

**PowerCycling PC Series Thermoelectric Cooler**

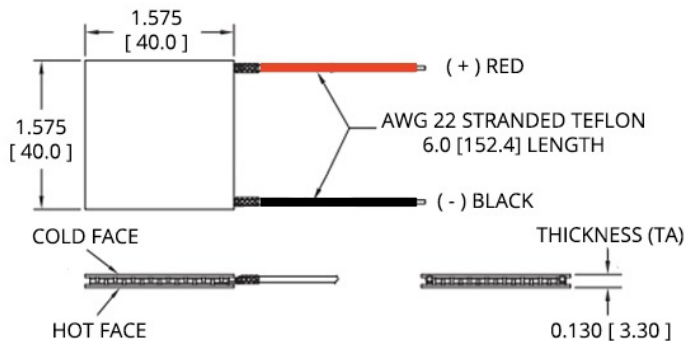
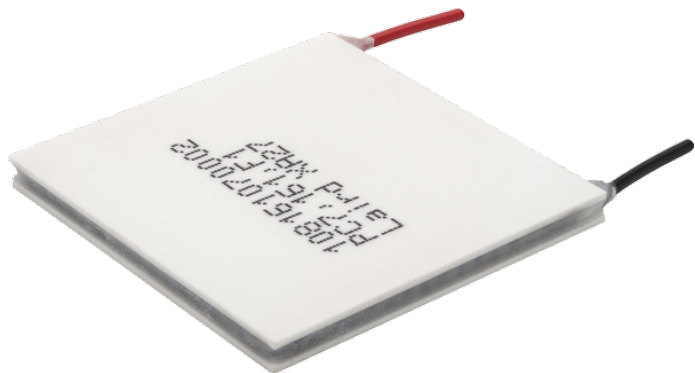
The PC7-16-F1-4040-TA-W6 is a thermoelectric cooler designed for thermal cycling between multiple temperature set points and is ideal for applications in healthcare among others, where fast temperature changes are required. The thermoelectric module is specially constructed to reduce the amount of stress induced on the thermoelectric elements during operation. It has a maximum Qc of 71.6 Watts when  $\Delta T = 0$  and a maximum  $\Delta T$  of 70.5 °C at Qc = 0.

**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)

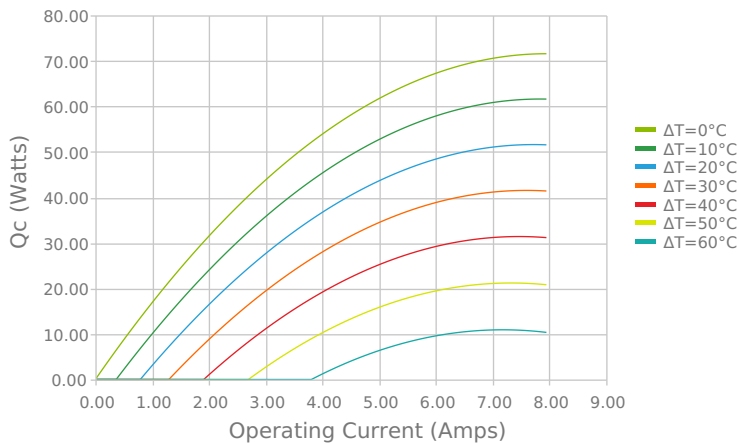


Ceramic Material: Alumina ( $Al_2O_3$ )  
 Solder Construction: 138°C, Bismuth Tin (BiSn)

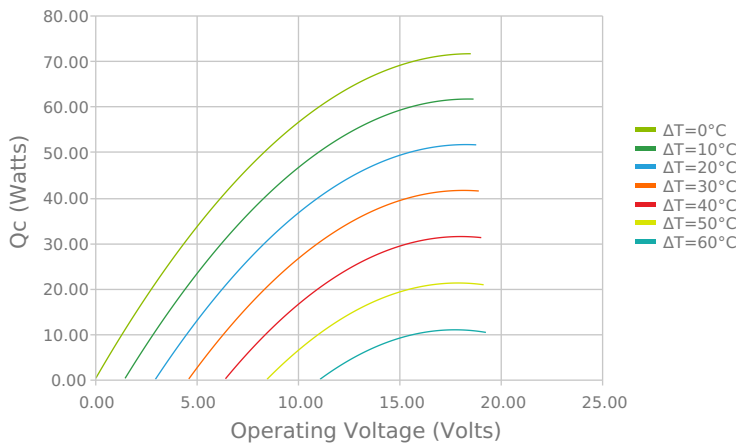
INCHES [ MM ]

**ELECTRICAL AND THERMAL PERFORMANCE**

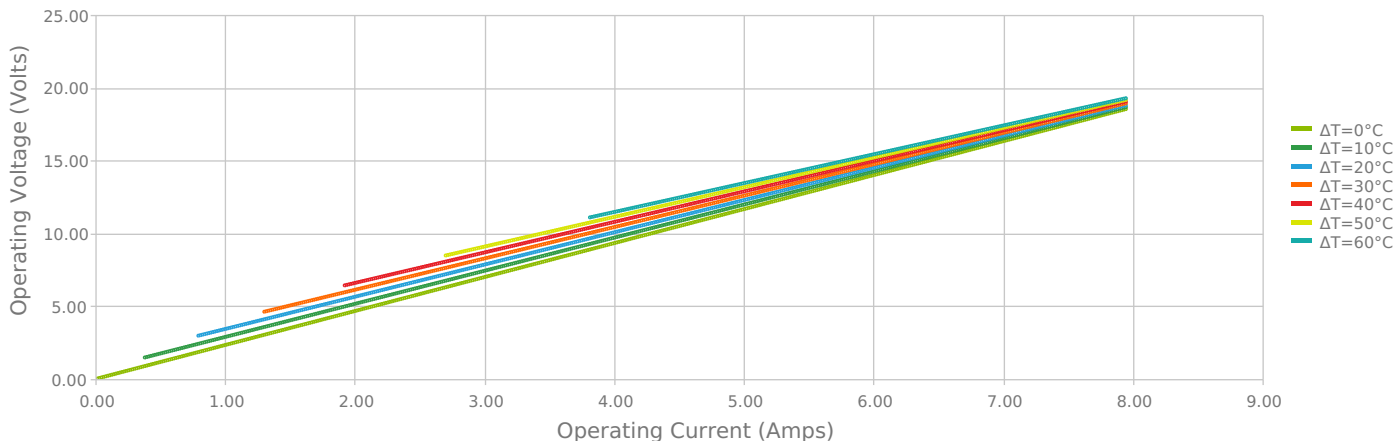
Heat Pumped at Cold Side  
 $T_{hot} = 27\text{ °C}$



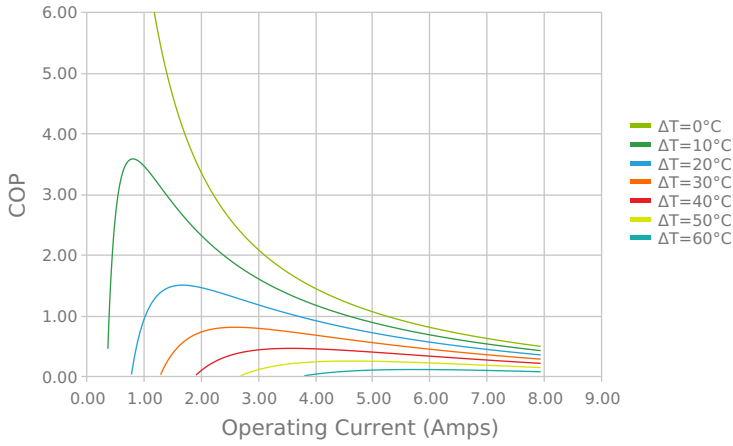
Heat Pumped at Cold Side  
 $T_{hot} = 27\text{ °C}$



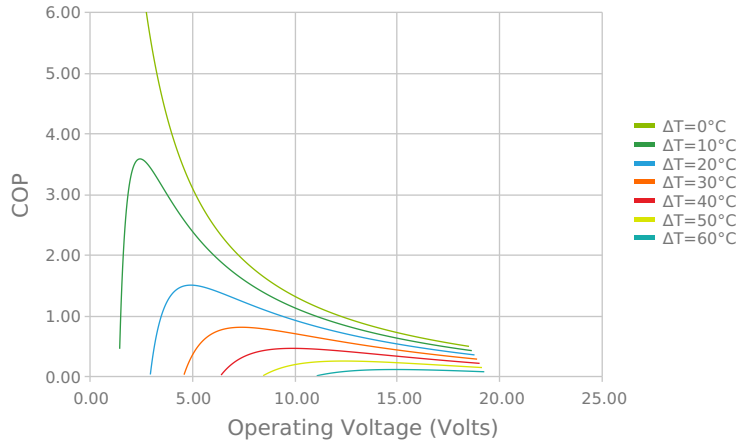
Current vs Voltage (I vs V)  
 $T_{hot} = 27\text{ °C}$



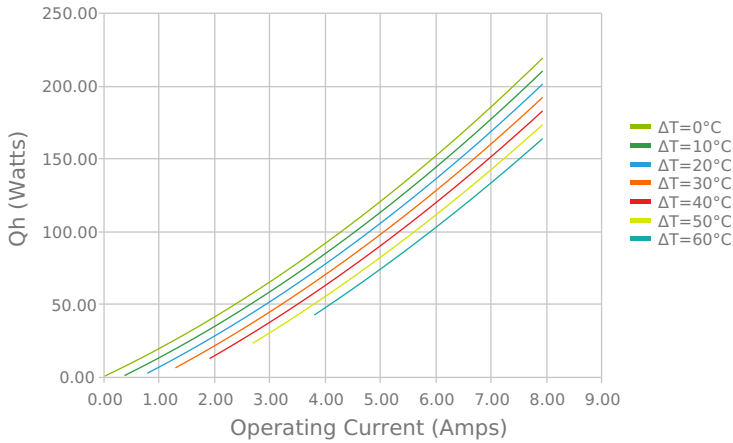
Coefficient of Performance (COP = Qc/Pin)  
 Thot = 27 °C



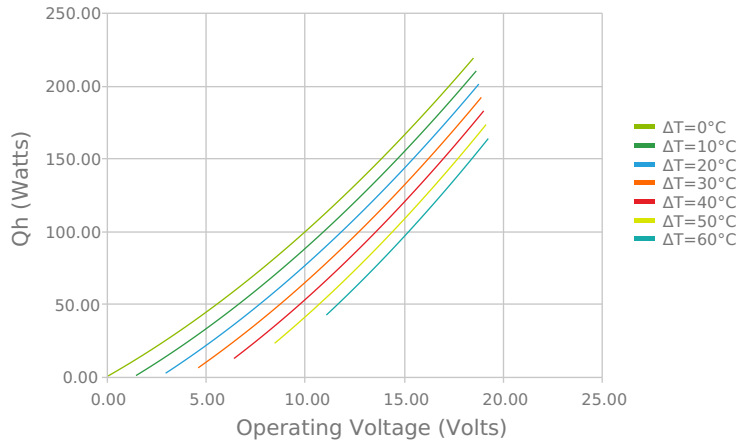
Coefficient of Performance (COP = Qc/Pin)  
 Thot = 27 °C



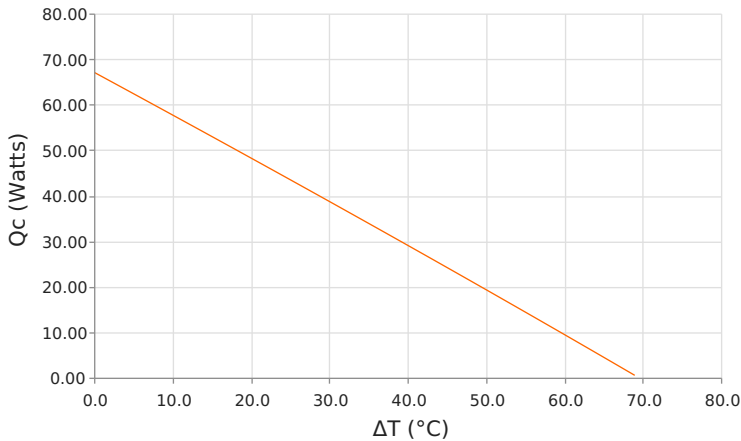
Total Heat Dissipated at Hot Side (Qh=Qc+Pin)  
 Thot = 27 °C



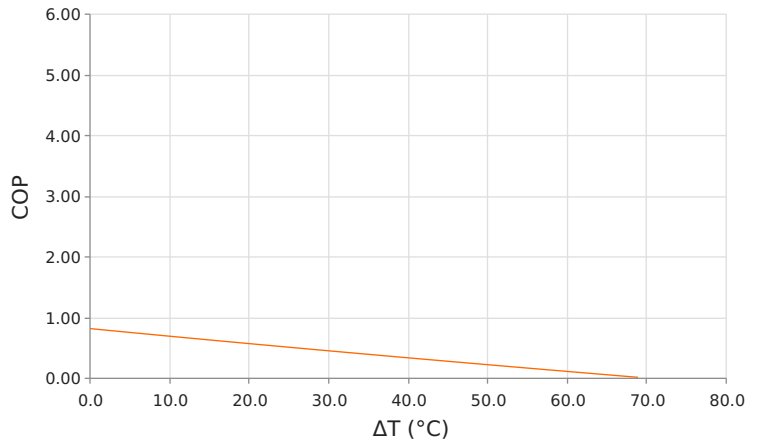
Total Heat Dissipated at Hot Side (Qh=Qc+Pin)  
 Thot = 27 °C



Heat Pumped at Cold Side (Qc)  
 Thot = 27 °C | Current = 6.0 Amps



Coefficient of Performance (COP = Qc/Pin)  
 Thot = 27 °C | Current = 6.0 Amps



## SPECIFICATIONS\*

Hot Side Temperature	27.0 °C	35.0 °C	50.0 °C
<b>Qcmax (<math>\Delta T = 0</math>)</b>	71.6 Watts	73.7 Watts	77.6 Watts
<b><math>\Delta T_{max}</math> (<math>Q_c = 0</math>)</b>	70.5°C	73.5°C	78.8°C
<b>I<sub>max</sub> (I @ <math>\Delta T_{max}</math>)</b>	7.0 Amps	7.0 Amps	6.9 Amps
<b>V<sub>max</sub> (V @ <math>\Delta T_{max}</math>)</b>	17.6 Volts	18.3 Volts	19.5 Volts
<b>Module Resistance</b>	2.33 Ohms	2.43 Ohms	2.61 Ohms
<b>Max Operating Temperature</b>	80 °C		
<b>Weight</b>	20.0 gram(s)		

\* Specifications reflect thermoelectric coefficients updated March 2020

## FINISHING OPTIONS

Suffix	Thickness	Flatness / Parallelism	Hot Face	Cold Face	Lead Length
TA	3.300 ± 0.025 mm 0.130 ± 0.001 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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