

**UltraTEC™ UT Series Thermoelectric Cooler**

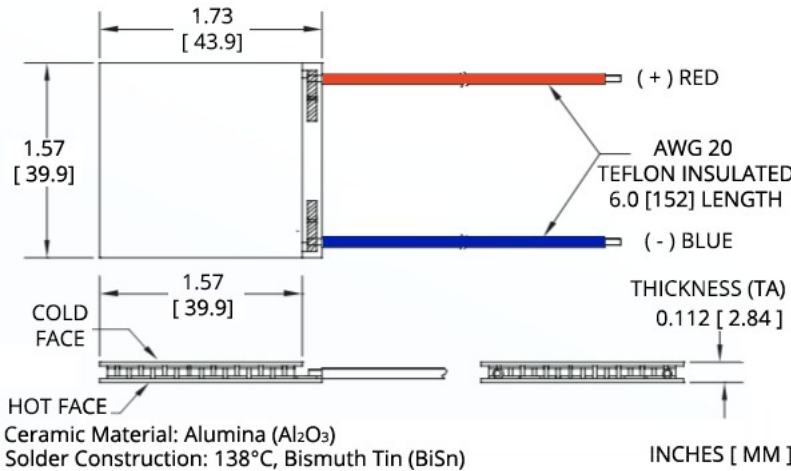
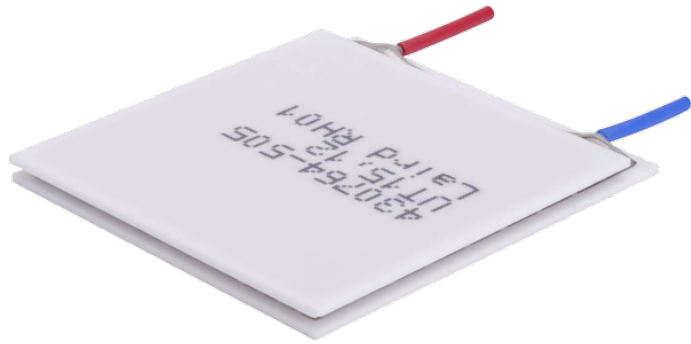
The UT15-12-F2-4040-TB-RT-W10 is a high heat flux density thermoelectric cooler. The thermoelectric module is assembled with a large number of semiconducting thermoelectric couples to achieve a higher heat pumping capacity than standard single stage thermoelectric coolers. It has a maximum Qc of 117.1 Watts when  $\Delta T = 0$  and a maximum  $\Delta T$  of 68.9 °C at Qc = 0.

**Features**

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

**Applications**

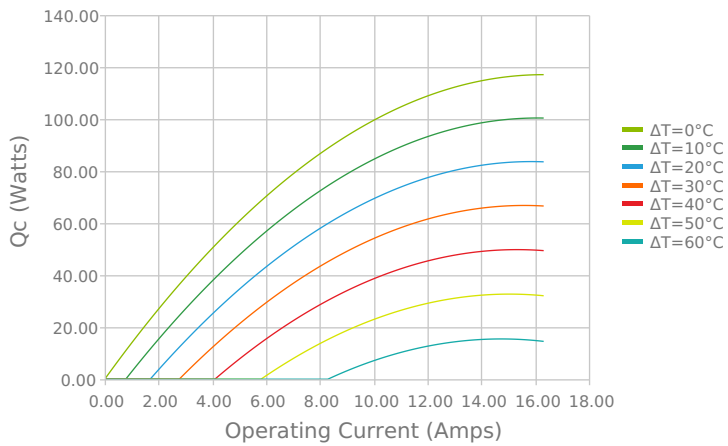
- Thermoelectric Coolers and Assemblies for Medical Applications
- Thermoelectric Coolers for Handheld Cosmetic Lasers
- Industrial Laser Cooling
- Peltier Cooling for Digital Light Processors



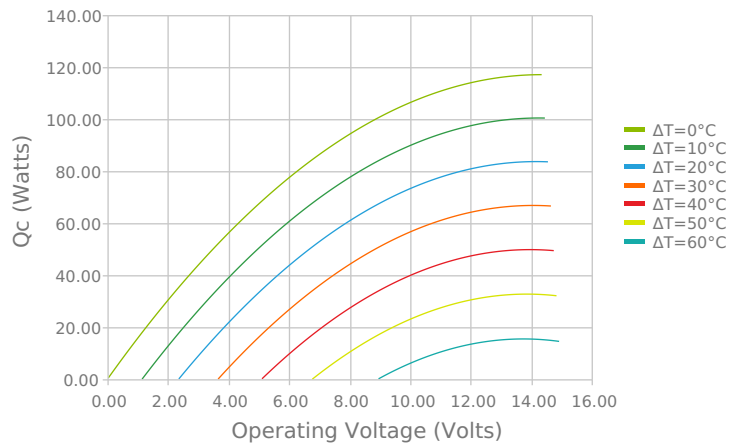
Note: Allow 0.020 in [0.5 mm] around perimeter of the thermoelectric cooler and lead wire attachment to accommodate sealant

**ELECTRICAL AND THERMAL PERFORMANCE**

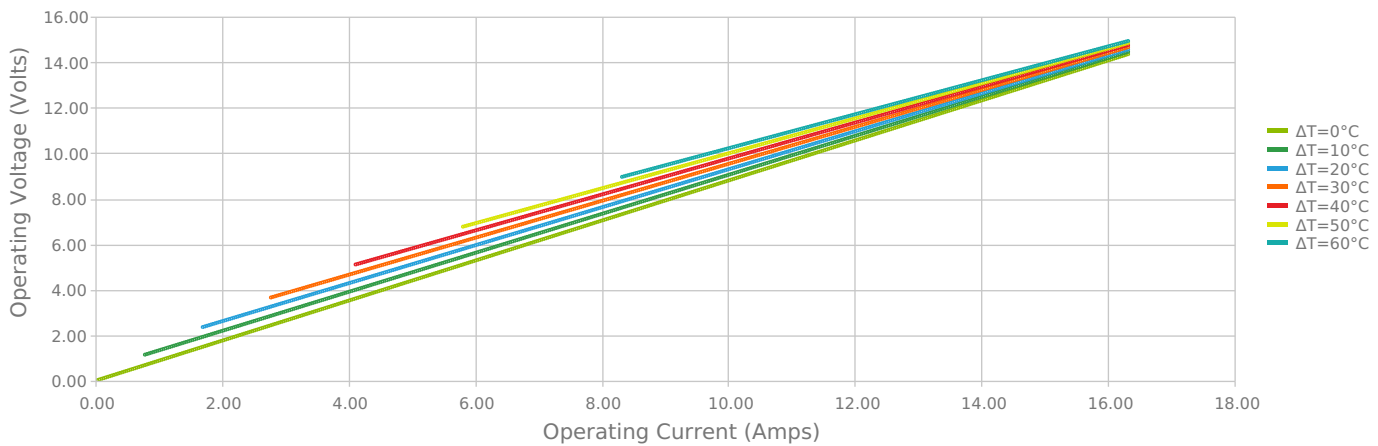
Heat Pumped at Cold Side  
 $T_{hot} = 27\text{ °C}$



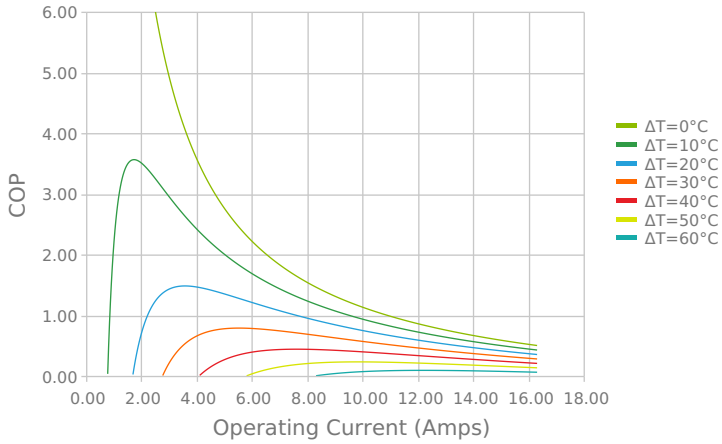
Heat Pumped at Cold Side  
 $T_{hot} = 27\text{ °C}$



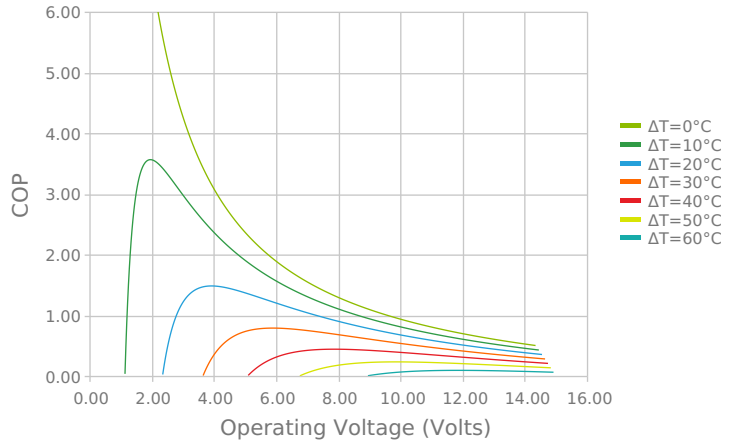
Current vs Voltage (I vs V)  
 $T_{hot} = 27\text{ °C}$



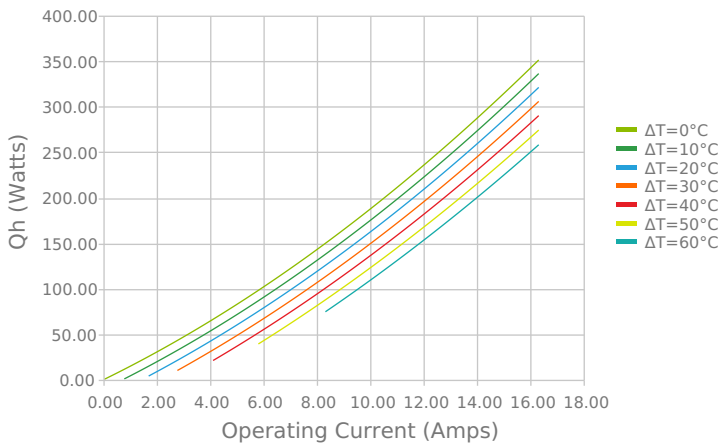
Coefficient of Performance (COP = Qc/Pin)  
 Thot = 27 °C



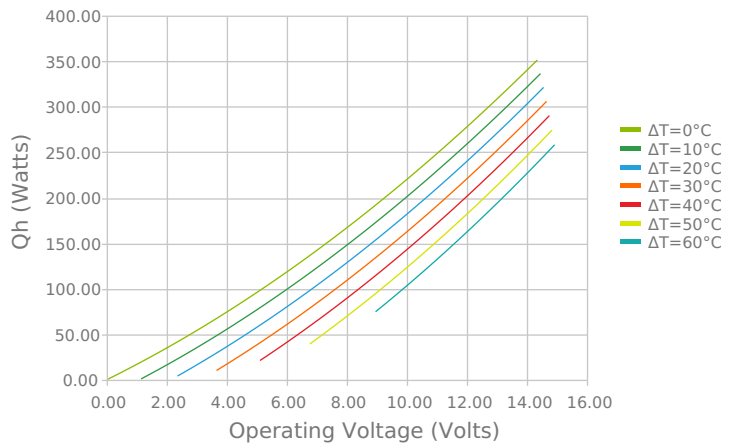
Coefficient of Performance (COP = Qc/Pin)  
 Thot = 27 °C



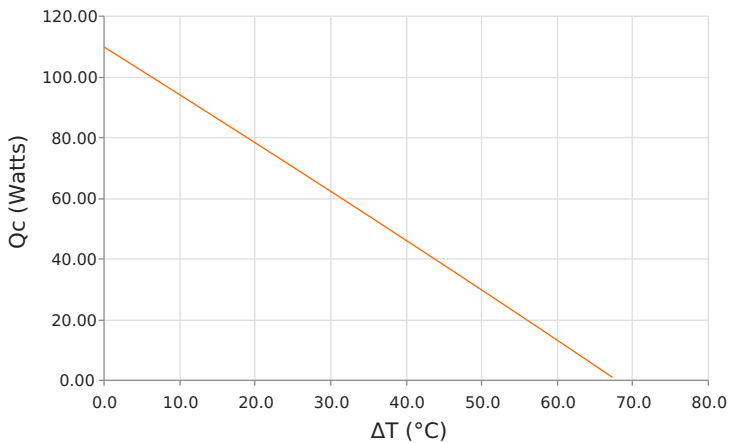
Total Heat Dissipated at Hot Side (Qh=Qc+Pin)  
 Thot = 27 °C



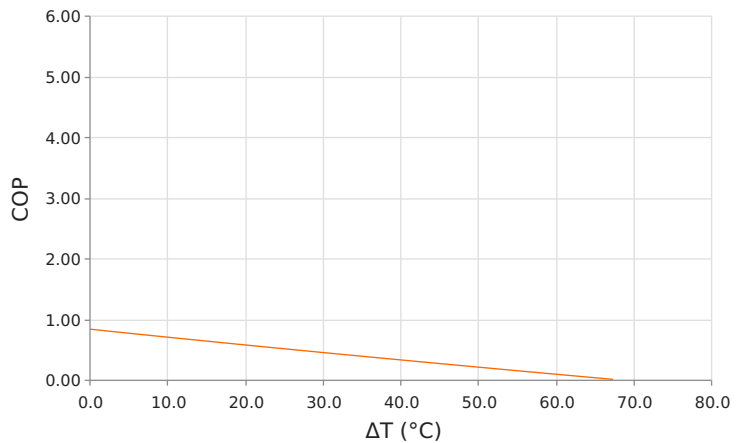
Total Heat Dissipated at Hot Side (Qh=Qc+Pin)  
 Thot = 27 °C



Heat Pumped at Cold Side (Qc)  
 Thot = 27 °C | Current = 12.2 Amps



Coefficient of Performance (COP = Qc/Pin)  
 Thot = 27 °C | Current = 12.2 Amps



## SPECIFICATIONS\*

Hot Side Temperature	27.0 °C	35.0 °C	50.0 °C
<b>Qcmax (<math>\Delta T = 0</math>)</b>	117.1 Watts	120.7 Watts	126.9 Watts
<b><math>\Delta T_{max}</math> (<math>Q_c = 0</math>)</b>	68.9°C	71.8°C	77.0°C
<b>I<sub>max</sub> (I @ <math>\Delta T_{max}</math>)</b>	14.4 Amps	14.4 Amps	14.2 Amps
<b>V<sub>max</sub> (V @ <math>\Delta T_{max}</math>)</b>	13.6 Volts	14.2 Volts	15.1 Volts
<b>Module Resistance</b>	0.88 Ohms	0.92 Ohms	0.98 Ohms
<b>Max Operating Temperature</b>	80 °C		
<b>Weight</b>	20.0 gram(s)		

\* Specifications reflect thermoelectric coefficients updated March 2020

## FINISHING OPTIONS

Suffix	Thickness	Flatness / Parallelism	Hot Face	Cold Face	Lead Length
TB	2.845 ±0.013 mm 0.112 ± 0.001 in	0.013 mm / 0.013 mm 0.0005 in / 0.0005 in	Lapped	Lapped	152.4 mm 6.00 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: 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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