

## UltraTEC™ UT Series Thermoelectric Cooler

**Note: This product is not recommended for new designs.**

This product series has been replaced with the UltraTEC UTX Series product offering.

The recommended replacement is:

MFG Part Number: 387004727

Description: UTX9-28-F2-4040-TA-EP-W6

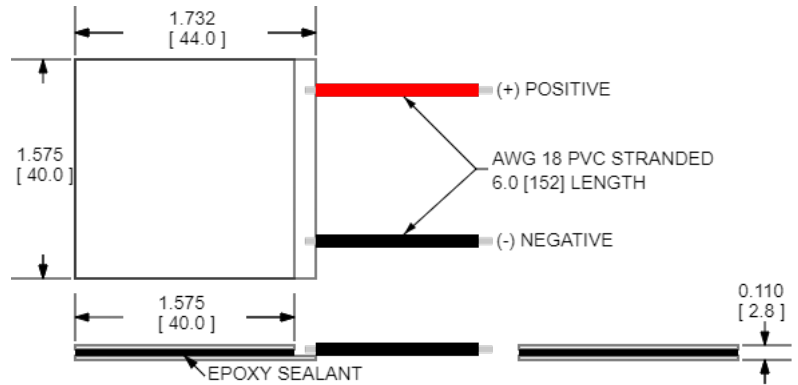


## Features

- High heat pump density
- Precise temperature control
- Reliable solid-state operation
- No sound or vibration
- DC operation
- RoHS-compliant

## Applications

- Thermoelectric Coolers and Assemblies for Medical Applications
- Thermoelectric Coolers for Handheld Cosmetic Lasers
- Industrial Laser Cooling
- Peltier Cooling for Digital Light Processors



CERAMIC MATERIAL:  $\text{Al}_2\text{O}_3$

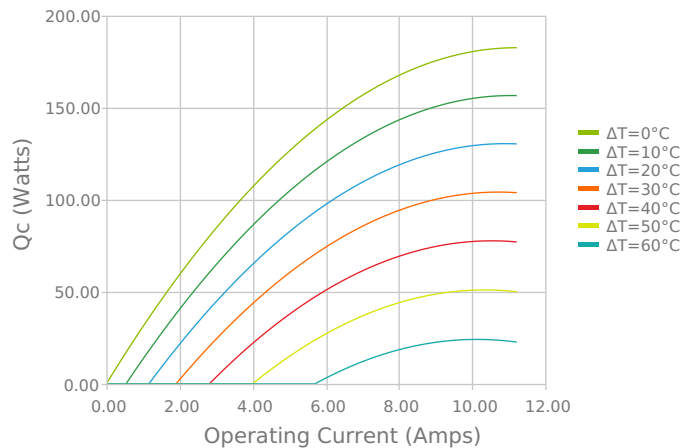
SOLDER CONSTRUCTION: 138°C, BiSn

INCHES [MM]

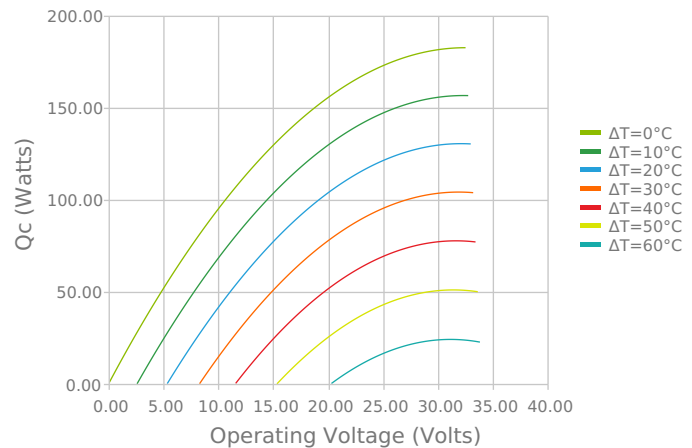
Note: Allow 0.020 in [0.5 mm] around perimeter of the thermoelectric cooler and lead wire attachment to accommodate sealant

## ELECTRICAL AND THERMAL PERFORMANCE

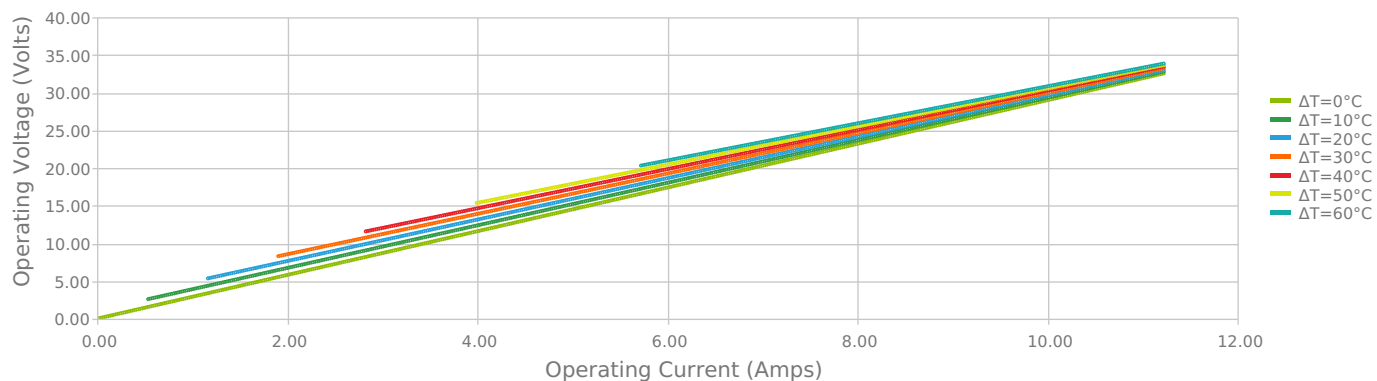
Heat Pumped at Cold Side  
 $T_{\text{hot}} = 27^\circ\text{C}$



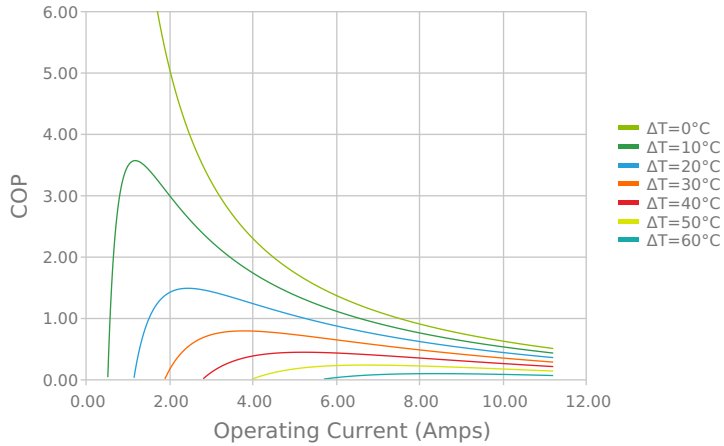
Heat Pumped at Cold Side  
 $T_{\text{hot}} = 27^\circ\text{C}$



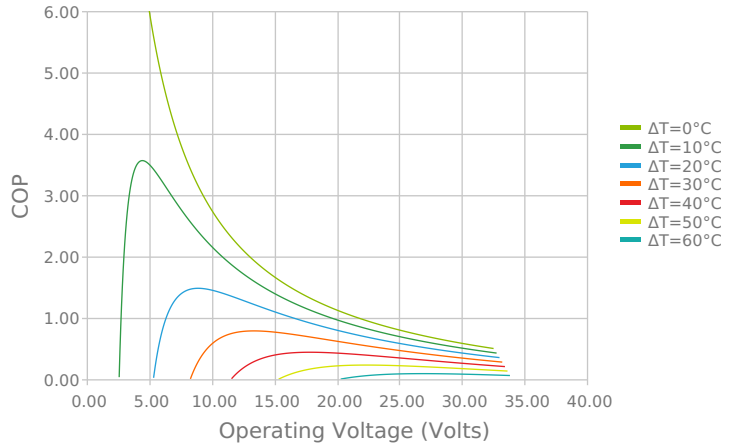
Current vs Voltage (I vs V)  
 $T_{\text{hot}} = 27^\circ\text{C}$



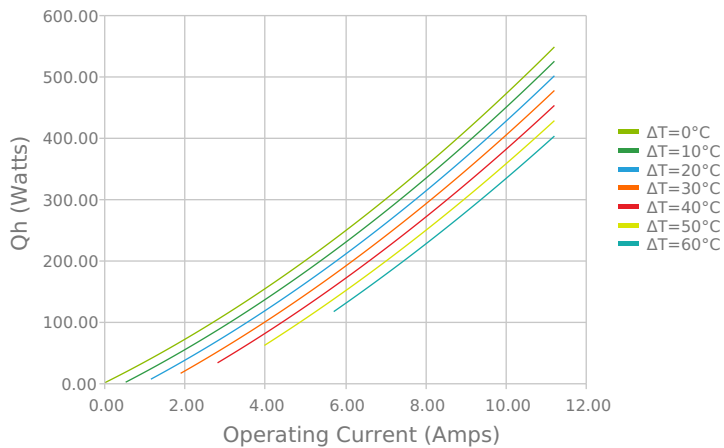
Coefficient of Performance (COP =  $Q_c/P_{in}$ )  
 $T_{hot} = 27\text{ }^{\circ}\text{C}$



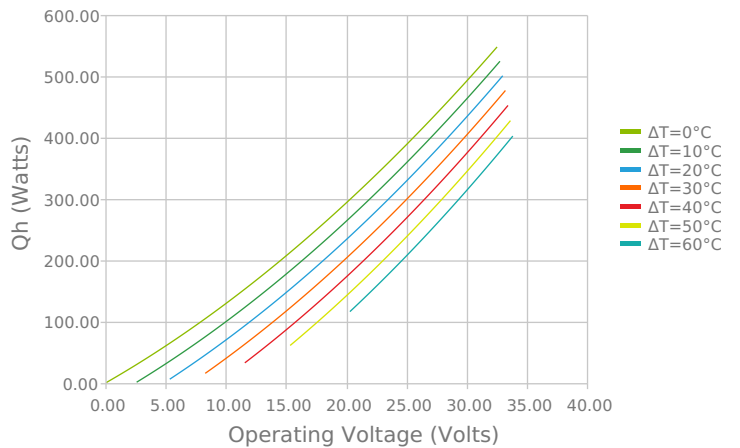
Coefficient of Performance (COP =  $Q_c/P_{in}$ )  
 $T_{hot} = 27\text{ }^{\circ}\text{C}$



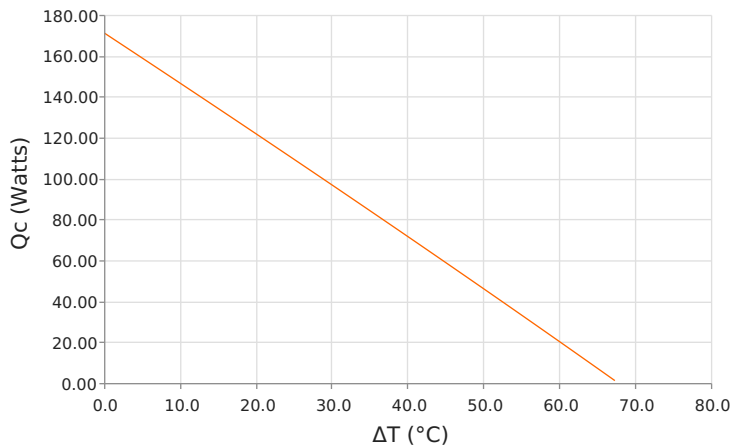
Total Heat Dissipated at Hot Side ( $Q_h = Q_c + P_{in}$ )  
 $T_{hot} = 27\text{ }^{\circ}\text{C}$



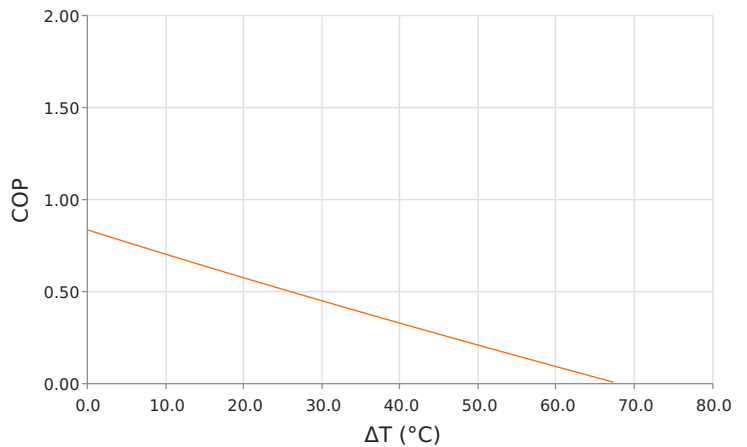
Total Heat Dissipated at Hot Side ( $Q_h = Q_c + P_{in}$ )  
 $T_{hot} = 27\text{ }^{\circ}\text{C}$



Heat Pumped at Cold Side ( $Q_c$ )  
 $T_{hot} = 27\text{ }^{\circ}\text{C}$  | Current = 8.4 Amps



Coefficient of Performance (COP =  $Q_c/P_{in}$ )  
 $T_{hot} = 27\text{ }^{\circ}\text{C}$  | Current = 8.4 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

|                                          | 27.0 °C      | 35.0 °C     | 50.0 °C     |
|------------------------------------------|--------------|-------------|-------------|
| Qcmax ( $\Delta T = 0$ )                 | 182.6 Watts  | 188.2 Watts | 198.0 Watts |
| $\Delta T_{max}$ ( $Q_c = 0$ )           | 68.9°C       | 71.8°C      | 77.0°C      |
| I <sub>max</sub> (I @ $\Delta T_{max}$ ) | 9.9 Amps     | 9.9 Amps    | 9.8 Amps    |
| V <sub>max</sub> (V @ $\Delta T_{max}$ ) | 30.9 Volts   | 32.1 Volts  | 34.3 Volts  |
| Module Resistance                        | 2.90 Ohms    | 3.02 Ohms   | 3.25 Ohms   |
| Max Operating Temperature                | 80 °C        |             |             |
| Weight                                   | 24.0 gram(s) |             |             |

\* Specifications reflect thermoelectric coefficients updated March 2020

## FINISHING OPTIONS

| Suffix | Thickness                            | Flatness / Parallelism                     | Hot Face | Cold Face | Lead Length         |
|--------|--------------------------------------|--------------------------------------------|----------|-----------|---------------------|
| TA     | 2.800 ±0.025 mm<br>0.110 ± 0.0010 in | 0.025 mm / 0.025 mm<br>0.001 in / 0.001 in | Lapped   | Lapped    | 152.4 mm<br>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

1. Max operating temperature: 80°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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