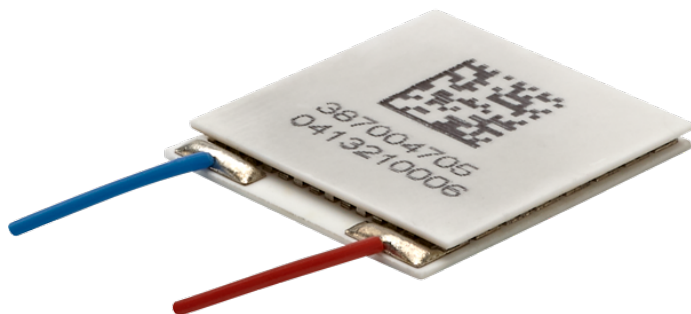


## UltraTEC™ UTX Series Thermoelectric Cooler

The UTX8-12-F2-2525-11-RT-W6 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 68.5 Watts when  $\Delta T = 0$ .

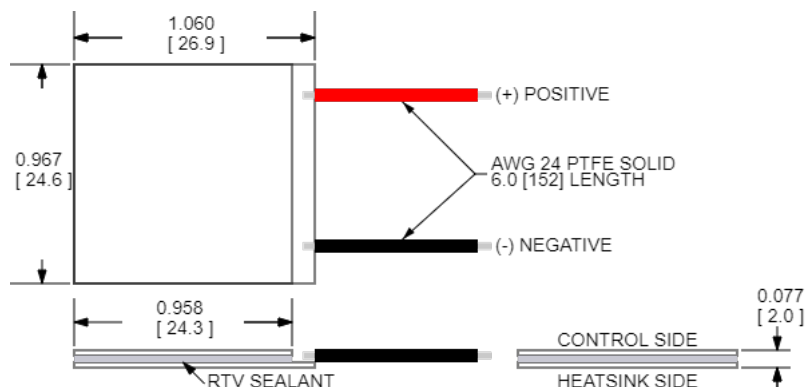


## Features

- 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

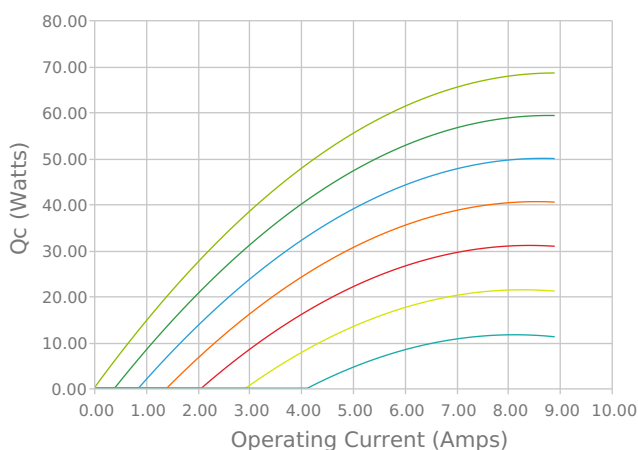
INCHES [MM]

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

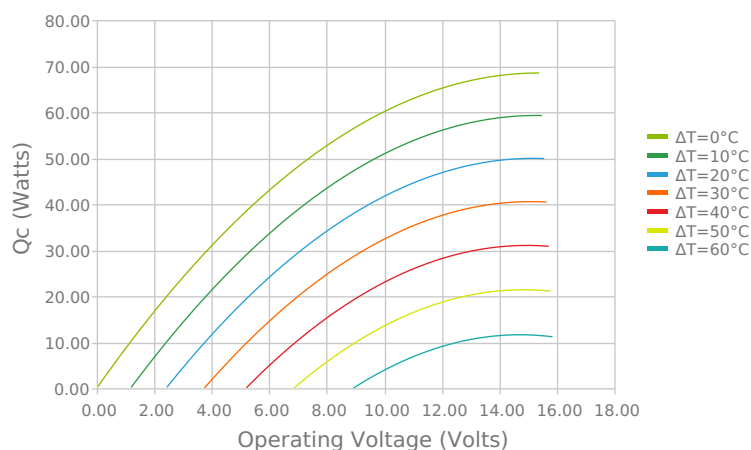
## ELECTRICAL AND THERMAL PERFORMANCE

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.

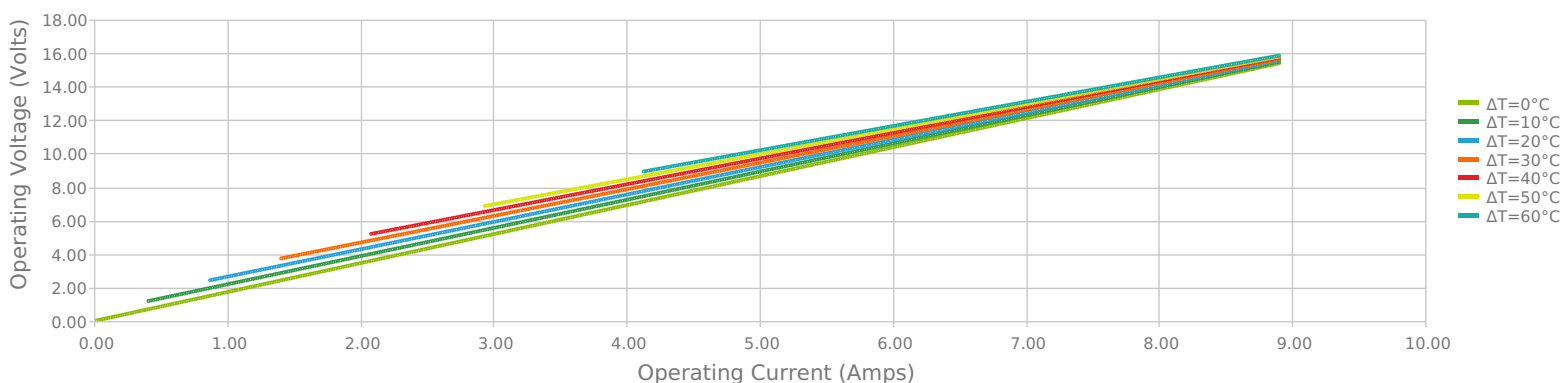
Heat Pumped at Cold Side  
 $T_{hot} = 27\text{ °C}$



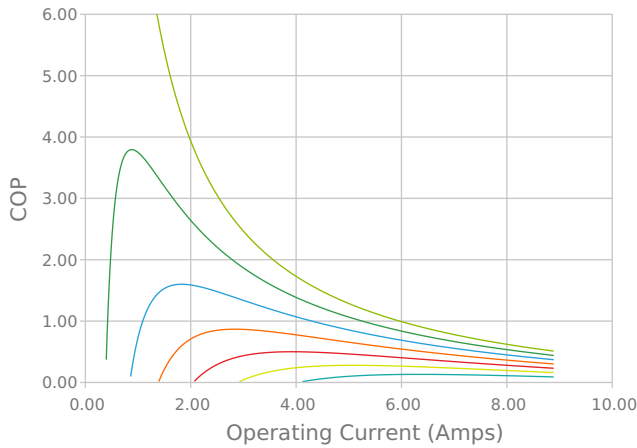
Heat Pumped at Cold Side  
 $T_{hot} = 27\text{ °C}$



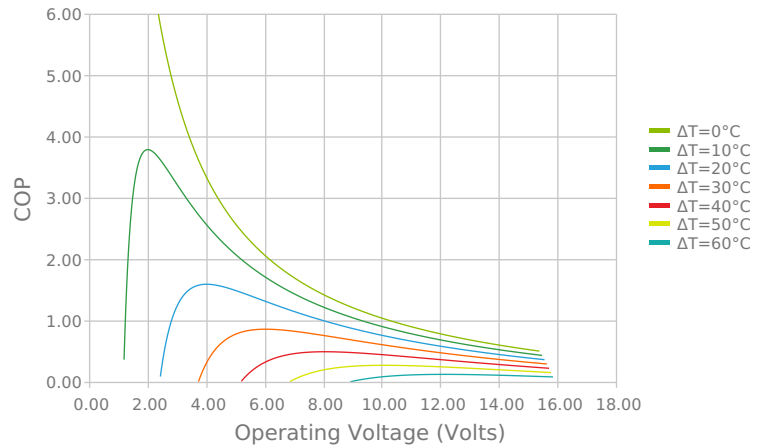
Current vs Voltage (I vs V)  
 $T_{hot} = 27\text{ °C}$



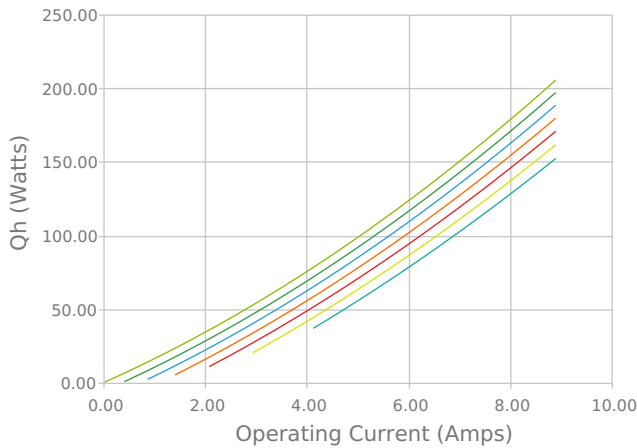
Coefficient of Performance (COP =  $Q_c/P_{in}$ )  
 $T_{hot} = 27^\circ\text{C}$



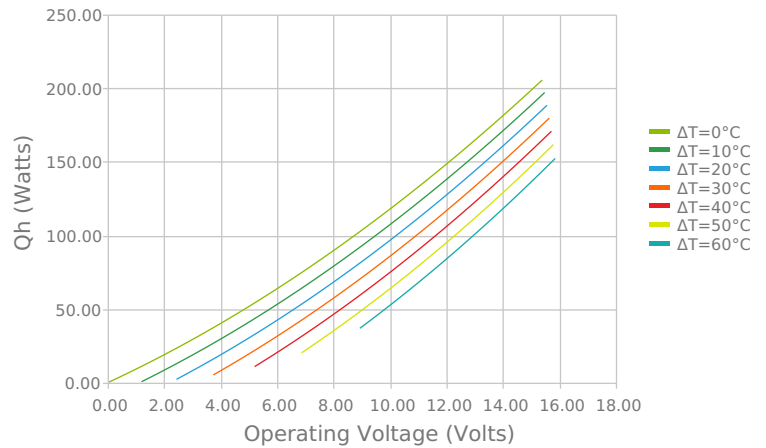
Coefficient of Performance (COP =  $Q_c/P_{in}$ )  
 $T_{hot} = 27^\circ\text{C}$



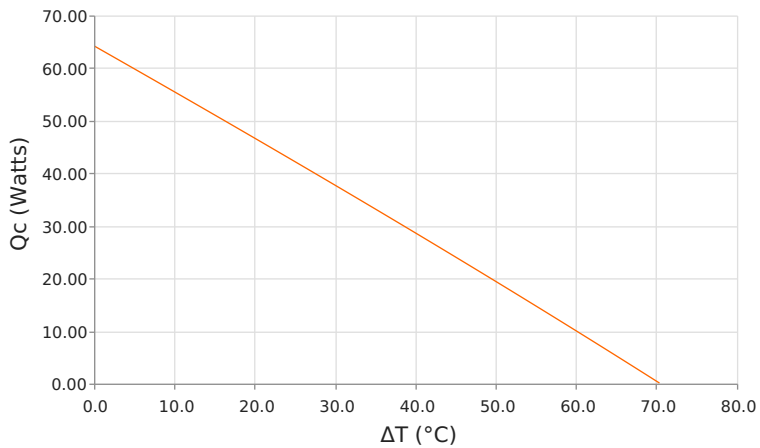
Total Heat Dissipated at Hot Side ( $Q_h=Q_c+P_{in}$ )  
 $T_{hot} = 27^\circ\text{C}$



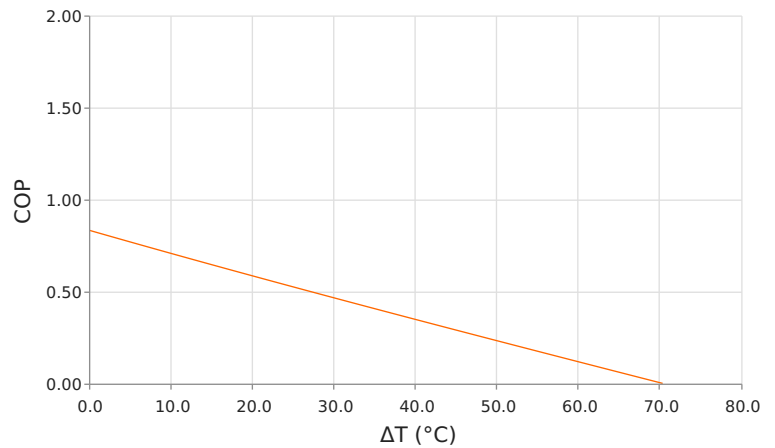
Total Heat Dissipated at Hot Side ( $Q_h=Q_c+P_{in}$ )  
 $T_{hot} = 27^\circ\text{C}$



Heat Pumped at Cold Side ( $Q_c$ )  
 $T_{hot} = 27^\circ\text{C}$  | Current = 6.7 Amps



Coefficient of Performance (COP =  $Q_c/P_{in}$ )  
 $T_{hot} = 27^\circ\text{C}$  | Current = 6.7 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 ( $\Delta T = 0$ )	68.5 Watts	70.4 Watts	73.7 Watts
$\Delta T_{max}$ ( $Q_c = 0$ )	71.7°C	74.8°C	80.4°C
I <sub>max</sub> (I @ $\Delta T_{max}$ )	7.9 Amps	7.9 Amps	7.8 Amps
V <sub>max</sub> (V @ $\Delta T_{max}$ )	14.6 Volts	15.1 Volts	16.2 Volts
Module Resistance	1.73 Ohms	1.80 Ohms	1.95 Ohms
Max Operating Temperature	80 °C		
Weight	7.0 gram(s)		

\* Specifications reflect thermoelectric coefficients updated March 2020

## FINISHING OPTIONS

Suffix	Thickness	Flatness / Parallelism	Hot Face	Cold Face	Lead Length
TA	1.956 ±0.025 mm 0.077 ± 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: 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

Any information furnished by Laird and its agents, whether in specifications, data sheets, product catalogues or otherwise, is believed to be (but is not warranted as being) accurate and reliable, is provided for information only and does not form part of any contract with Laird. All specifications are subject to change without notice. Laird assumes no responsibility and disclaims all liability for losses or damages resulting from use of or reliance on this information. All Laird products are sold subject to the Laird Terms and Conditions of sale (including Laird's limited warranty) in effect from time to time, a copy of which will be furnished upon request.

© Copyright 2023 Laird Thermal Systems, Inc. All rights reserved. Laird™, the Laird Ring Logo, and Laird Thermal Systems™ are trademarks or registered trademarks of Laird Limited or its subsidiaries.

UltraTEC™ is a trademark of Laird Thermal Systems, Inc. All other marks are owned by their respective owners.

Revision: 01 Date: 06-07-2023

Print Date: 06-08-2023