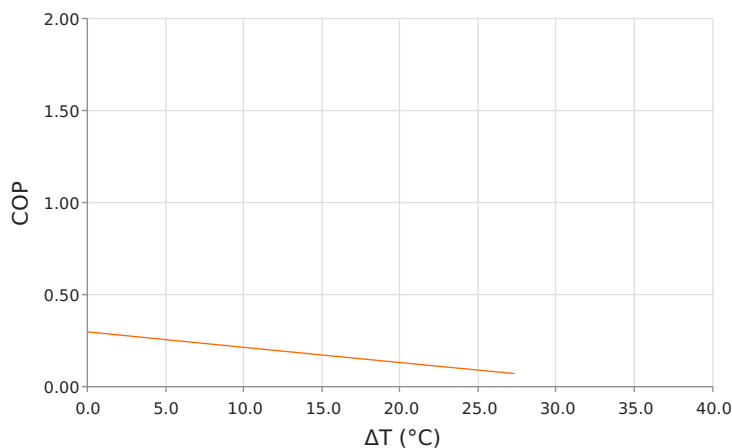
Total Heat Dissipated at Hot Side ($Q_h = Q_c + P_{in}$)
 $T_{hot} = 85^\circ\text{C}$



Heat Pumped at Cold Side (Q_c)
 $T_{hot} = 85^\circ\text{C}$ | Current = 3.1 Amps



Coefficient of Performance (COP = Q_c/P_{in})
 $T_{hot} = 85^\circ\text{C}$ | Current = 3.1 Amps



SPECIFICATIONS*

Hot Side Temperature

Qcmax ($\Delta T = 0$)

ΔT_{max} ($Q_c = 0$)

I_{max} (I @ ΔT_{max})

V_{max} (V @ ΔT_{max})

Module Resistance

Max Operating Temperature

Weight

	50.0 °C	85.0 °C	110.0 °C
Qcmax ($\Delta T = 0$)	37.8 Watts	40.9 Watts	42.2 Watts
ΔT_{max} ($Q_c = 0$)	83.2°C	95.3°C	102.0°C
I _{max} (I @ ΔT_{max})	3.9 Amps	3.7 Amps	3.6 Amps
V _{max} (V @ ΔT_{max})	16.6 Volts	19.1 Volts	20.8 Volts
Module Resistance	4.01 Ohms	4.67 Ohms	5.12 Ohms
Max Operating Temperature	150 °C		
Weight	25.0 gram(s)		

* Specifications reflect thermoelectric coefficients updated March 2020

FINISHING OPTIONS

Suffix	Thickness	Flatness / Parallelism	Hot Face	Cold Face	Lead Length
TA	4.800 ±0.025 mm 0.189 ± 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_{max} or V_{max} when operating module
3. Reference assembly guidelines for recommended installation

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