TTS
TARK THERMAL SOLUTIONS

PowerCycling PCX Series PCX2-12-F1-3030-TA-RT-W6
MFG Part Number: 387005667

PowerCycling PCX Series Thermoelectric Cooler

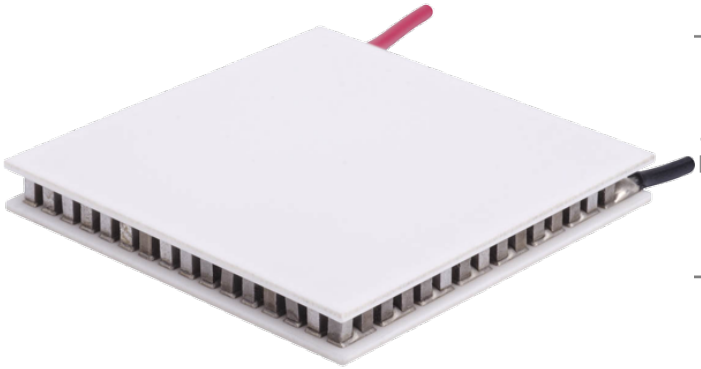
The PCX2-12-F1-3030-TA-RT-W6 is a high-performance thermoelectric cooler designed for thermal cycling between multiple temperature set points and is ideal for applications in healthcare among others, where fast temperature changes are required. The thermoelectric module is specially constructed to reduce the amount of stress induced on the thermoelectric elements during operation. It has a maximum Qc of 21.5 Watts when ΔT = 0 and a maximum ΔT of 73.6 °C at Qc = 0.

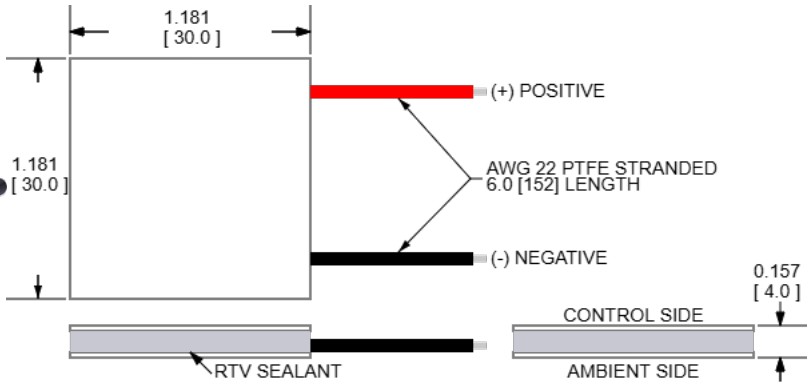
Features

- High thermal cycling capability
- Precise temperature control
- Solid-state operation
- Boosted performance with next-gen material
- RoHS-compliant

Applications

- Molecular Diagnostics (DNA Amplification, PCR)
- Point of Care Testing Devices
- Thermal Test Sockets

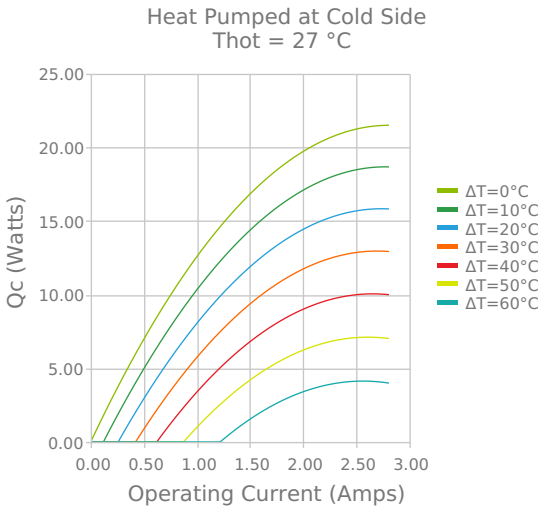


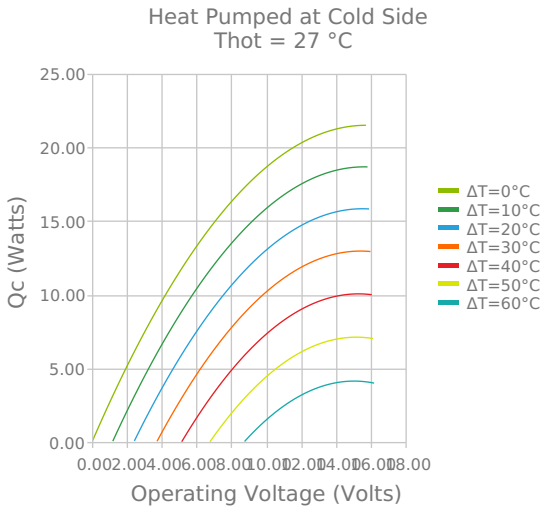


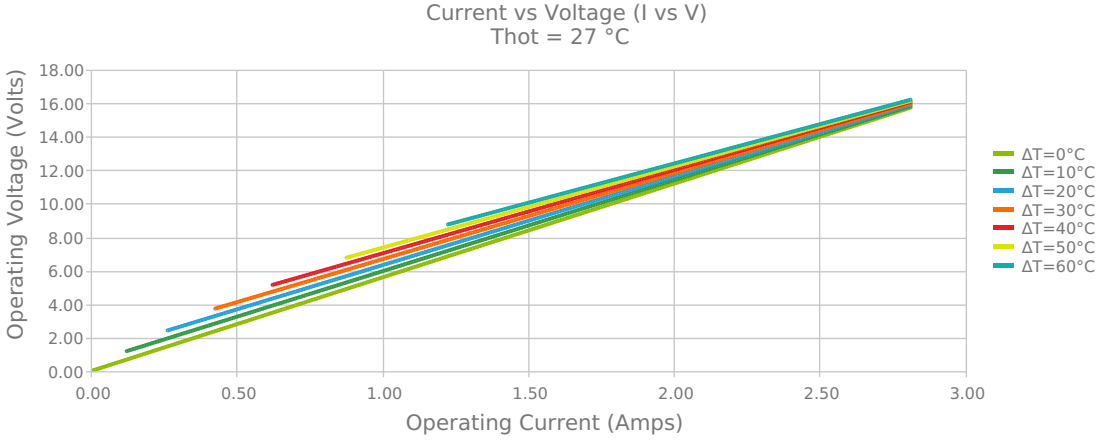
CERAMIC MATERIAL: Al_2O_3
SOLDER CONSTRUCTION: 232°C, SbSn
INCHES [MM]
Note: Allow 0.020 in [0.5 mm] around perimeter of the thermoelectric cooler and lead wire attachment to accommodate sealant

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.







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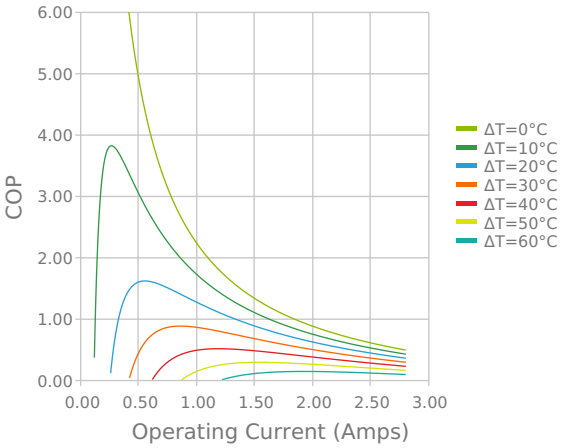
Coefficient of Performance (COP = Qc/Pin)
Thot = 27 °C



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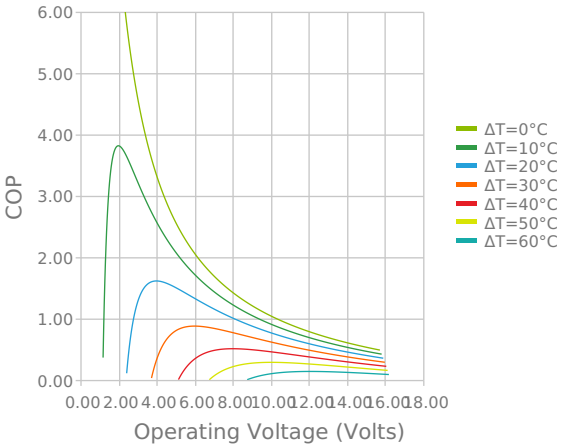
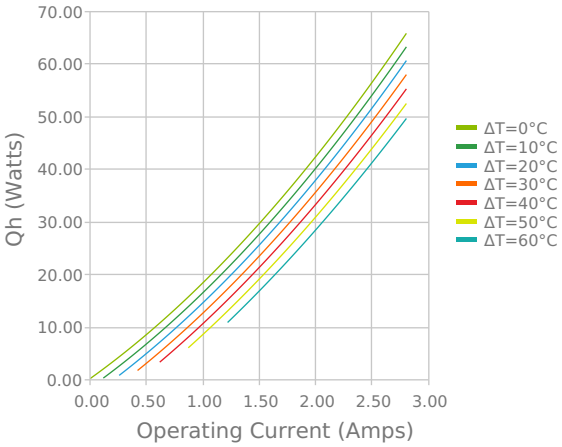


Total Heat Dissipated at Hot Side (Qh=Qc+Pin)
Thot = 27 °C



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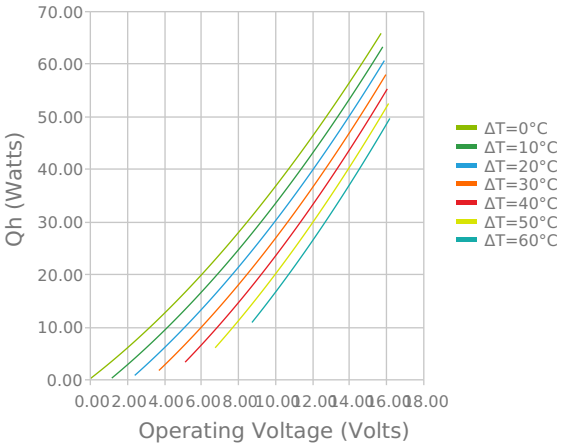
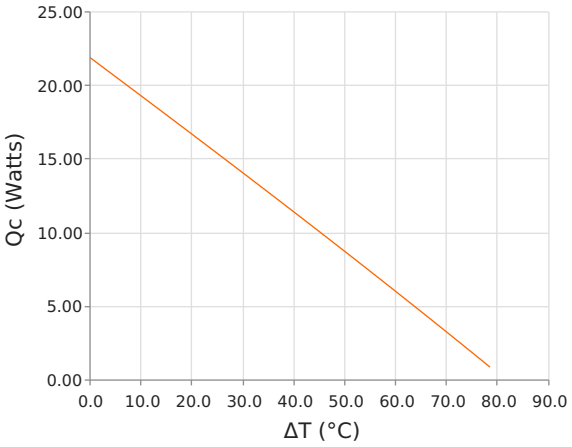


Heat Pumped at Cold Side (Qc)
Thot = 50 °C | Ioperating = 2.1 Amps



Coefficient of Performance (COP = Qc/Pin)
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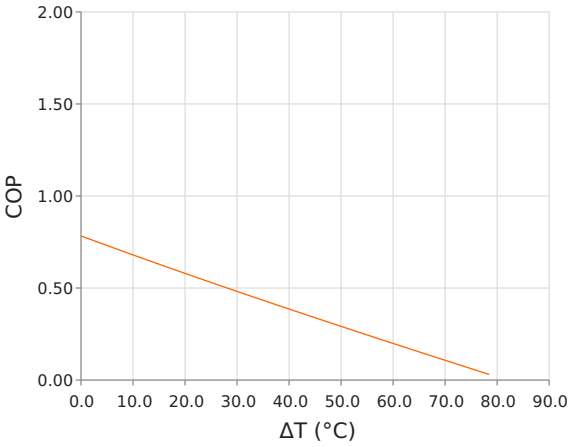

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Specifications

Hot Side Temperature	27.0 °C	50.0 °C	80.0 °C
Qcmax (ΔT = 0)	21.5 Watts	23.1 Watts	24.8 Watts
ΔTmax (Qc = 0)	73.6°C	82.6°C	93.1°C
Imax (I @ ΔTmax)	2.5 Amps	2.4 Amps	2.4 Amps
Vmax (V @ ΔTmax)	14.9 Volts	16.5 Volts	18.6 Volts
Module Resistance	5.59 Ohms	6.30 Ohms	7.20 Ohms
Max Operating Temperature	120 °C		
Weight	9.0 gram(s)		

Finishing Options

Suffix	Thickness	Flatness / Parallelism	Hot Face	Cold Face	Lead Length
TA	3.988 ±0.025 mm 0.157 ± 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

Max operating temperature: 120°C
Do not exceed Imax or Vmax when operating module
Reference assembly guidelines for recommended installation
Solder tinning also available on metallized ceramics

Revision: 00 Date: 06-01-2022

Print Date: 05-16-2025