

**UltraTEC™ UTX Series Thermoelectric Cooler**

The UTX9-28-F2-4040-TA-EP-W8 is a high-performance thermoelectric cooler that is assembled with advanced thermoelectric materials and can boost cooling capacity by up to 10%. The UltraTEC UTX Series features a higher thermal insulating barrier when compared to standard materials creating a maximum temperature differential ( $\Delta T$ ) of 71.7 °C at  $Q_c = 0$ . It has a maximum  $Q_c$  of 196 Watts when  $\Delta T = 0$ .

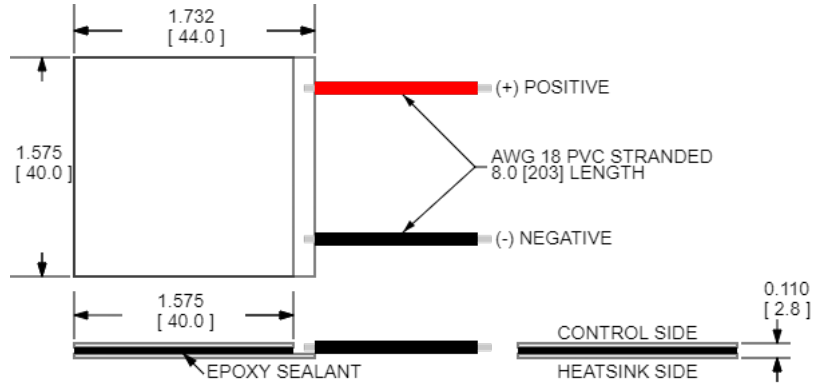


**Features**

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

**Applications**

- Spot Cooling for Industrial Lasers & Optics
- Thermoelectric Cooling for Projection Lasers

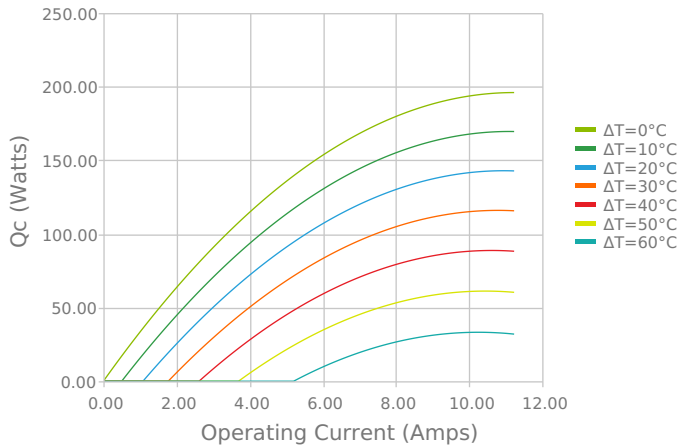


CERAMIC MATERIAL:  $Al_2O_3$   
 SOLDER CONSTRUCTION: 138°C, BiSn  
 INCHES [MM]  
 Note: Allow 0.020 in [0.5 mm] around perimeter of the thermoelectric cooler and lead wire attachment to accommodate sealant

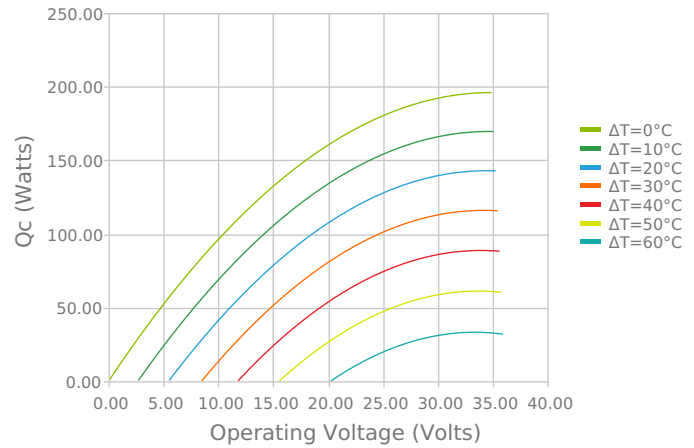
**ELECTRICAL AND THERMAL PERFORMANCE**

For maximum performance, be sure to orient the CONTROL side of the TEC against the application to be managed and the HEATSINK side against the heat sink or other heat rejection method. The CONTROL side is always opposite the side with lead attachments. Lead attachment is a passive heat loss and less impactful if located on the side that attaches to the heat exchanger.

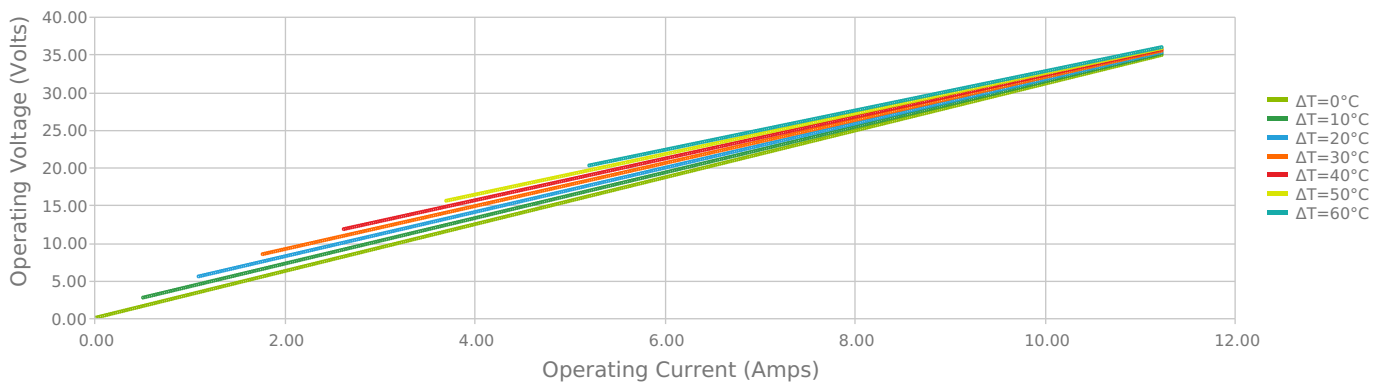
Heat Pumped at Cold Side  
 $Thot = 27\text{ }^\circ\text{C}$



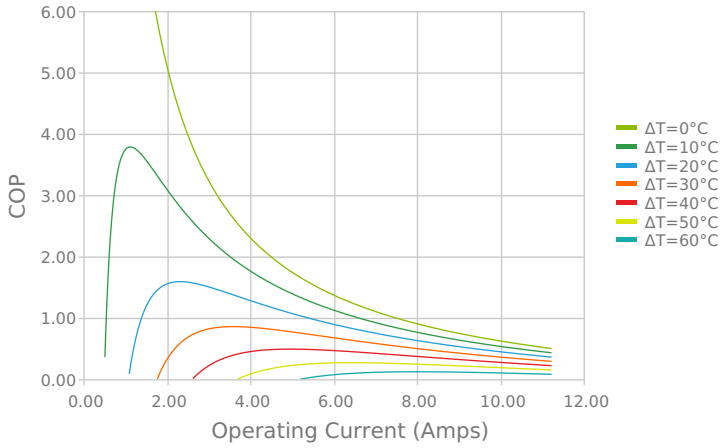
Heat Pumped at Cold Side  
 $Thot = 27\text{ }^\circ\text{C}$



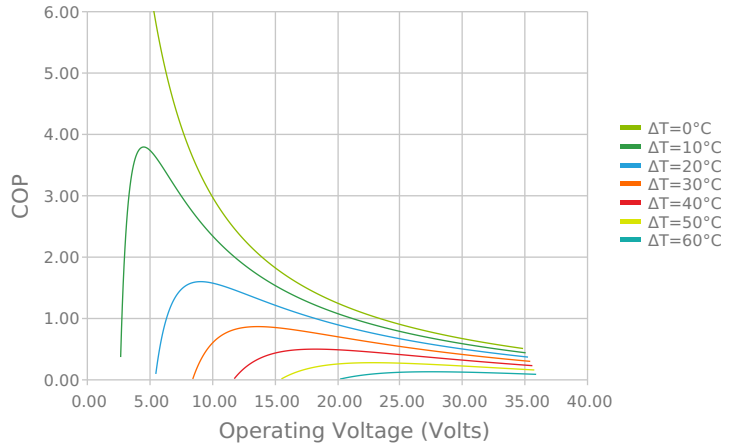
Current vs Voltage (I vs V)  
 $Thot = 27\text{ }^\circ\text{C}$



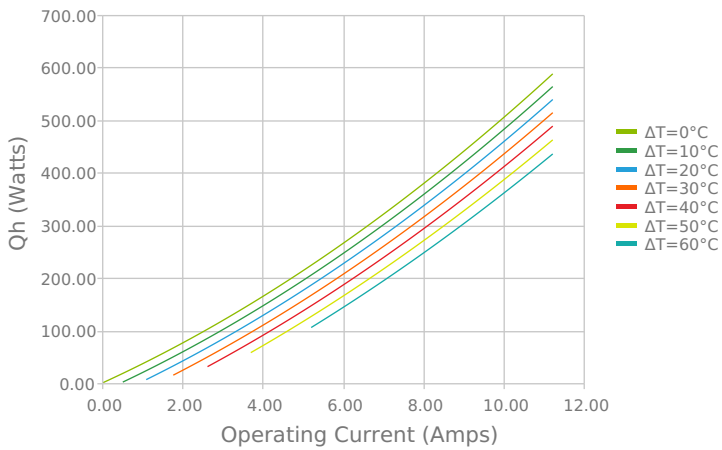
Coefficient of Performance (COP = Qc/Pin)  
 Thot = 27 °C



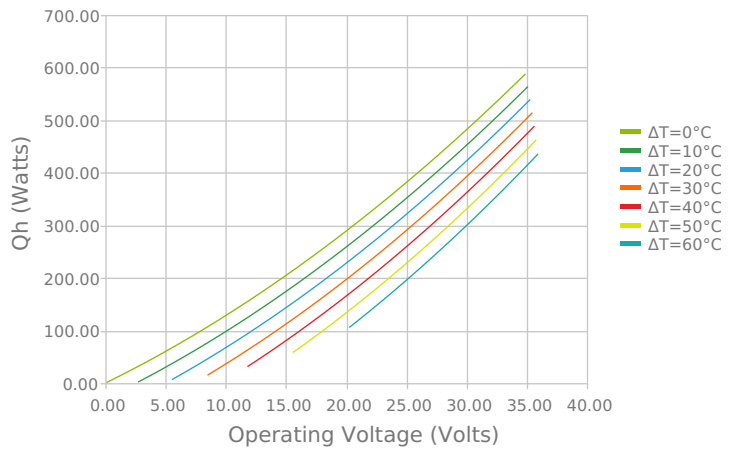
Coefficient of Performance (COP = Qc/Pin)  
 Thot = 27 °C



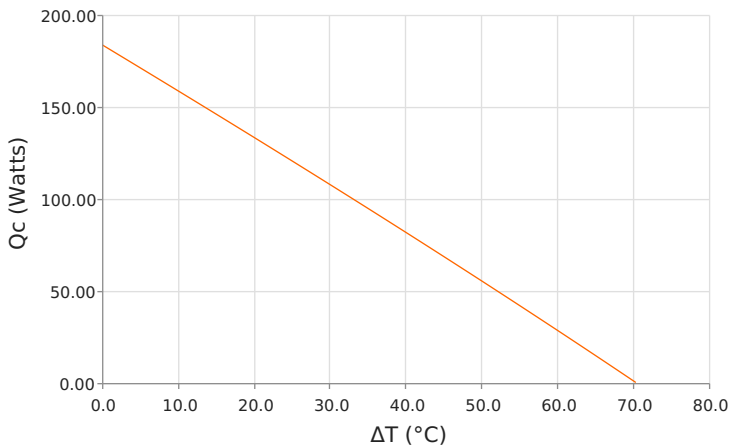
Total Heat Dissipated at Hot Side (Qh=Qc+Pin)  
 Thot = 27 °C



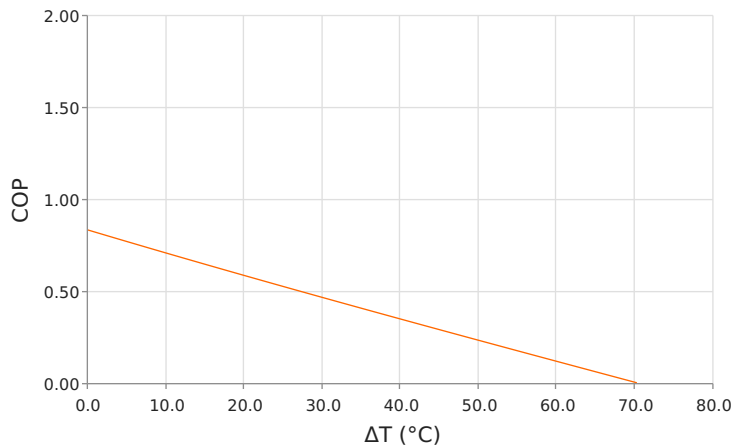
Total Heat Dissipated at Hot Side (Qh=Qc+Pin)  
 Thot = 27 °C



Heat Pumped at Cold Side (Qc)  
 Thot = 27 °C | Current = 8.4 Amps



Coefficient of Performance (COP = Qc/Pin)  
 Thot = 27 °C | Current = 8.4 Amps



## SPECIFICATIONS\*

Hot Side Temperature	27.0 °C	35.0 °C	50.0 °C
<b>Qcmax (<math>\Delta T = 0</math>)</b>	196.0 Watts	201.5 Watts	210.9 Watts
<b><math>\Delta T_{max}</math> (<math>Q_c = 0</math>)</b>	71.7°C	74.8°C	80.4°C
<b>I<sub>max</sub> (I @ <math>\Delta T_{max}</math>)</b>	10.0 Amps	9.9 Amps	9.8 Amps
<b>V<sub>max</sub> (V @ <math>\Delta T_{max}</math>)</b>	33.0 Volts	34.3 Volts	36.7 Volts
<b>Module Resistance</b>	3.11 Ohms	3.24 Ohms	3.50 Ohms
<b>Max Operating Temperature</b>	80 °C		
<b>Weight</b>	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 0.110 ± 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
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
4. Recommended to be used with a liquid heat exchanger on the hot side

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