

HiTemp ETX Series Thermoelectric Cooler

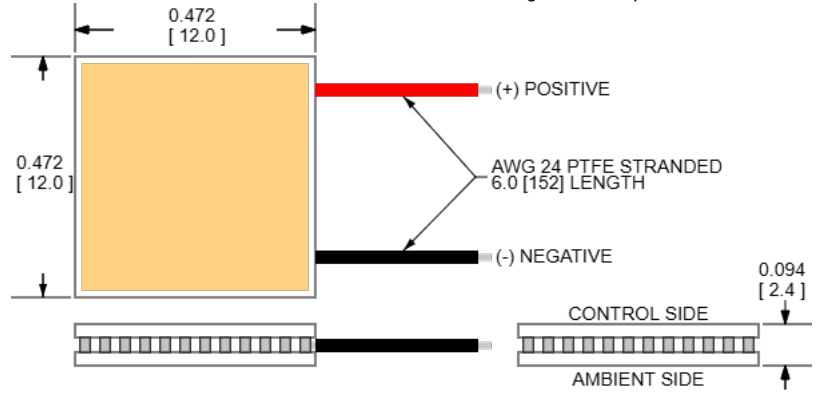
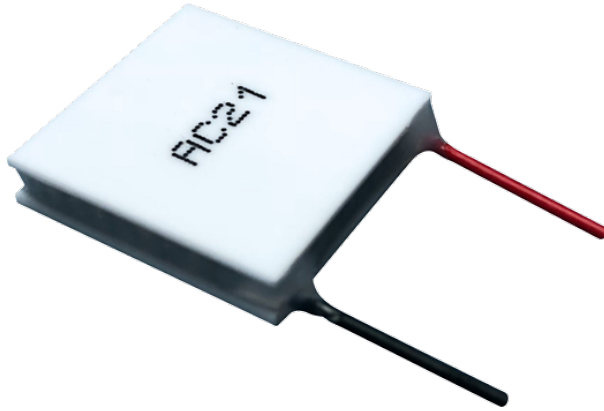
The ETX3-48-F1-1212-GG-W6 high temperature, high-performance thermoelectric cooler uses Laird Thermal Systems' enhanced thermoelectric module construction preventing performance degrading diffusion, which is common in standard grade thermoelectric coolers operating in high temperature environments exceeding 80 °C. It has a maximum Q_c of 11.3 Watts when $\Delta T = 0$ and a maximum ΔT of 83.2 °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
- Heating and Cooling for Liquid Chromatography Systems
- Thermoelectric Cooling for Security Cameras



CERAMIC MATERIAL: Al₂O₃
SOLDER CONSTRUCTION: 232°C, SbSn

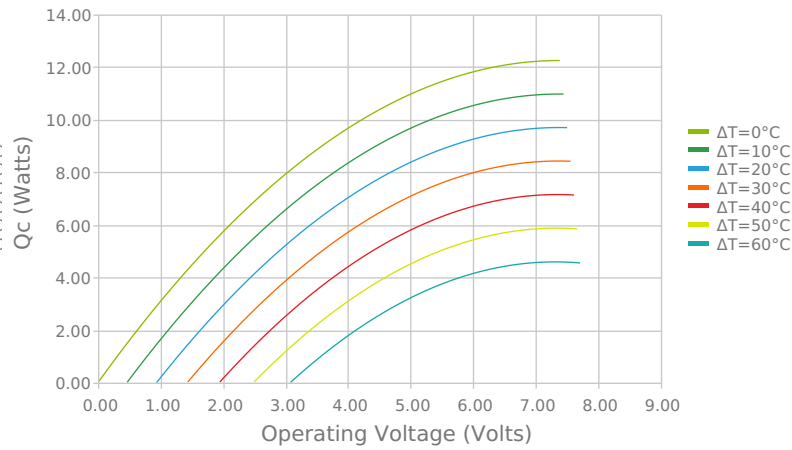
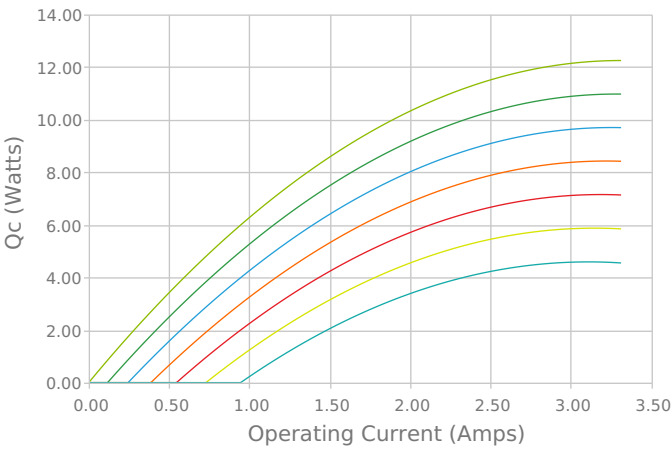
INCHES [MM]

Electrical and Thermal Performance

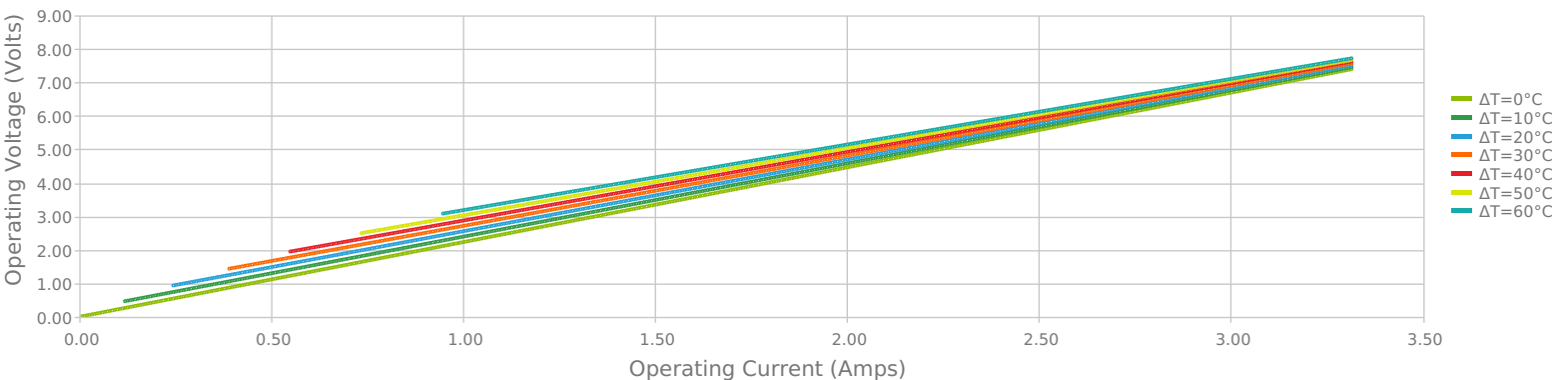
For maximum performance, be sure to orient the CONTROL side of the TEC against the application to be managed and the AMBIENT side against the heat sink or other heat rejection method. The CONTROL side is always opposite the side with lead attachments. Lead attachment is a passive heat loss and less impactful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

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

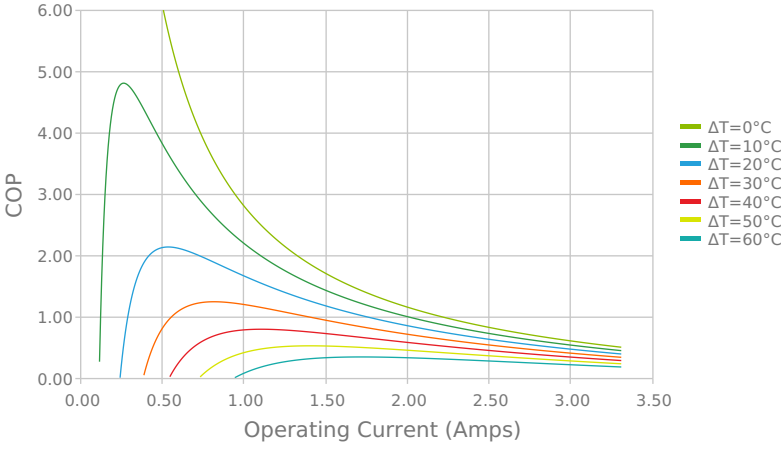
Heat Pumped at Cold Side
 $Thot = 85\text{ °C}$



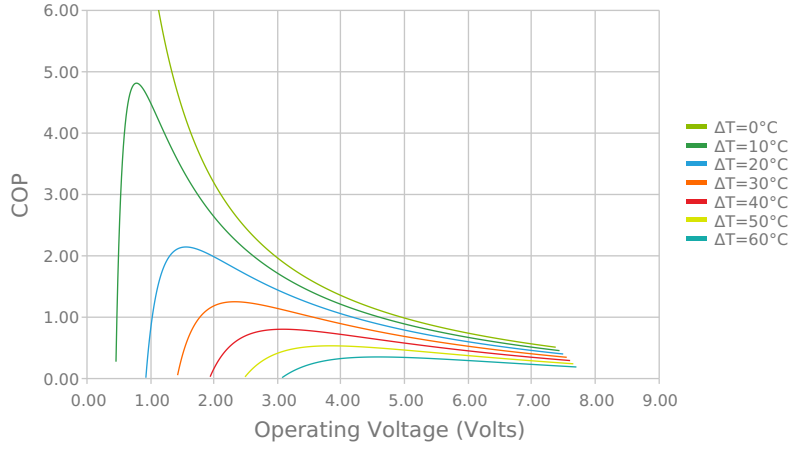
Current vs Voltage (I vs V)
 $Thot = 85\text{ °C}$



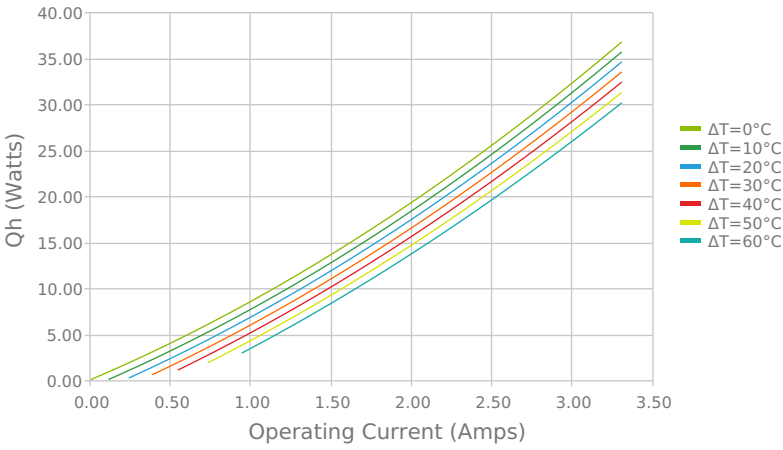
Coefficient of Performance (COP = Qc/Pin)
Thot = 85 °C



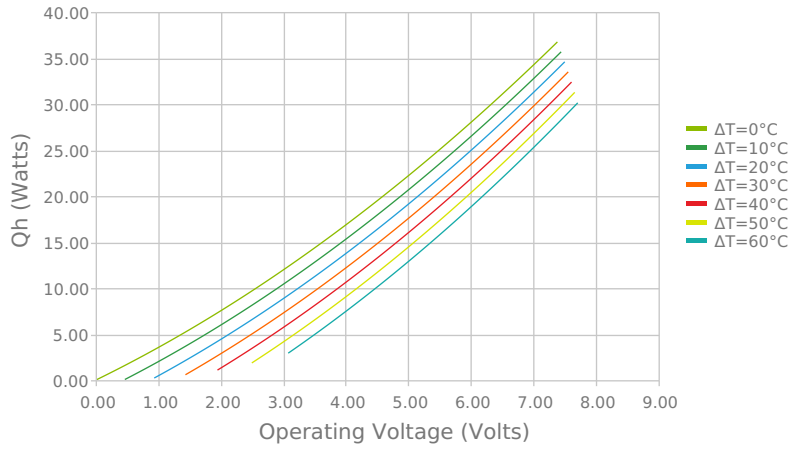
Coefficient of Performance (COP = Qc/Pin)
Thot = 85 °C



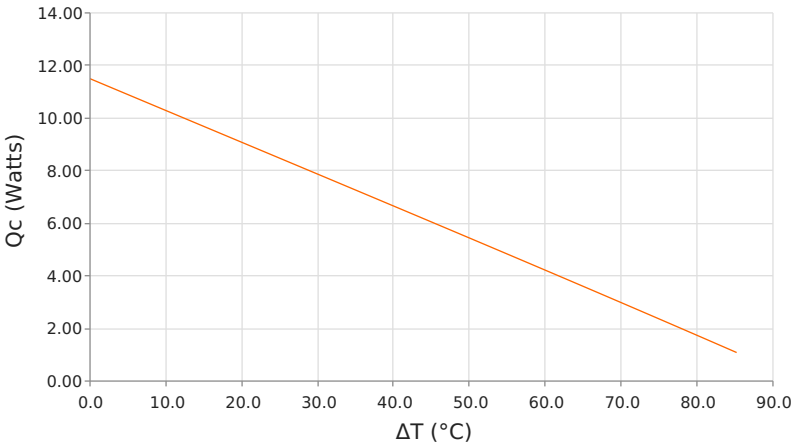
Total Heat Dissipated at Hot Side (Qh=Qc+Pin)
Thot = 85 °C



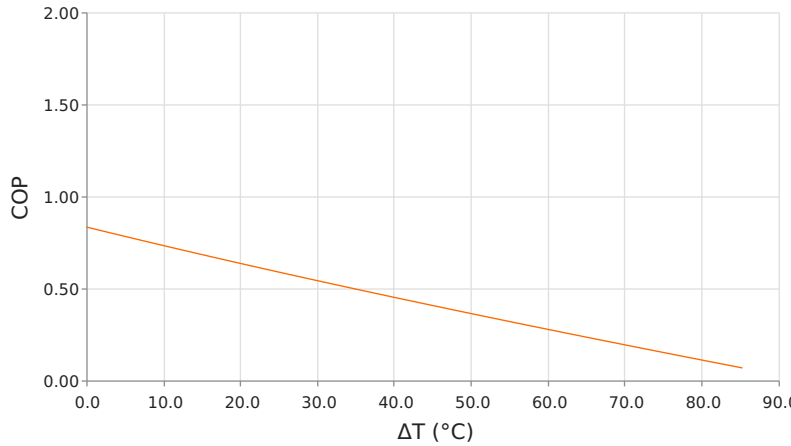
Total Heat Dissipated at Hot Side (Qh=Qc+Pin)
Thot = 85 °C



Heat Pumped at Cold Side (Qc)
Thot = 85 °C | Ioperating = 2.5 Amps



Coefficient of Performance (COP = Qc/Pin)
Thot = 85 °C | Ioperating = 2.5 Amps



Specifications

Hot Side Temperature	50.0 °C	85.0 °C	110.0 °C
Qcmax ($\Delta T = 0$)	11.3 Watts	12.2 Watts	12.6 Watts
ΔT_{max} ($Q_c = 0$)	83.2°C	95.3°C	102.0°C
I_{max} (I @ ΔT_{max})	3.1 Amps	3.0 Amps	2.9 Amps
V_{max} (V @ ΔT_{max})	6.3 Volts	7.2 Volts	7.8 Volts
Module Resistance	1.91 Ohms	2.23 Ohms	2.44 Ohms
Max Operating Temperature	150 °C		
Weight	5.0 gram(s)		

Finishing Options

Suffix	Thickness	Flatness / Parallelism	Hot Face	Cold Face	Lead Length
GG	2.380 ±0.127 mm 0.094 ± 0.0050 in	N/A / N/A	Au Plated	Au Plated	152.4 mm 6.00 in

Sealing Options

Suffix	Sealant	Color	Temp Range	Description
	None			No sealing specified

Notes

Max operating temperature: 150°C
Do not exceed I_{max} or V_{max} 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: 01 Date: 07-24-2024

Print Date: 05-13-2025