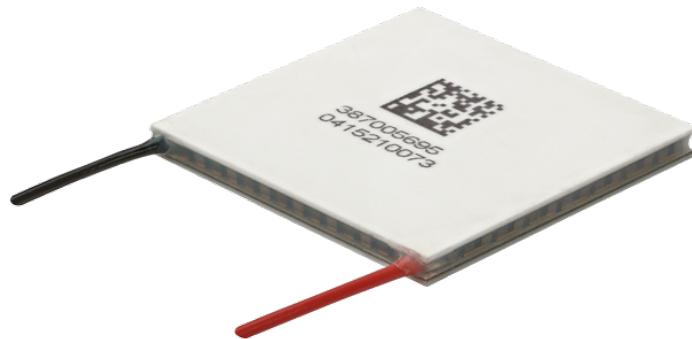


### PowerCycling PCX Series Thermoelectric Cooler

The PCX8-12-F1-4040-TB-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  $Q_c$  of 75.5 Watts when  $\Delta T = 0$  and a maximum  $\Delta T$  of 73.6 °C at  $Q_c = 0$ .

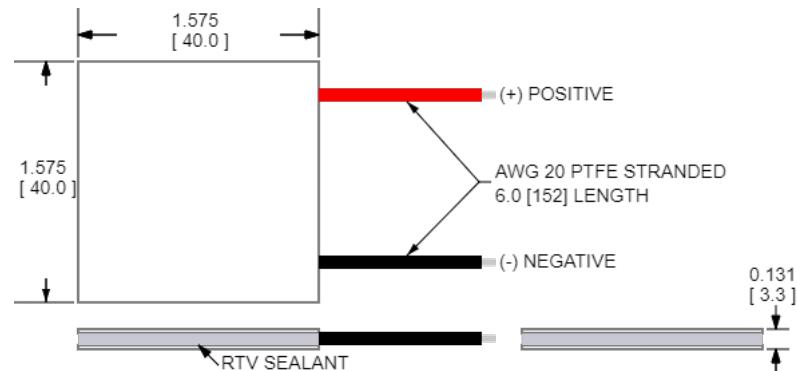


### Features

- High thermal cycling reliability
- 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:  $\text{Al}_2\text{O}_3$

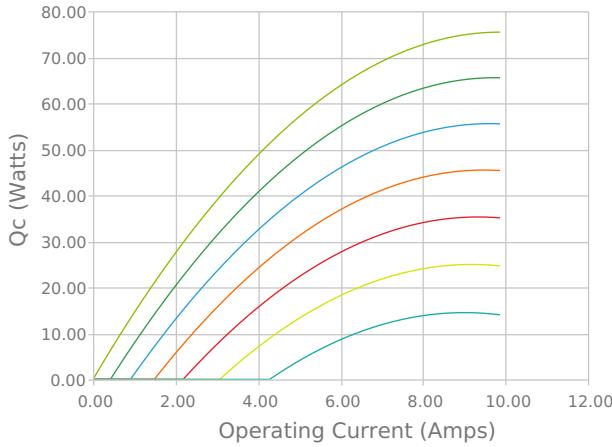
SOLDER CONSTRUCTION: 232°C, SbSn

INCHES [ MM ]

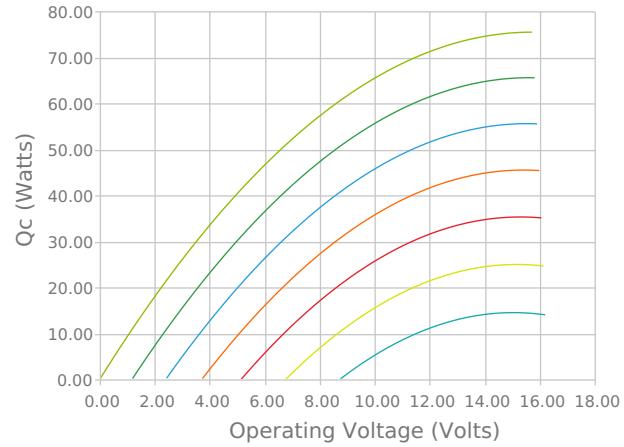
Note: Allow 0.020 in [0.5 mm] around perimeter of the thermoelectric cooler and lead wire attachment to accommodate sealant

## ELECTRICAL AND THERMAL PERFORMANCE

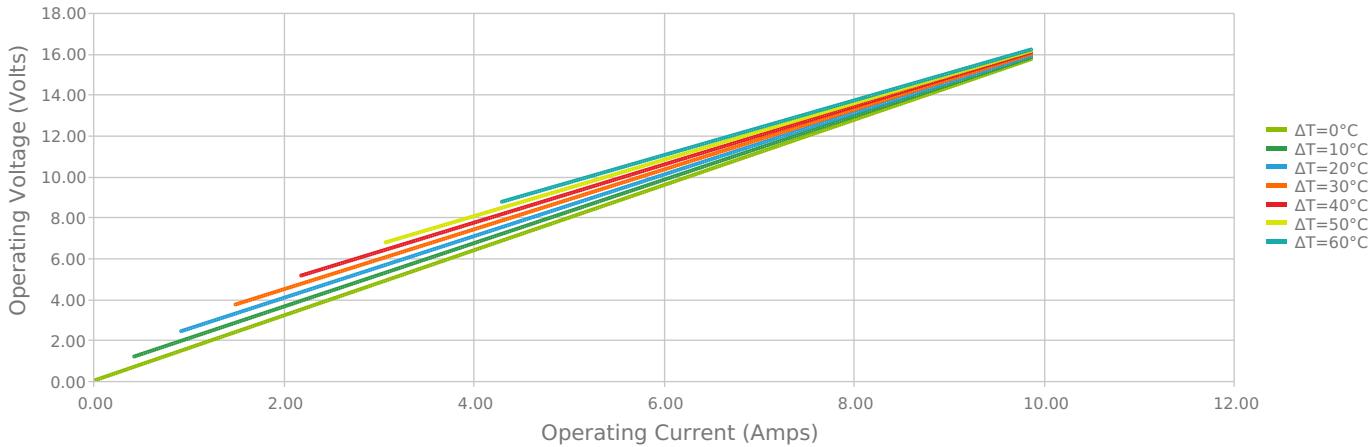
Heat Pumped at Cold Side  
 $\text{Thot} = 27^\circ\text{C}$

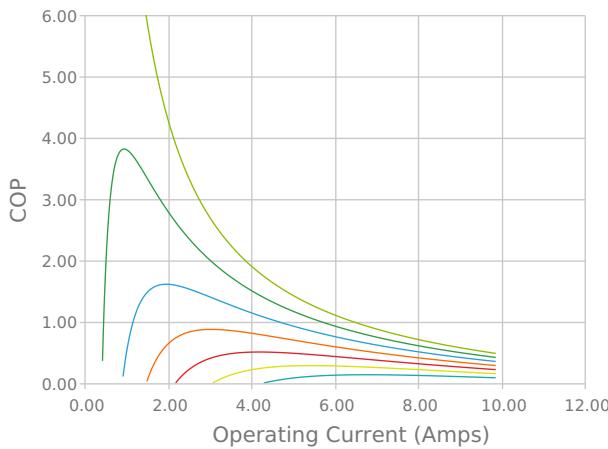
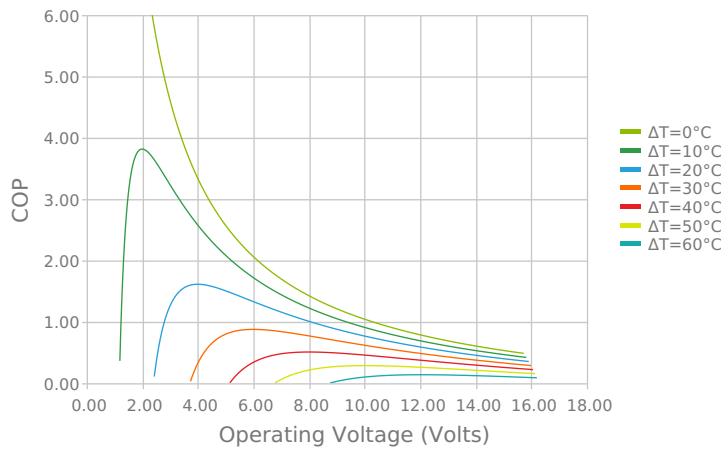
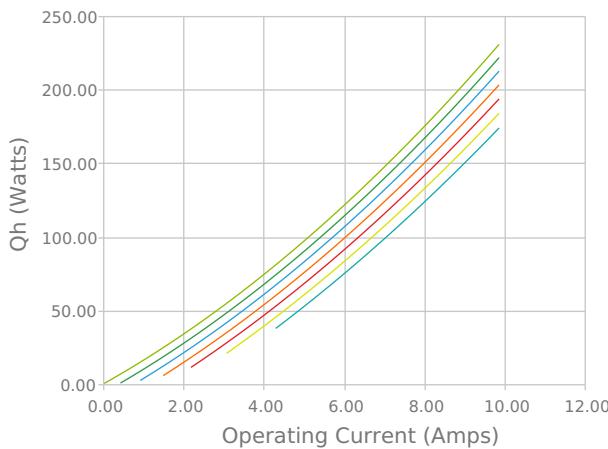
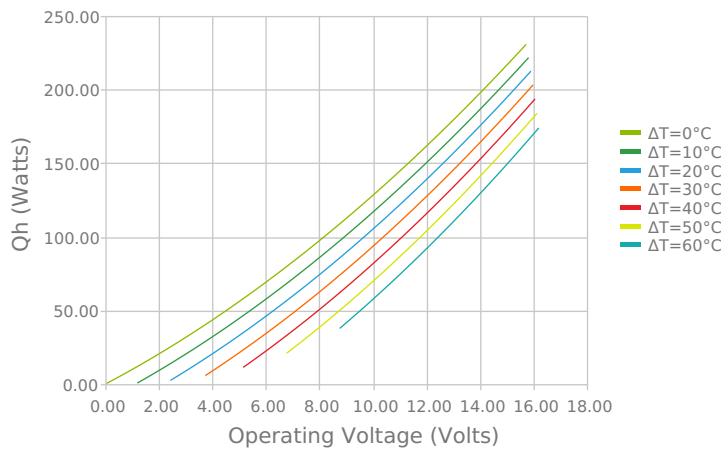
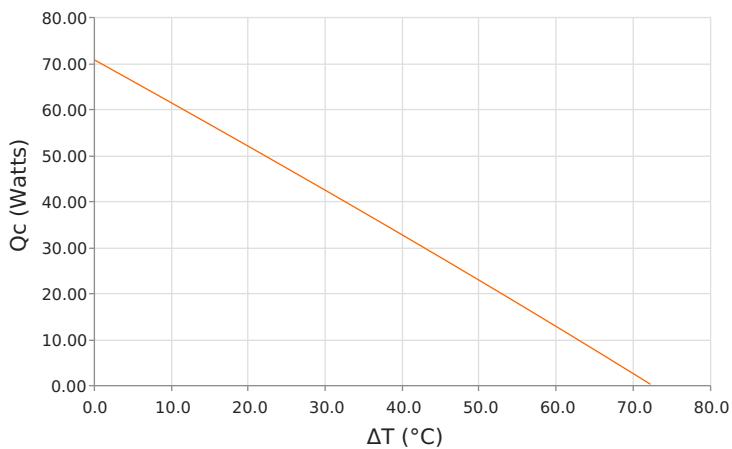
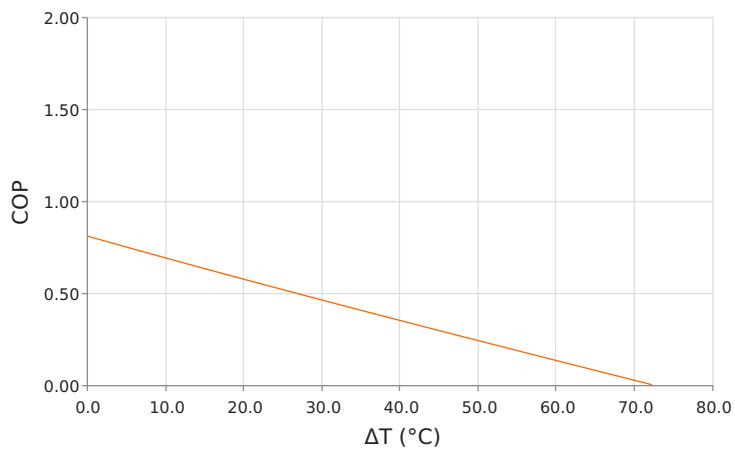


Heat Pumped at Cold Side  
 $\text{Thot} = 27^\circ\text{C}$



Current vs Voltage (I vs V)  
 $\text{Thot} = 27^\circ\text{C}$



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

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

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

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

 Heat Pumped at Cold Side ( $Q_c$ )  
 $T_{hot} = 27^\circ C$  | Current = 7.4 Amps

 Coefficient of Performance (COP =  $Q_c/P_{in}$ )  
 $T_{hot} = 27^\circ C$  | Current = 7.4 Amps


## SPECIFICATIONS\*

	27.0 °C	50.0 °C	80.0 °C
<b>Qcmax (ΔT = 0)</b>	75.5 Watts	81.2 Watts	87.1 Watts
<b>ΔTmax (Qc = 0)</b>	73.6°C	82.6°C	93.1°C
<b>I<sub>max</sub> (I @ ΔT<sub>max</sub>)</b>	8.8 Amps	8.6 Amps	8.3 Amps
<b>V<sub>max</sub> (V @ ΔT<sub>max</sub>)</b>	14.9 Volts	16.5 Volts	18.6 Volts
<b>Module Resistance</b>	1.59 Ohms	1.79 Ohms	2.05 Ohms
<b>Max Operating Temperature</b>	120 °C		
<b>Weight</b>	21.0 gram(s)		

\* Specifications reflect thermoelectric coefficients updated March 2020

## FINISHING OPTIONS

Suffix	Thickness	Flatness / Parallelism	Hot Face	Cold Face	Lead Length
TB	3.327 ± 0.013 mm 0.131 ± 0.0005 in	0.013 mm / 0.013 mm 0.0005 in / 0.0005 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<sub>max</sub> or V<sub>max</sub> when operating module
3. Reference assembly guidelines for recommended installation
4. Solder tinning also available on metallized ceramics

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