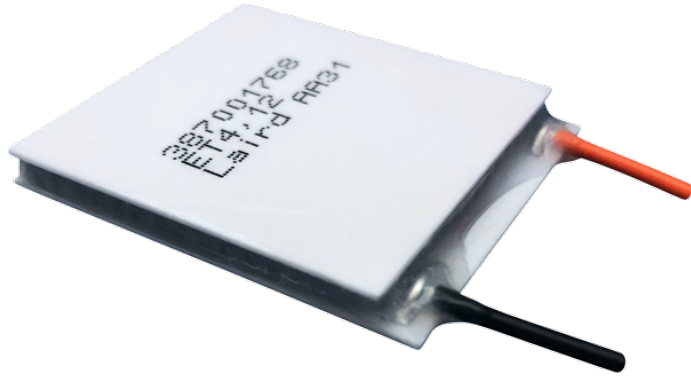


**HiTemp ET Series Thermoelectric Cooler**

The ET4-12-F2-4040-TA-RT-W6 high temperature Thermoelectric Cooler uses Laird's enhanced Thermoelectric Module construction preventing performance degrading copper diffusion, which is common in standard grade TEMs operating in high temperature environments exceeding 80 °C. It has a maximum Qc of 33.8 Watts when ΔT = 0 and a maximum ΔT of 77.9 °C at Qc = 0.

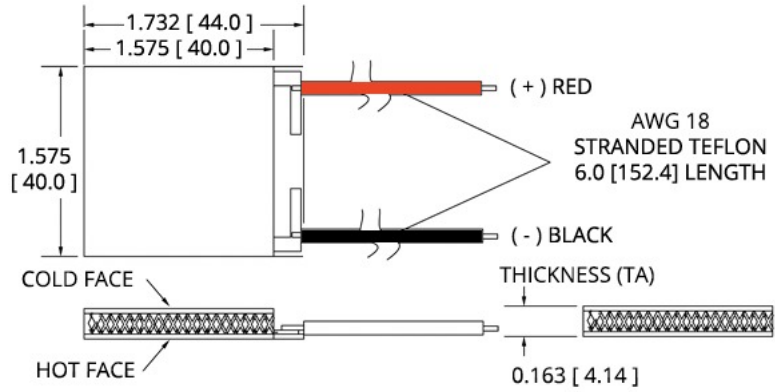


**Features**

- 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



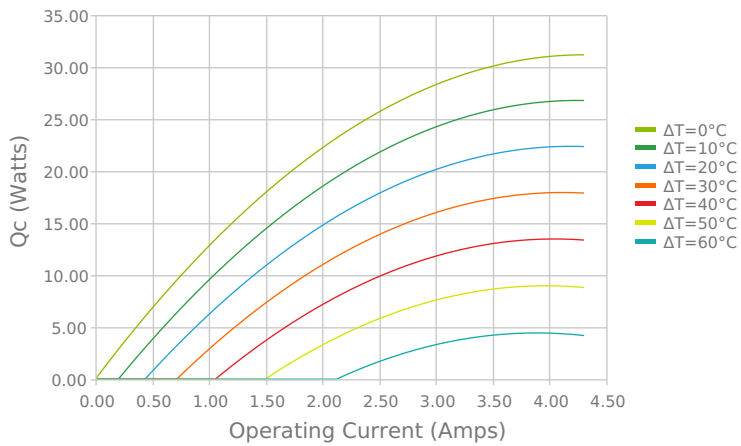
Ceramic Material: Alumina (Al<sub>2</sub>O<sub>3</sub>)  
 Solder Construction: 232°C, SbSn

INCHES [ MM ]

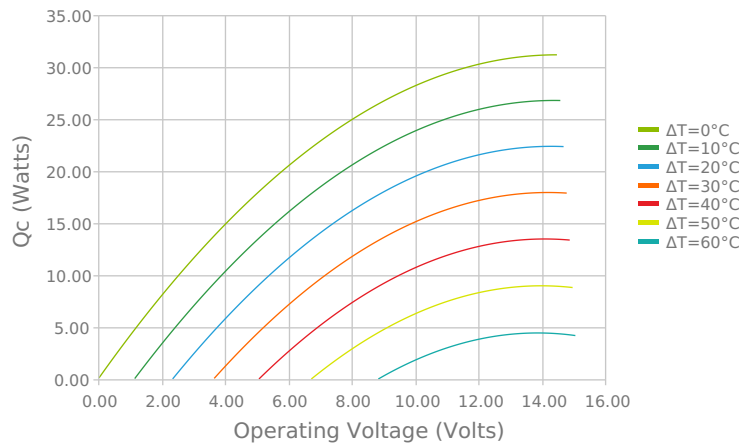
Note: Allow 0.020 in [0.5 mm] around perimeter of the thermoelectric cooler and lead wire attachment to accommodate sealant

**ELECTRICAL AND THERMAL PERFORMANCE**

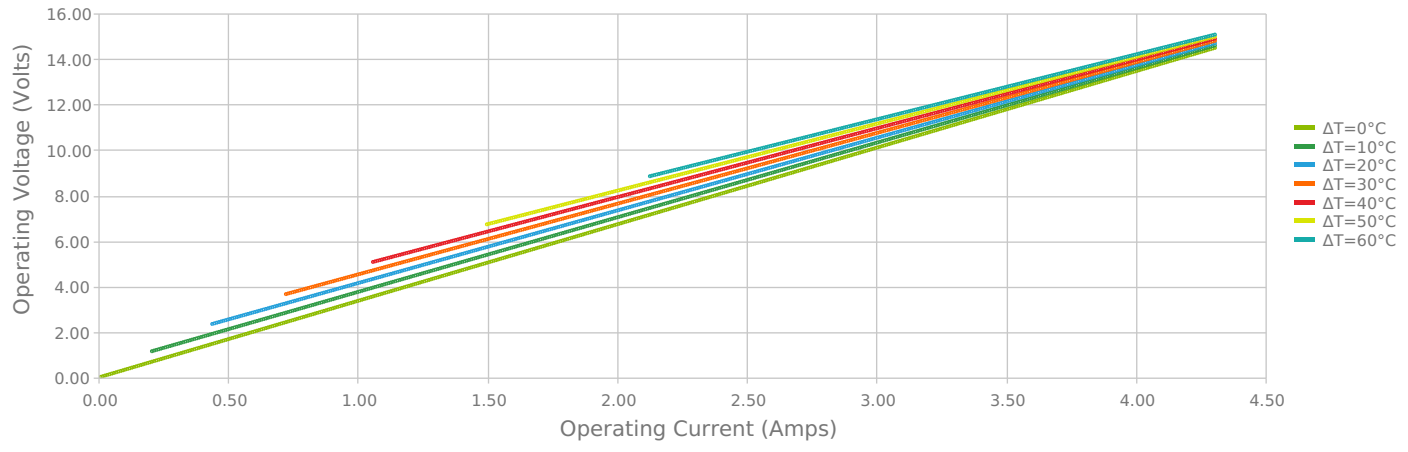
Heat Pumped at Cold Side  
 T<sub>hot</sub> = 85 °C



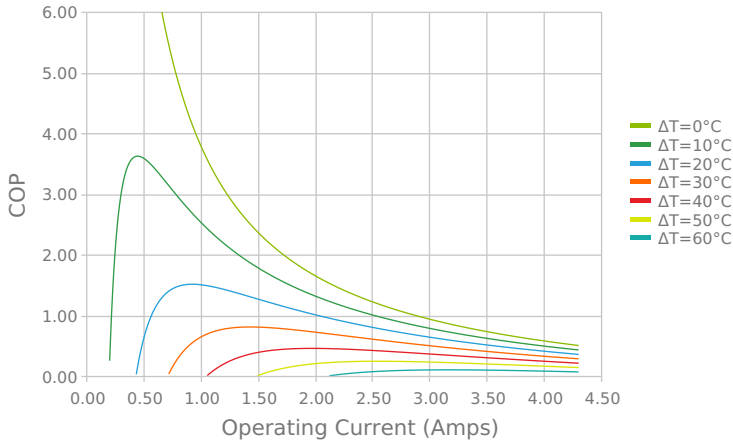
Heat Pumped at Cold Side  
 T<sub>hot</sub> = 85 °C



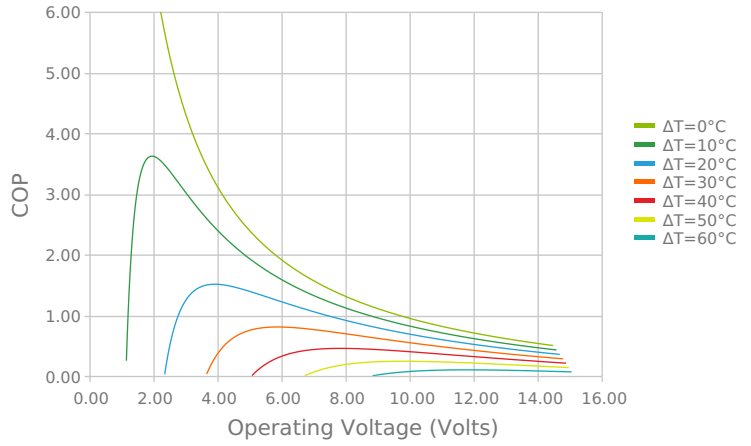
Current vs Voltage (I vs V)  
Thot = 85 °C



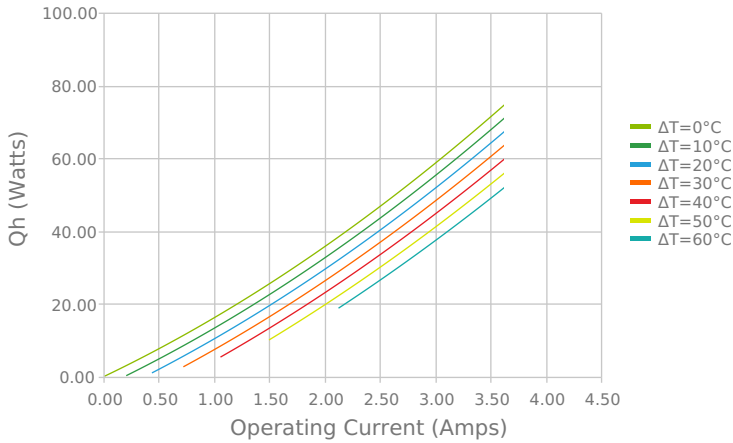
Coefficient of Performance (COP = Qc/Pin)  
 Thot = 85 °C



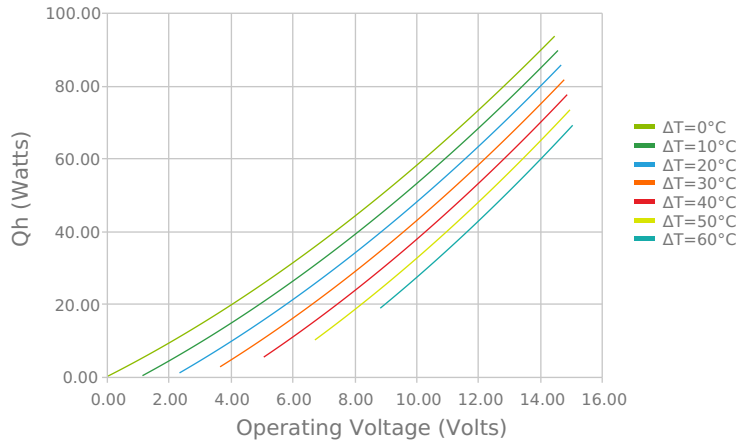
Coefficient of Performance (COP = Qc/Pin)  
 Thot = 85 °C



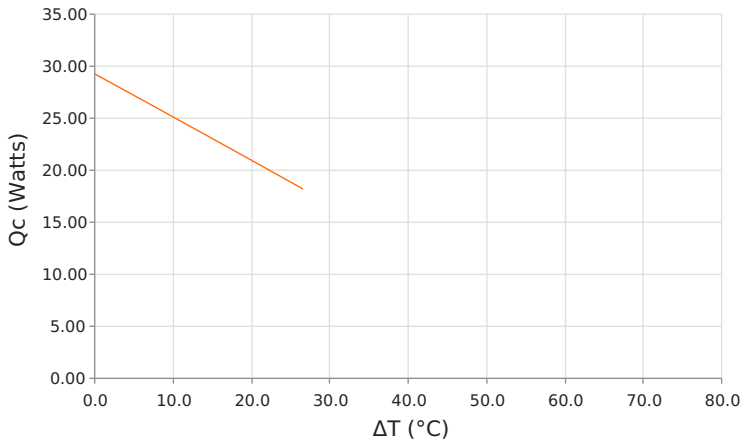
Total Heat Dissipated at Hot Side (Qh=Qc+Pin)  
 Thot = 85 °C



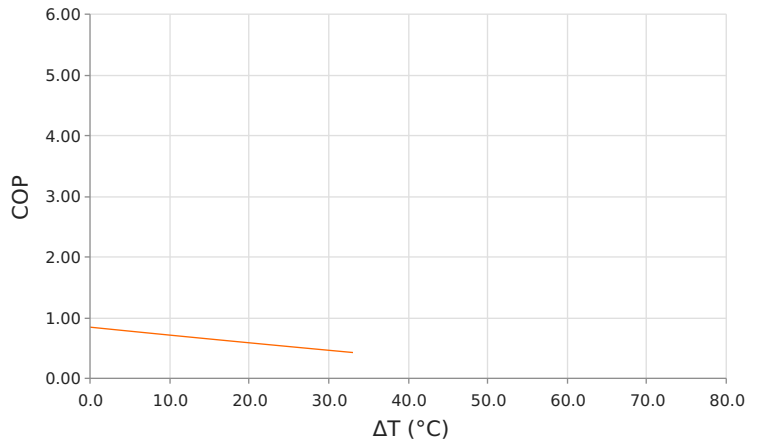
Total Heat Dissipated at Hot Side (Qh=Qc+Pin)  
 Thot = 85 °C



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



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



## SPECIFICATIONS\*

|   | 50.0 °C      | 85.0 °C    | 110.0 °C   |
|---|--------------|------------|------------|
| <b>Hot Side Temperature</b>                               |              |            |            |
| <b>Qcmax (<math>\Delta T = 0</math>)</b>                  | 33.8 Watts   | 37.1 Watts | 38.7 Watts |
| <b><math>\Delta T_{max}</math> (<math>Q_c = 0</math>)</b> | 77.9°C       | 89.3°C     | 96.2°C     |
| <b>I<sub>max</sub> (I @ <math>\Delta T_{max}</math>)</b>  | 3.7 Amps     | 3.7 Amps   | 3.6 Amps   |
| <b>V<sub>max</sub> (V @ <math>\Delta T_{max}</math>)</b>  | 15.3 Volts   | 17.5 Volts | 19.1 Volts |
| <b>Module Resistance</b>                                  | 3.77 Ohms    | 4.38 Ohms  | 4.79 Ohms  |
| <b>Max Operating Temperature</b>                          | 150 °C       |            |            |
| <b>Weight</b>   | 21.0 gram(s) |            |            |

\* Specifications reflect thermoelectric coefficients updated March 2020

## FINISHING OPTIONS

| Suffix | Thickness                            | Flatness / Parallelism                     | Hot Face | Cold Face | Lead Length        |
|--------|--------------------------------------|--|----------|-----------|--------------------|
| 11     | 4.191 ± 0.051 mm<br>0.165 ± 0.002 in | 0.051 mm / 0.051 mm<br>0.002 in / 0.002 in | Lapped   | Lapped    | 50.8 mm<br>2.00 in |

## SEALING OPTIONS

| Suffix | Sealant | Color | Temp Range   | Description                      |
|--------|---------|-------|--------------|----------------------------------|
| RT     | RTV     | 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: 04/24/2020