

PowerCycling PC Series Thermoelectric Cooler

Note: This product is not recommended for new designs.
This product series has been replaced with the PowerCycling PCX Series.

The recommended replacement is:
MFG Part Number: 387005678
Description: PCX6-12-F1-4040-TA-RT-W6

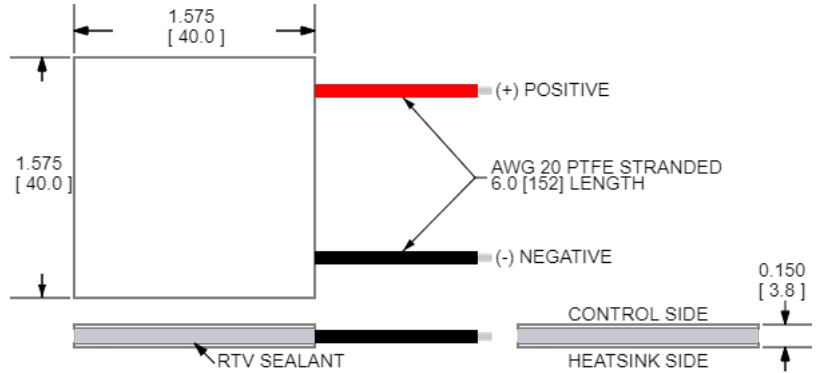


Features

- High thermal cycling capability
- Precise temperature control
- Reliable solid-state operation
- No sound or vibration
- RoHS-compliant

Applications

- Thermoelectric Modules Accelerate PCR Thermal Cycling
- DNA Amplification (PCR)



CERAMIC MATERIAL: Al₂O₃

SOLDER CONSTRUCTION: 232°C, SbSn

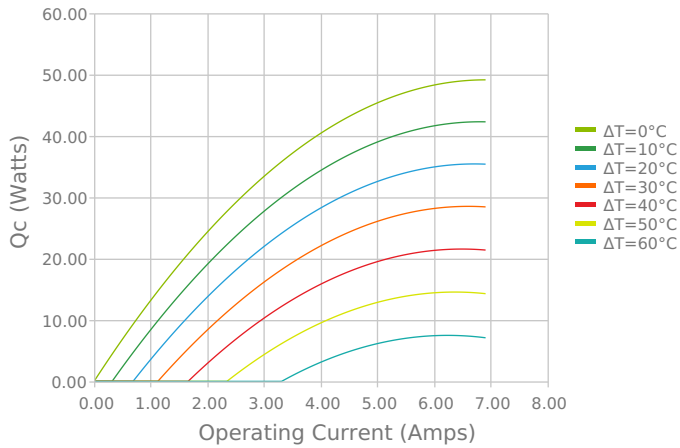
INCHES [MM]

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

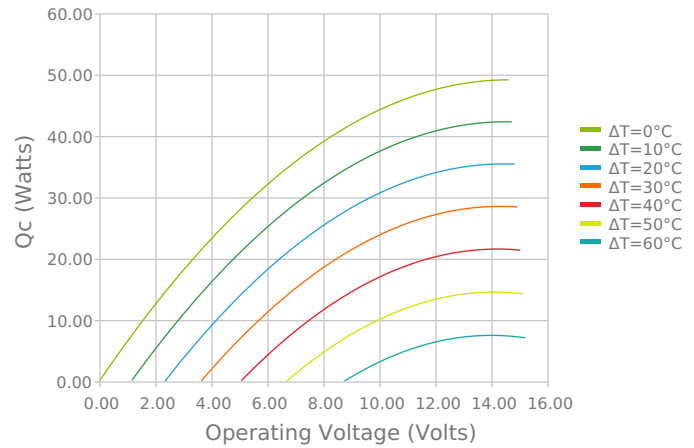
ELECTRICAL AND THERMAL PERFORMANCE

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

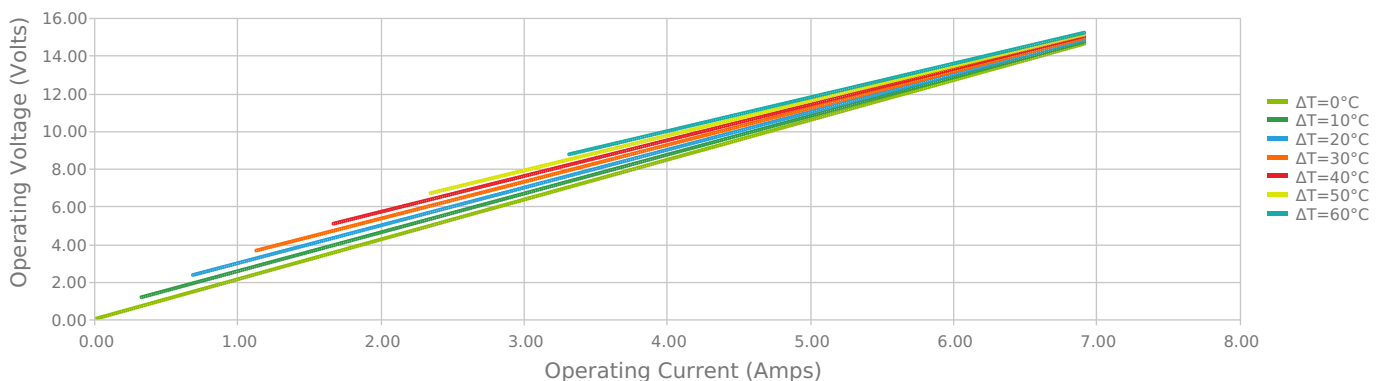
Heat Pumped at Cold Side
Thot = 27 °C



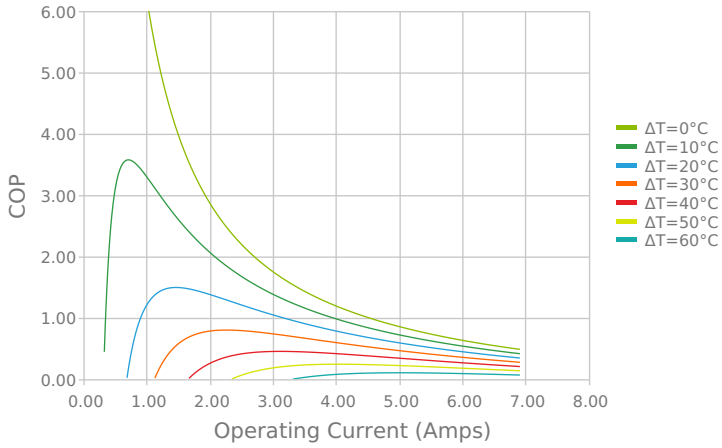
Heat Pumped at Cold Side
Thot = 27 °C



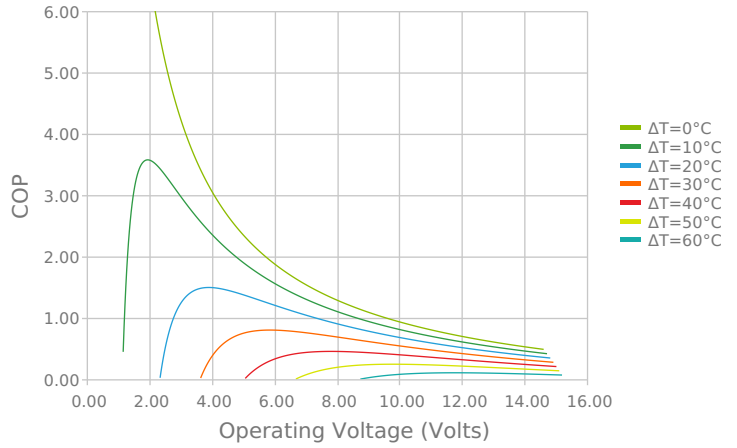
Current vs Voltage (I vs V)
Thot = 27 °C



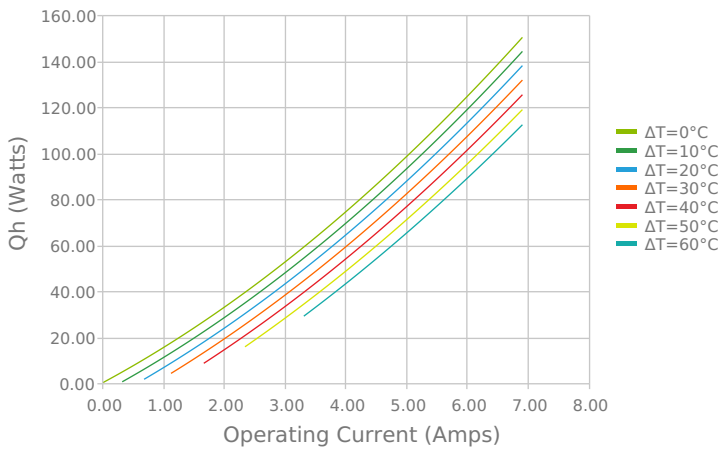
Coefficient of Performance (COP = Qc/Pin)
Thot = 27 °C



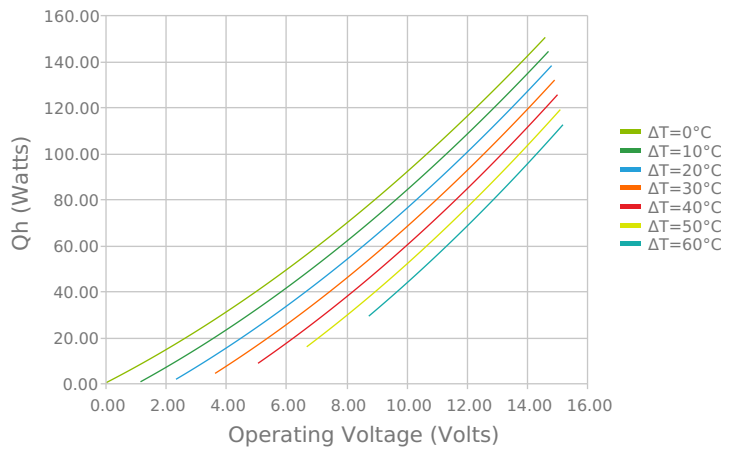
Coefficient of Performance (COP = Qc/Pin)
Thot = 27 °C



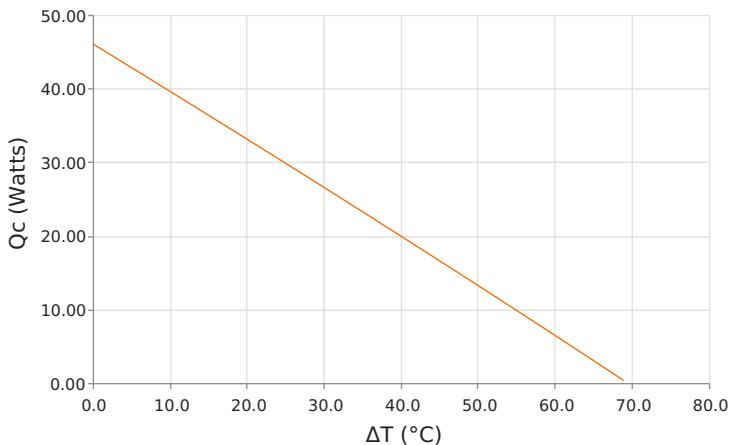
Total Heat Dissipated at Hot Side (Qh=Qc+Pin)
Thot = 27 °C



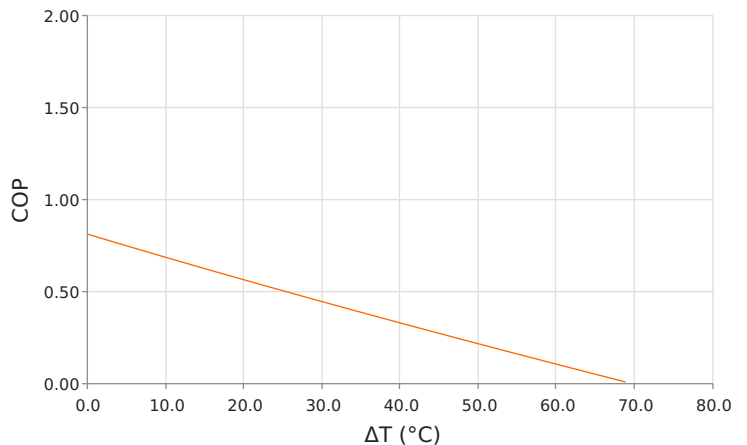
Total Heat Dissipated at Hot Side (Qh=Qc+Pin)
Thot = 27 °C



Heat Pumped at Cold Side (Qc)
Thot = 27 °C | Current = 5.2 Amps



Coefficient of Performance (COP = Qc/Pin)
Thot = 27 °C | Current = 5.2 Amps



SPECIFICATIONS*

| Hot Side Temperature | 27.0 °C | 50.0 °C | 80.0 °C |
|---|--------------|------------|------------|
| Qcmax ($\Delta T = 0$) | 49.1 Watts | 53.3 Watts | 57.8 Watts |
| ΔT_{max} ($Q_c = 0$) | 70.5°C | 78.8°C | 88.8°C |
| I_{max} (I @ ΔT_{max}) | 6.1 Amps | 6.0 Amps | 5.9 Amps |
| V_{max} (V @ ΔT_{max}) | 13.9 Volts | 15.4 Volts | 17.4 Volts |
| Module Resistance | 2.11 Ohms | 2.37 Ohms | 2.69 Ohms |
| Max Operating Temperature | 120 °C | | |
| Weight | 21.0 gram(s) | | |

* Specifications reflect thermoelectric coefficients updated March 2020

FINISHING OPTIONS

| Suffix | Thickness | Flatness / Parallelism | Hot Face | Cold Face | Lead Length |
|--------|---------------------------------------|--|----------|-----------|---------------------|
| TA | 3.800 ± 0.025 mm 0.150 ± 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: 120°C
2. Do not exceed I_{max} or V_{max} when operating module
3. Reference assembly guidelines for recommended installation
4. Solder tinning also available on metallized ceramics

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Revision: 00 Date: 06-01-2022

Print Date: 06-15-2022