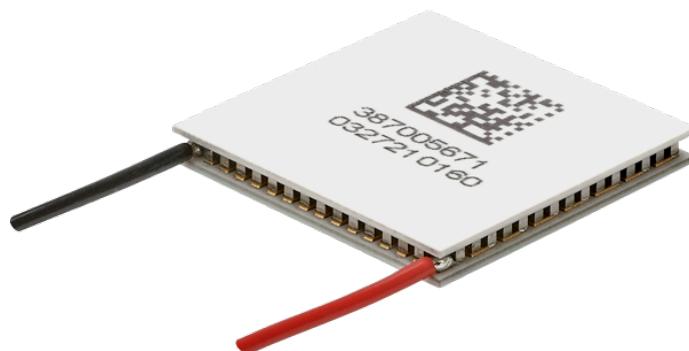


### PowerCycling PCX Series Thermoelectric Cooler

The PCX4-12-F1-3030-TA-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 34.7 Watts when  $\Delta T = 0$  and a maximum  $\Delta T$  of 73.6 °C at  $Q_c = 0$ .

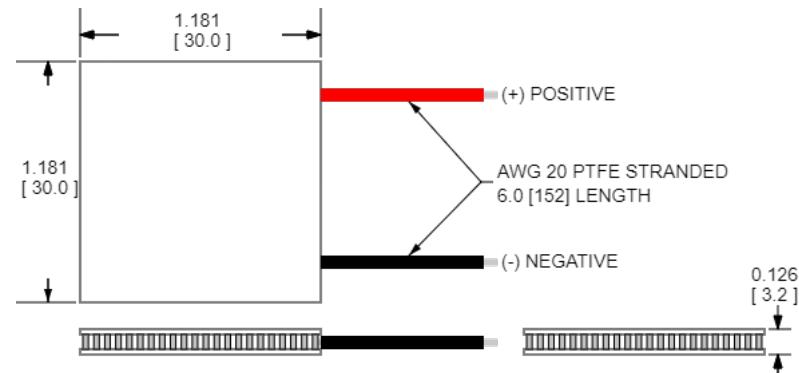


### Features

- 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

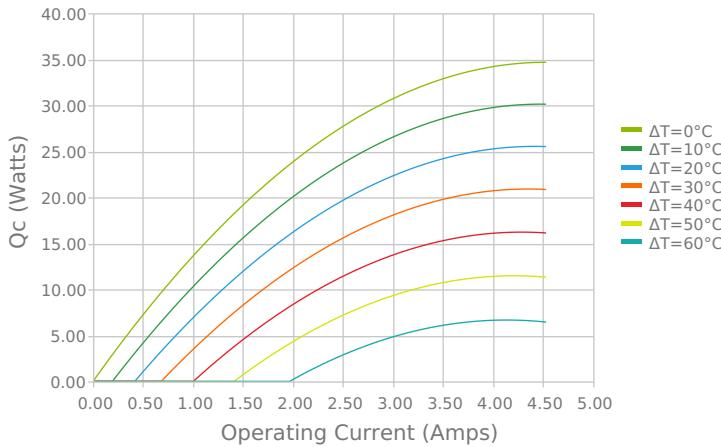


CERAMIC MATERIAL:  $\text{Al}_2\text{O}_3$   
SOLDER CONSTRUCTION: 232°C, SbSn

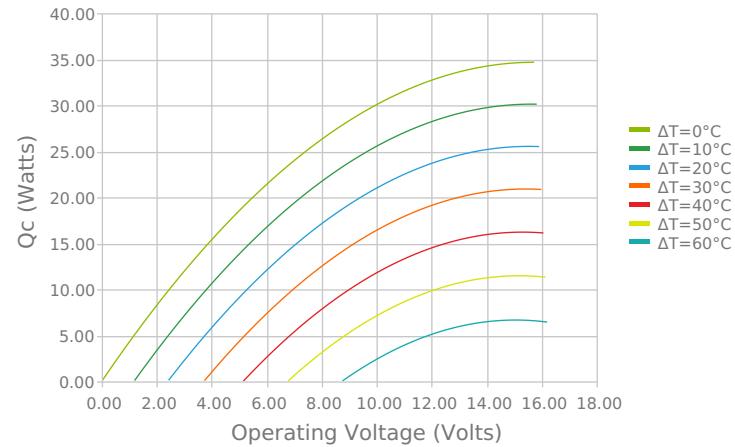
INCHES [ MM ]

## ELECTRICAL AND THERMAL PERFORMANCE

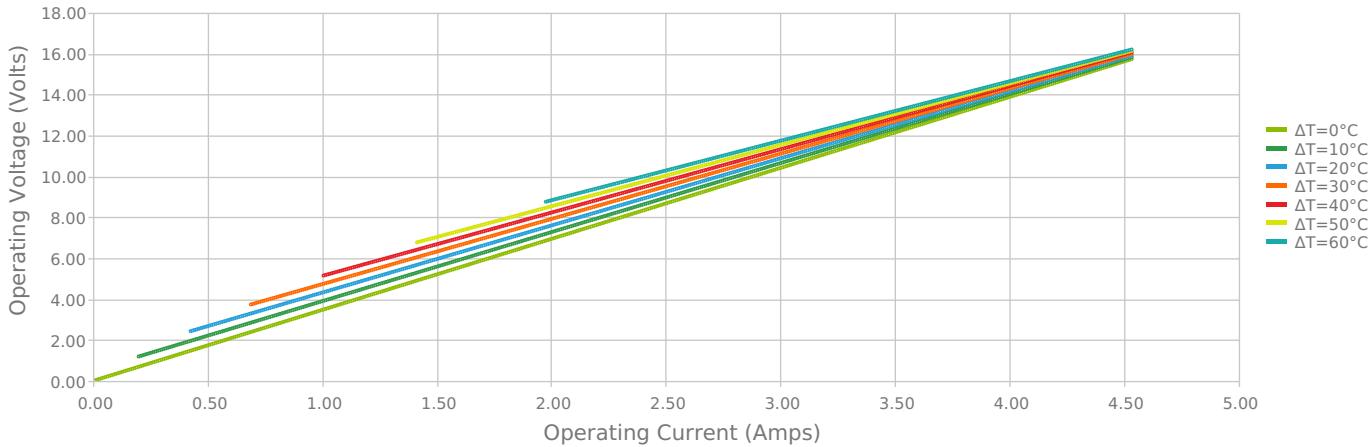
Heat Pumped at Cold Side  
 $\text{Thot} = 27^\circ\text{C}$

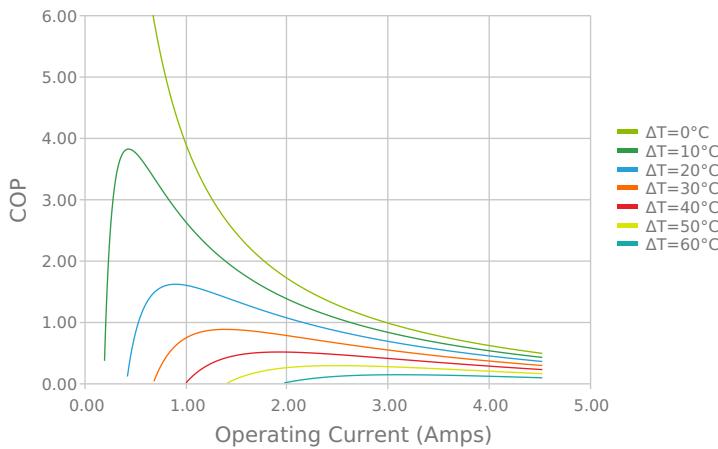
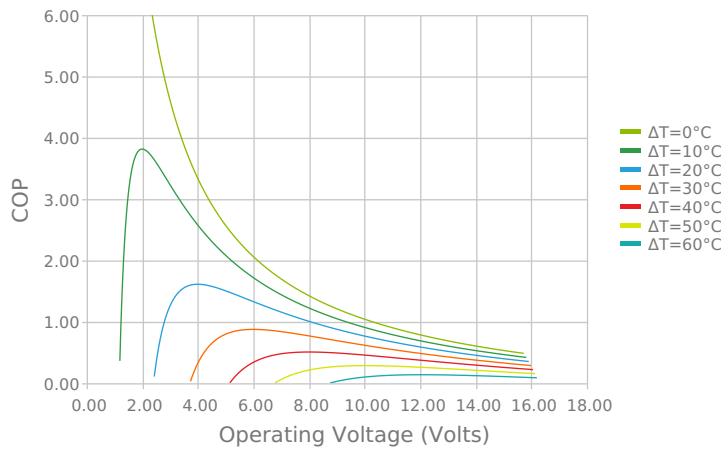
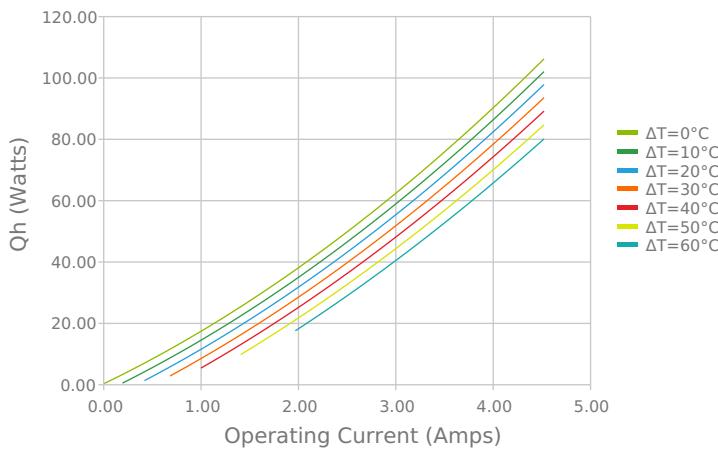
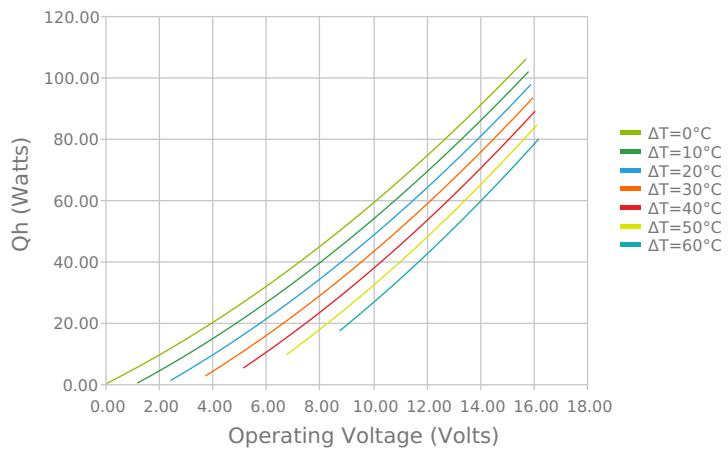
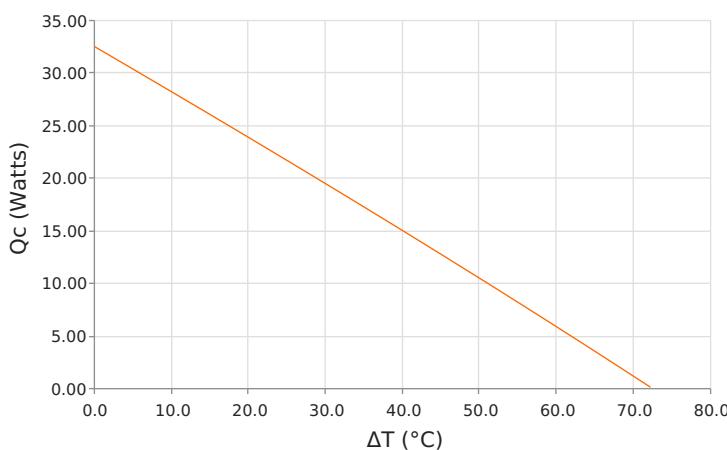
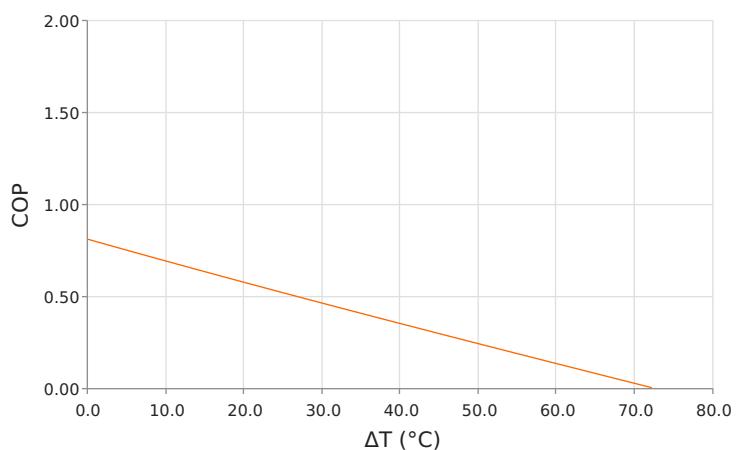


Heat Pumped at Cold Side  
 $\text{Thot} = 27^\circ\text{C}$



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 = 3.4 Amps

 Coefficient of Performance (COP =  $Q_c/P_{in}$ )  
 $T_{hot} = 27^\circ C$  | Current = 3.4 Amps


## SPECIFICATIONS\*

	27.0 °C	50.0 °C	80.0 °C
<b>Qcmax (ΔT = 0)</b>	34.7 Watts	37.3 Watts	40.0 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>	4.0 Amps	3.9 Amps	3.8 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>	3.47 Ohms	3.91 Ohms	4.47 Ohms
<b>Max Operating Temperature</b>	120 °C		
<b>Weight</b>	9.0 gram(s)		

\* Specifications reflect thermoelectric coefficients updated March 2020

## FINISHING OPTIONS

Suffix	Thickness	Flatness / Parallelism	Hot Face	Cold Face	Lead Length
TA	3.200 ± 0.025 mm 0.126 ± 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
	None			No sealing specified

## 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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Date: 12/14/2021