

HiTemp ET Series Thermoelectric Cooler

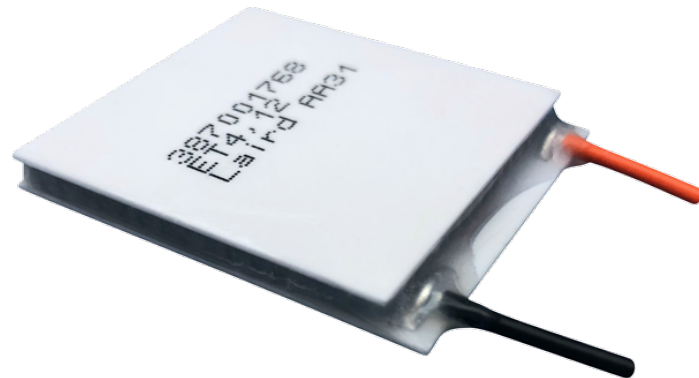
Note: This product is not recommended for new designs.

The recommended replacement is:

MFG Part Number: 387004938

Description: ETX4-12-F2-4040-TA-RT-W6

The ET4-12-F2-4040-TA-RT-W6 high temperature thermoelectric cooler uses Laird Thermal Systems' enhanced Thermoelectric Module construction preventing performance degrading diffusion, which is common in standard grade thermoelectric coolers operating in high temperature environments exceeding 80 °C. It has a maximum Q_c of 33.8 Watts when $\Delta T = 0$ and a maximum ΔT of 77.9 °C at $Q_c = 0$.

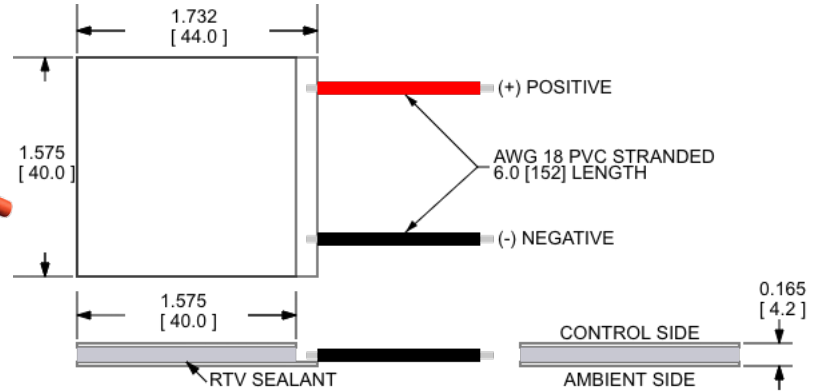


Features

- 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: Al_2O_3

SOLDER CONSTRUCTION: 232°C, SbSn

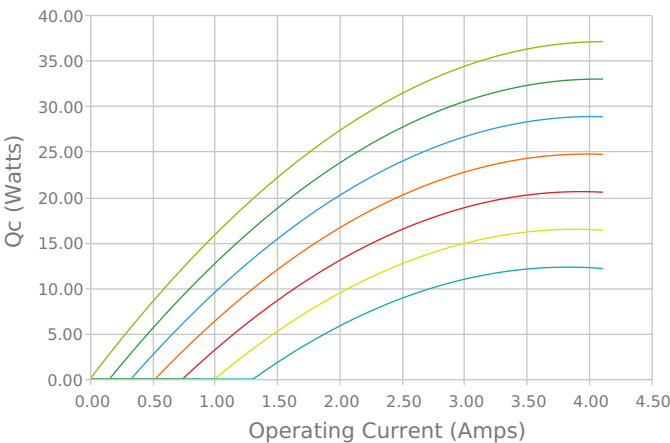
INCHES [MM]

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

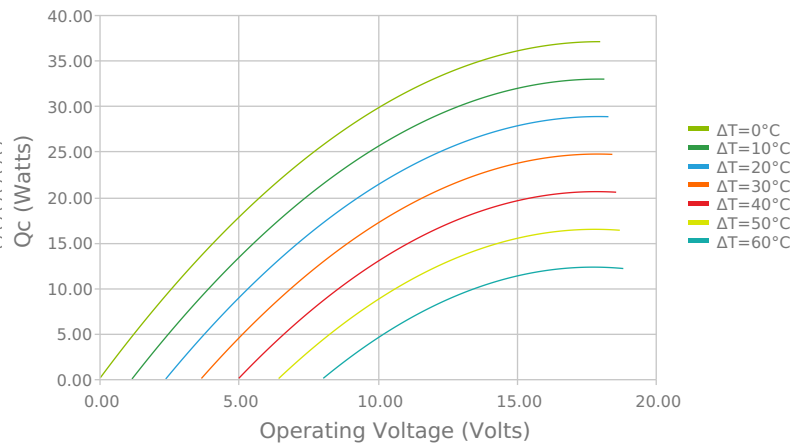
Electrical and Thermal Performance

For maximum performance, be sure to orient the CONTROL side of the TEC against the application to be managed and the AMBIENT 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.

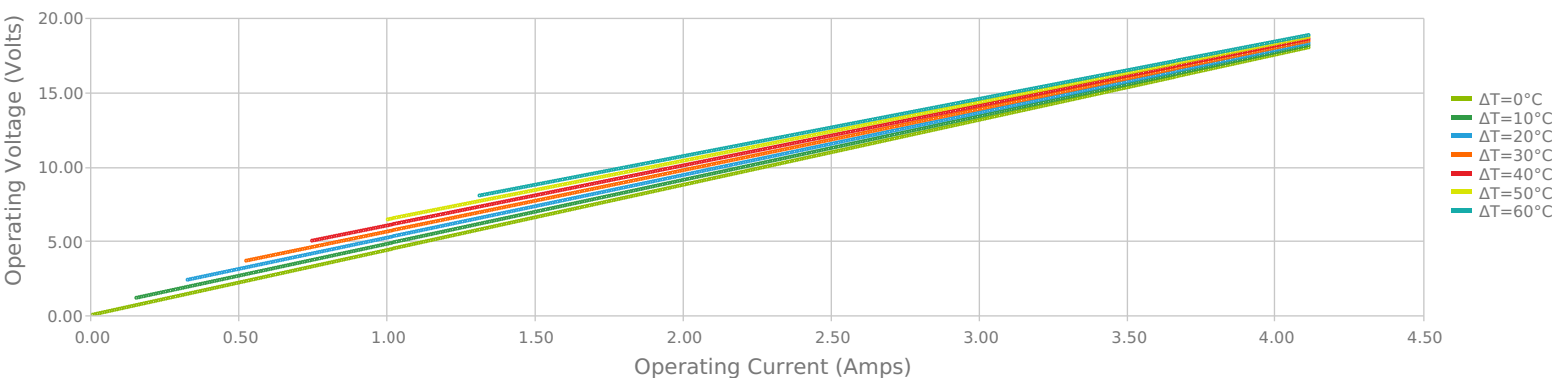
Heat Pumped at Cold Side
 $T_{hot} = 85\text{ °C}$



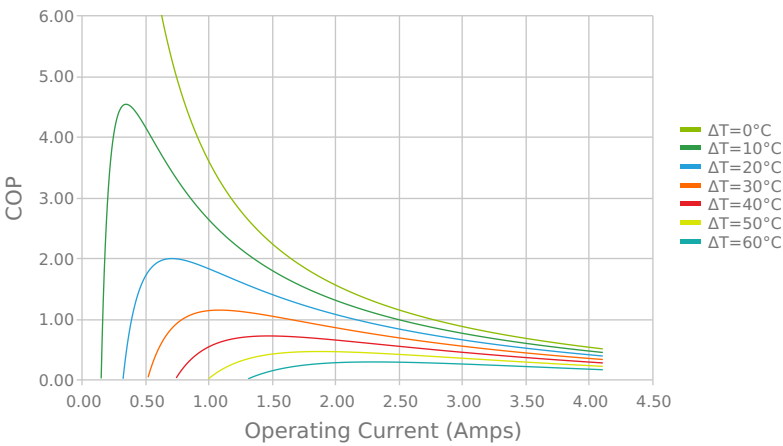
Heat Pumped at Cold Side
 $T_{hot} = 85\text{ °C}$



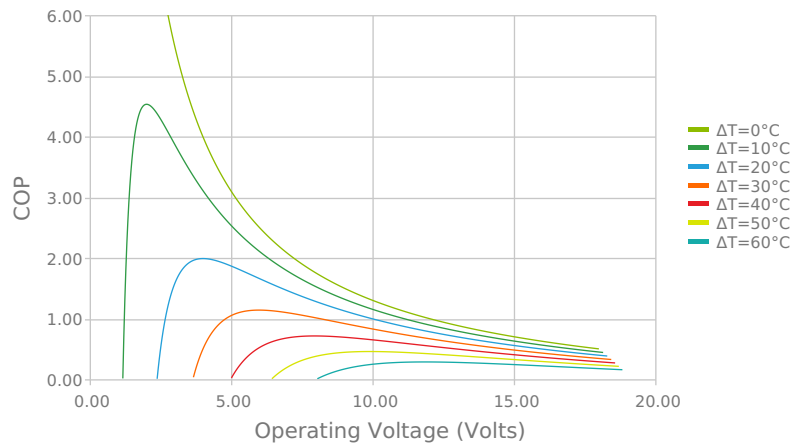
Current vs Voltage (I vs V)
 $T_{hot} = 85\text{ °C}$



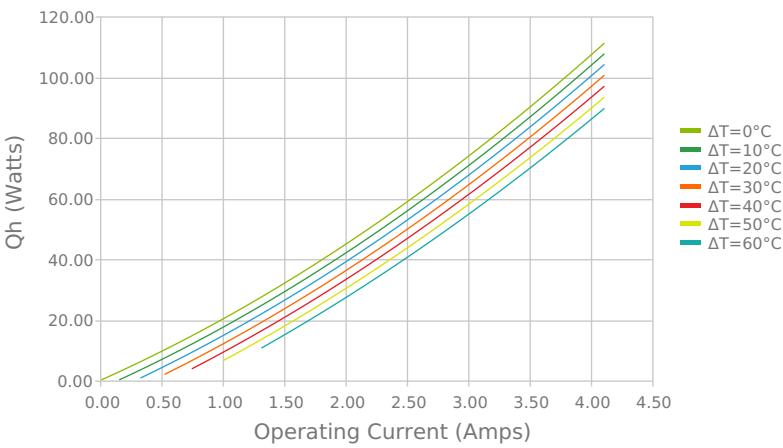
Coefficient of Performance (COP = Q_c/P_{in})
 $T_{hot} = 85\text{ }^{\circ}\text{C}$



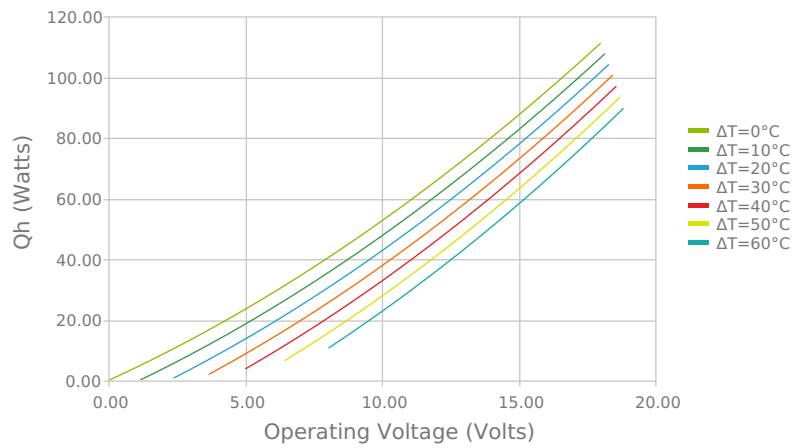
Coefficient of Performance (COP = Q_c/P_{in})
 $T_{hot} = 85\text{ }^{\circ}\text{C}$



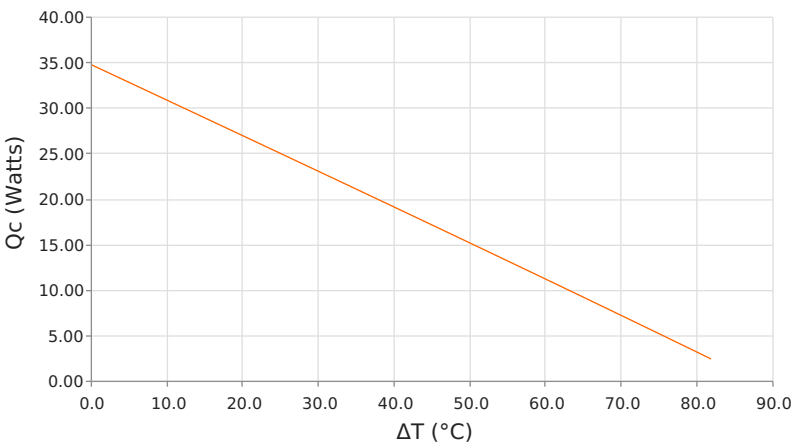
Total Heat Dissipated at Hot Side ($Q_h=Q_c+P_{in}$)
 $T_{hot} = 85\text{ }^{\circ}\text{C}$



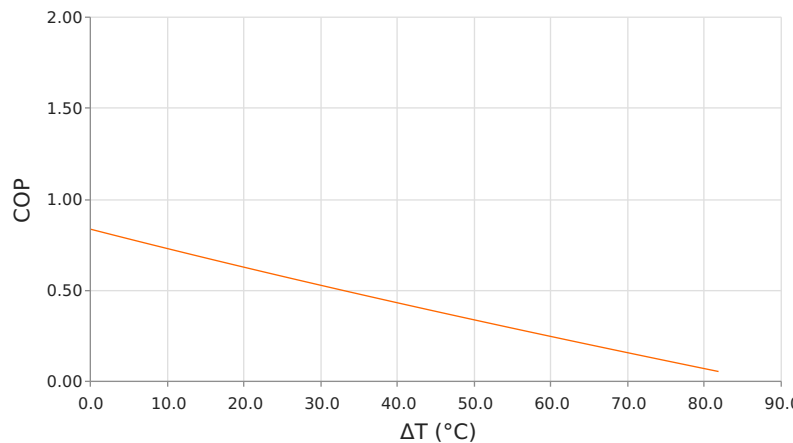
Total Heat Dissipated at Hot Side ($Q_h=Q_c+P_{in}$)
 $T_{hot} = 85\text{ }^{\circ}\text{C}$



Heat Pumped at Cold Side (Q_c)
 $T_{hot} = 85\text{ }^{\circ}\text{C}$ | operating = 3.1 Amps



Coefficient of Performance (COP = Q_c/P_{in})
 $T_{hot} = 85\text{ }^{\circ}\text{C}$ | operating = 3.1 Amps



Specifications

Hot Side Temperature	50.0 °C	85.0 °C	110.0 °C
Qcmax (ΔT = 0)	33.8 Watts	37.1 Watts	38.7 Watts
ΔTmax (Qc = 0)	77.9°C	89.3°C	96.2°C
Imax (I @ ΔTmax)	3.7 Amps	3.7 Amps	3.6 Amps
Vmax (V @ ΔTmax)	15.3 Volts	17.5 Volts	19.1 Volts
Module Resistance	3.77 Ohms	4.38 Ohms	4.79 Ohms
Max Operating Temperature	150 °C		
Weight	21.0 gram(s)		

Finishing Options

Suffix	Thickness	Flatness / Parallelism	Hot Face	Cold Face	Lead Length
11	4.191 ±0.051 mm 0.165 ± 0.0020 in	0.051 mm / 0.051 mm 0.002 in / 0.002 in	Lapped	Lapped	50.8 mm 2.00 in

Sealing Options

Suffix	Sealant	Color	Temp Range	Description
RT	RTV	Translucent or White	-60 to 204°C	Non-corrosive, silicone adhesive

Notes

Max operating temperature: 150°C
Do not exceed Imax or Vmax when operating module
Reference assembly guidelines for recommended installation

Any information furnished by Tark Thermal Solutions 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 Tark Thermal Solutions. All specifications are subject to change without notice. Tark Thermal Solutions assumes no responsibility and disclaims all liability for losses or damages resulting from use of or reliance on this information. All Tark products are sold subject to the Tark Thermal Solutions Terms and Conditions of sale (including Tark’s limited warranty) in effect from time to time, a copy of which will be furnished upon request.

© Copyright 2025 Tark Thermal Solutions, Inc. All rights reserved.

Revision: 00 Date: 06-01-2022

Print Date: 05-29-2025