

ZT Series Thermoelectric Cooler

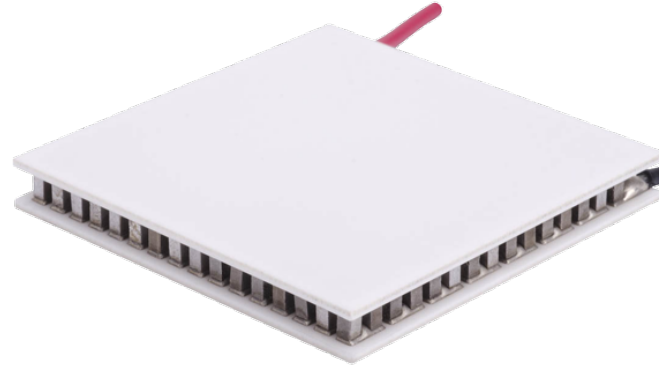
Note: This product is not recommended for new designs.

The recommended replacement is:

MFG Part Number: 387009501

Description: ETX4-12-F1-4040-TA-W8

The ZT4-12-F1-4040-TA-W8 is a high performance thermoelectric cooler that achieves a higher temperature differential than standard single stage thermoelectric coolers. It has a maximum Q_c of 33.3 Watts when $\Delta T = 0$ and a maximum ΔT of 71.7 °C at $Q_c = 0$.

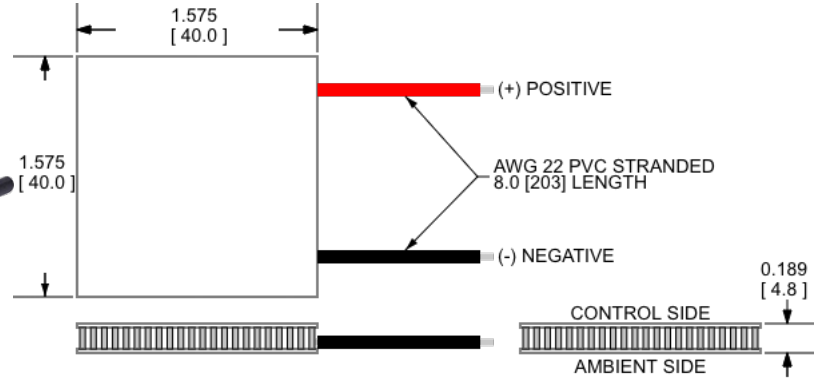


Features

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

Applications

- Peltier Cooling for Refrigerated Centrifuges
- Peltier Cooling for Machine Vision
- Thermoelectric Cooling for CMOS Sensors
- Cooling Solutions for Autonomous Systems



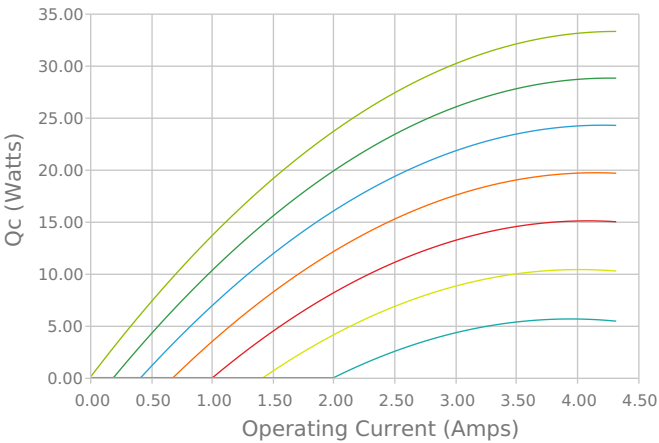
CERAMIC MATERIAL: Al_2O_3
SOLDER CONSTRUCTION: 138°C, BiSn

INCHES [MM]

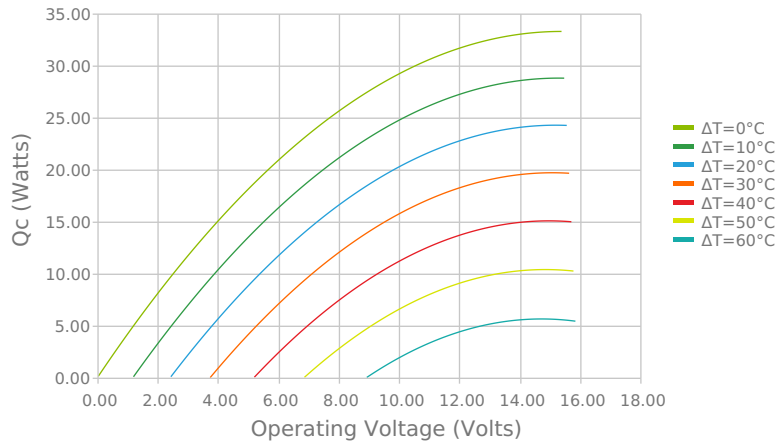
Electrical and Thermal Performance

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.

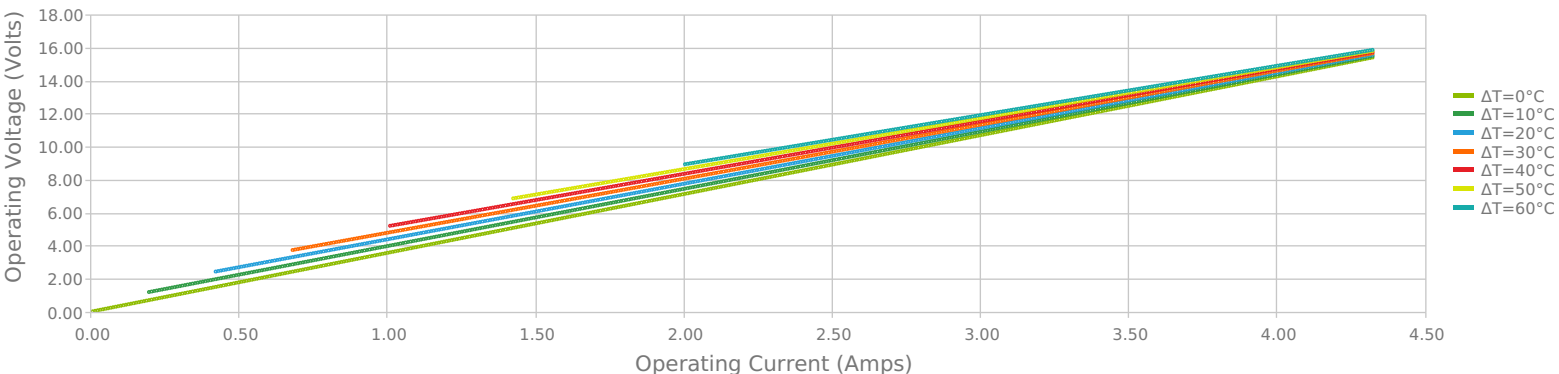
Heat Pumped at Cold Side
 $T_{hot} = 27\text{ °C}$



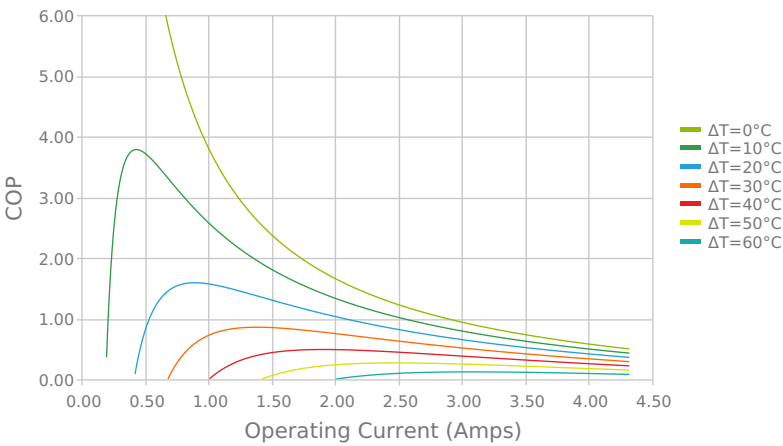
Heat Pumped at Cold Side
 $T_{hot} = 27\text{ °C}$



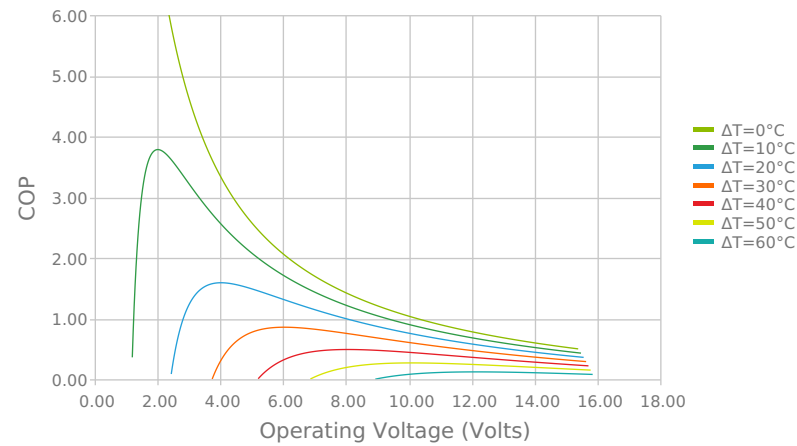
Current vs Voltage (I vs V)
 $T_{hot} = 27\text{ °C}$



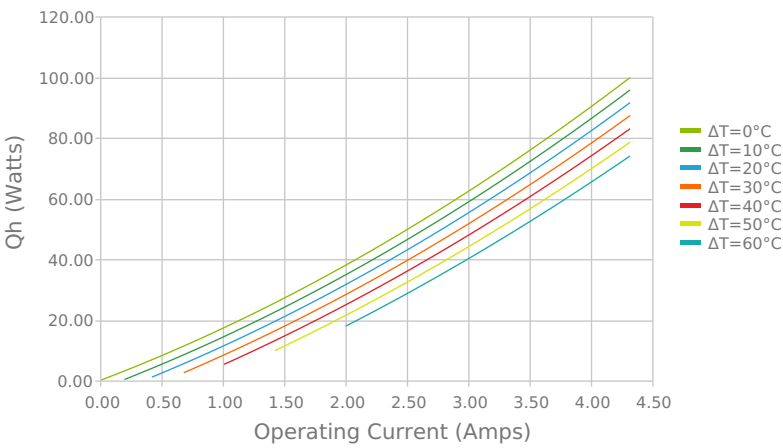
Coefficient of Performance (COP = Q_c/P_{in})
 $T_{hot} = 27\text{ }^{\circ}\text{C}$



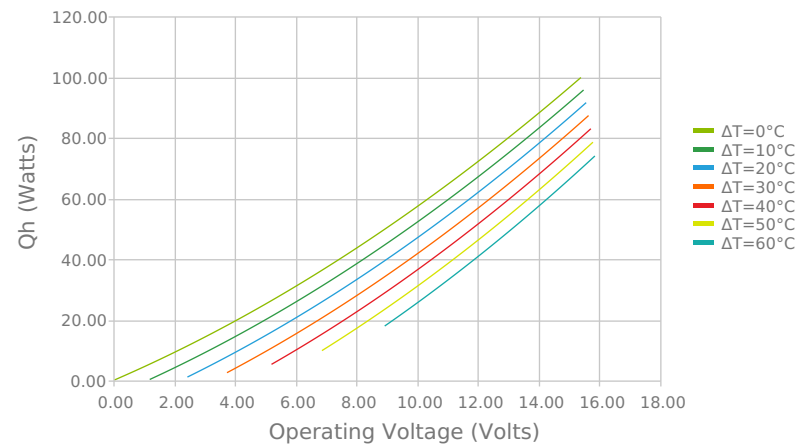
Coefficient of Performance (COP = Q_c/P_{in})
 $T_{hot} = 27\text{ }^{\circ}\text{C}$



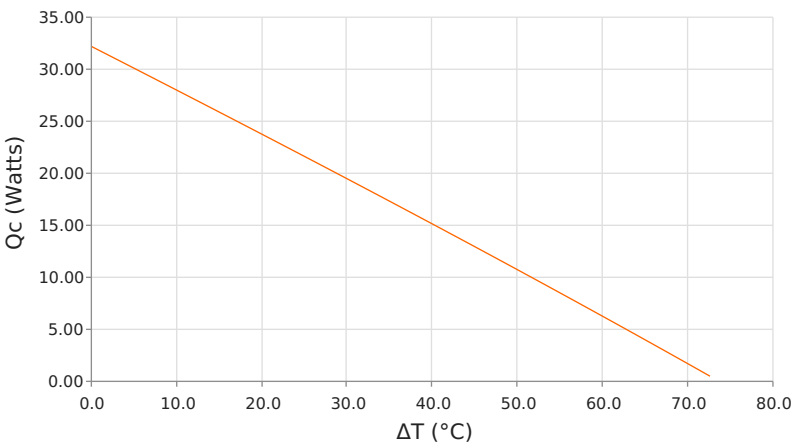
Total Heat Dissipated at Hot Side ($Q_h=Q_c+P_{in}$)
 $T_{hot} = 27\text{ }^{\circ}\text{C}$



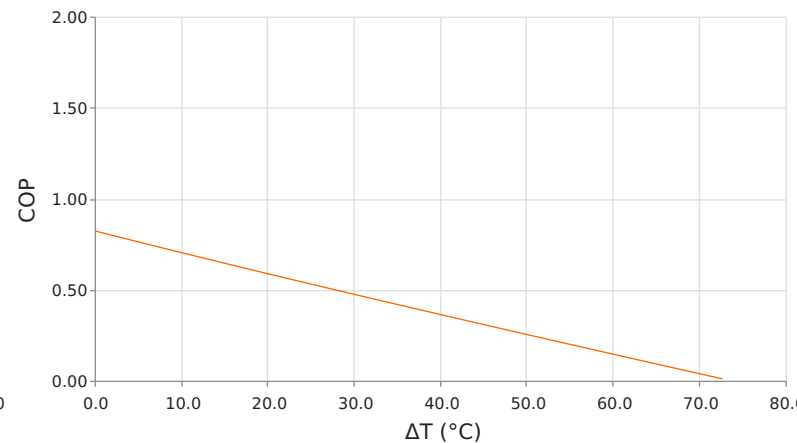
Total Heat Dissipated at Hot Side ($Q_h=Q_c+P_{in}$)
 $T_{hot} = 27\text{ }^{\circ}\text{C}$



Heat Pumped at Cold Side (Q_c)
 $T_{hot} = 35\text{ }^{\circ}\text{C}$ | $I_{operating} = 3.3\text{ Amps}$



Coefficient of Performance (COP = Q_c/P_{in})
 $T_{hot} = 35\text{ }^{\circ}\text{C}$ | $I_{operating} = 3.3\text{ Amps}$



Specifications

| Hot Side Temperature | 27.0 °C | 35.0 °C | 50.0 °C |
|---------------------------|--------------|------------|------------|
| Qcmax (ΔT = 0) | 33.3 Watts | 34.2 Watts | 35.8 Watts |
| ΔTmax (Qc = 0) | 71.7°C | 74.8°C | 80.4°C |
| Imax (I @ ΔTmax) | 3.9 Amps | 3.8 Amps | 3.8 Amps |
| Vmax (V @ ΔTmax) | 14.6 Volts | 15.1 Volts | 16.2 Volts |
| Module Resistance | 3.56 Ohms | 3.71 Ohms | 4.01 Ohms |
| Max Operating Temperature | 80 °C | | |
| Weight | 25.0 gram(s) | | |

Finishing Options

| Suffix | Thickness | Flatness / Parallelism | Hot Face | Cold Face | Lead Length |
|--------|--------------------------------------|--|----------|-----------|---------------------|
| TA | 4.800 ±0.025 mm 0.189 ± 0.0010 in | 0.025 mm / 0.025 mm 0.001 in / 0.001 in | Lapped | Lapped | 203.2 mm 8.00 in |

Sealing Options

| Suffix | Sealant | Color | Temp Range | Description |
|--------|---------|-------|------------|----------------------|
| | None | | | No sealing specified |

Notes

Max operating temperature: 80°C
Do not exceed Imax or Vmax when operating module
Reference assembly guidelines for recommended installation

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