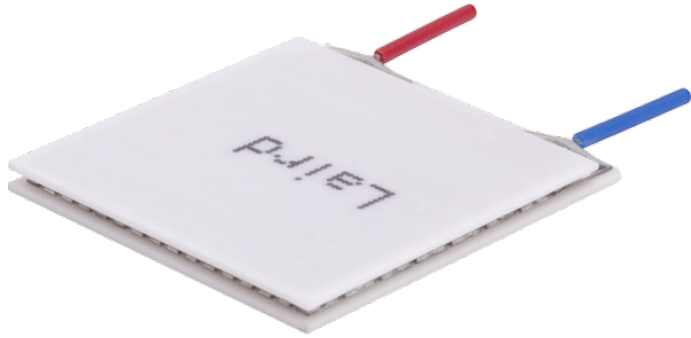


UltraTEC™ UT Series Thermoelectric Cooler

The UT8-12-F2-2525-TA-EP-W6 is a high heat flux density thermoelectric cooler. The thermoelectric module is assembled with a large number of semiconducting thermoelectric couples to achieve a higher heat pumping capacity than standard single stage thermoelectric coolers. It has a maximum Qc of 63.8 Watts when $\Delta T = 0$ and a maximum ΔT of 68.9 °C at Qc = 0.

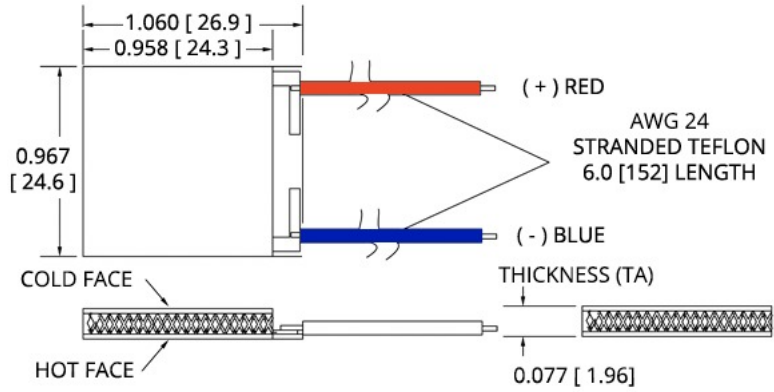


Features

- High heat pump density
- Precise temperature control
- Reliable solid-state operation
- No sound or vibration
- DC operation
- RoHS-compliant

Applications

- Thermoelectric Coolers and Assemblies for Medical Applications
- Thermoelectric Coolers for Handheld Cosmetic Lasers
- Industrial Laser Cooling
- Peltier Cooling for Digital Light Processors



Ceramic Material: Alumina (Al_2O_3)

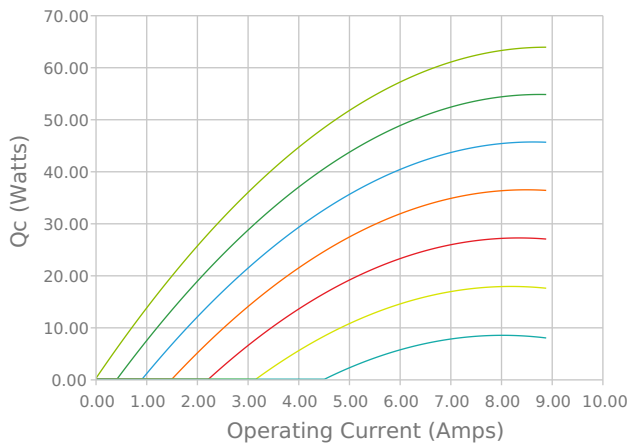
Solder Construction: 138°C, Bismuth Tin (BiSn)

INCHES [MM]

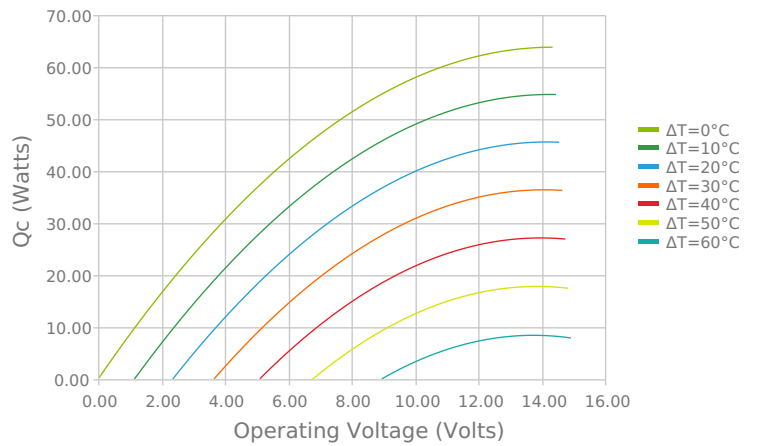
Note: Allow 0.020 in [0.5 mm] around perimeter of the thermoelectric cooler and lead wire attachment to accommodate sealant

ELECTRICAL AND THERMAL PERFORMANCE

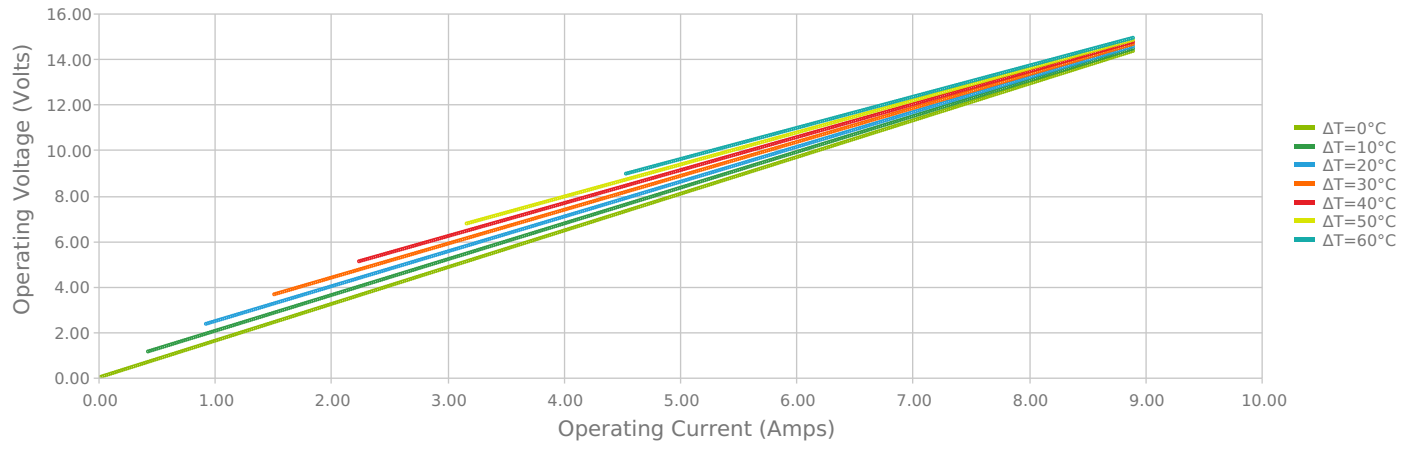
Heat Pumped at Cold Side
Thot = 27 °C



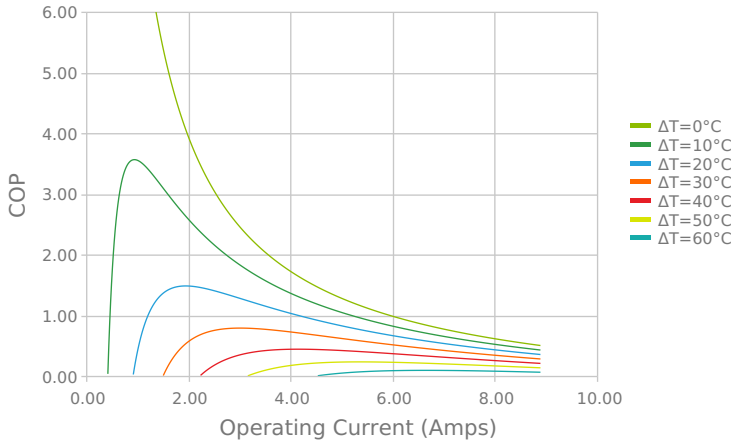
Heat Pumped at Cold Side
Thot = 27 °C



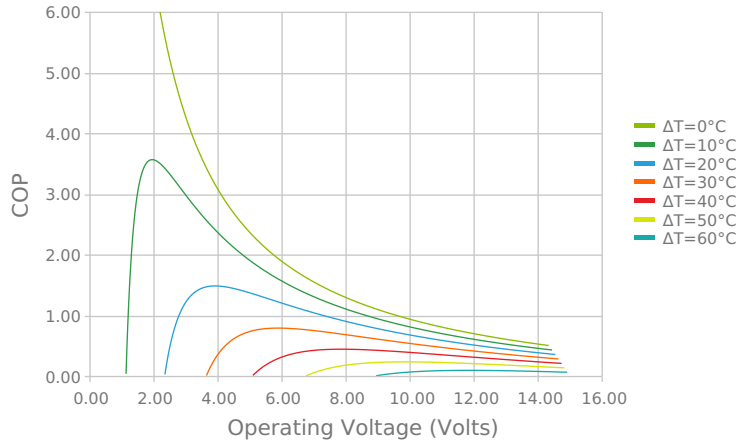
Current vs Voltage (I vs V)
Thot = 27 °C



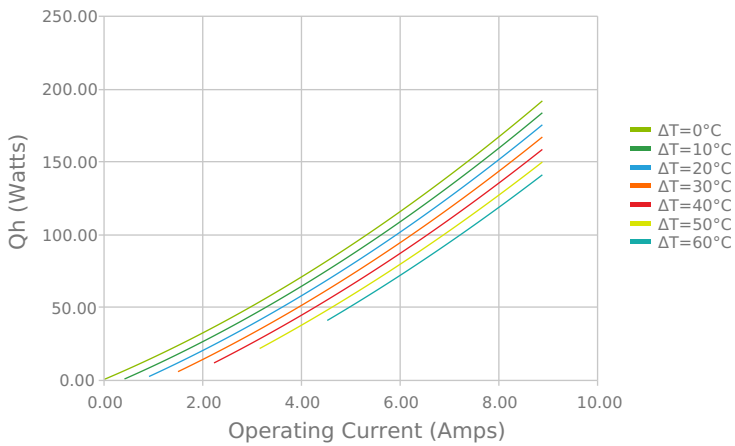
Coefficient of Performance (COP = Qc/Pin)
Thot = 27 °C



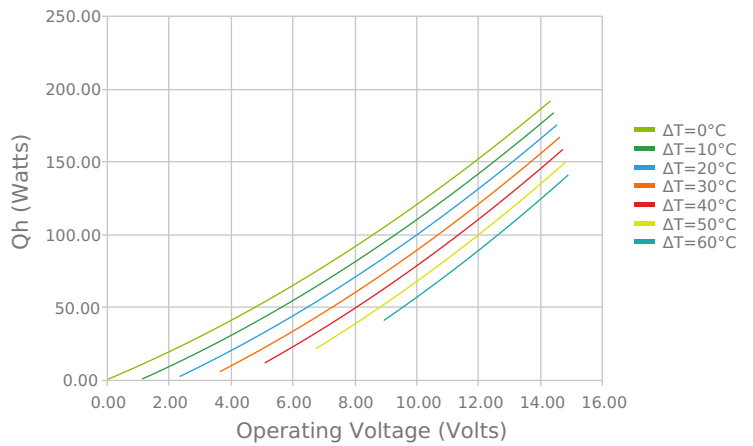
Coefficient of Performance (COP = Qc/Pin)
Thot = 27 °C



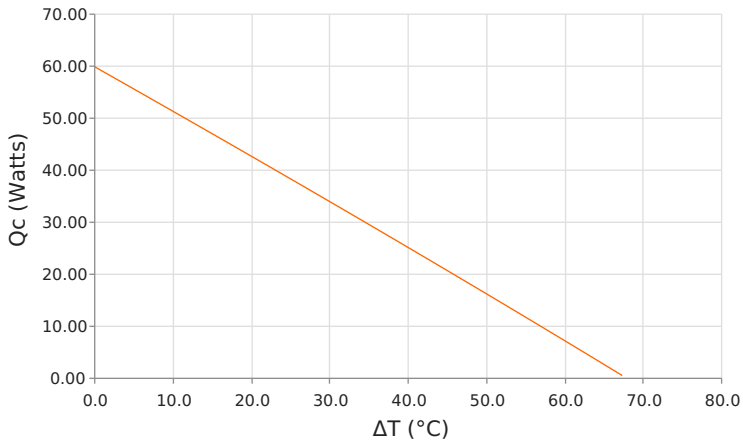
Total Heat Dissipated at Hot Side (Qh=Qc+Pin)
Thot = 27 °C



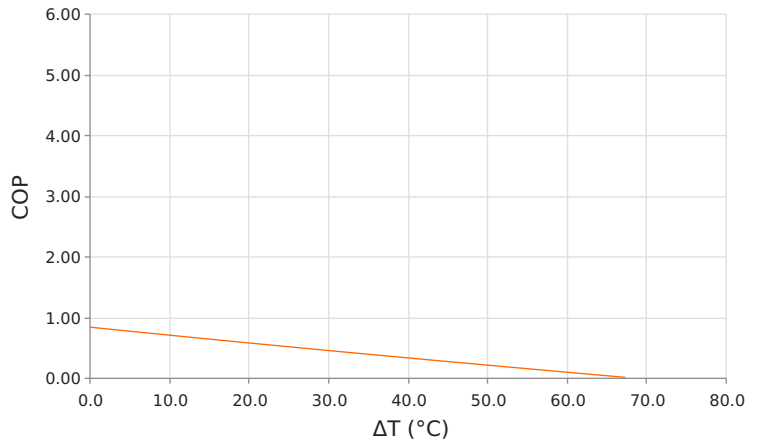
Total Heat Dissipated at Hot Side (Qh=Qc+Pin)
Thot = 27 °C



Heat Pumped at Cold Side (Qc)
Thot = 27 °C | Current = 6.7 Amps



Coefficient of Performance (COP = Qc/Pin)
Thot = 27 °C | Current = 6.7 Amps



SPECIFICATIONS*

| Hot Side Temperature | 27.0 °C | 35.0 °C | 50.0 °C |
|---|-------------|------------|------------|
| Qcmax ($\Delta T = 0$) | 63.8 Watts | 65.8 Watts | 69.2 Watts |
| ΔT_{max} ($Q_c = 0$) | 68.9°C | 71.8°C | 77.0°C |
| I_{max} (I @ ΔT_{max}) | 7.9 Amps | 7.8 Amps | 7.8 Amps |
| V_{max} (V @ ΔT_{max}) | 13.6 Volts | 14.2 Volts | 15.1 Volts |
| Module Resistance | 1.61 Ohms | 1.68 Ohms | 1.81 Ohms |
| Max Operating Temperature | 80 °C | | |
| Weight | 7.0 gram(s) | | |

* Specifications reflect thermoelectric coefficients updated March 2020

FINISHING OPTIONS

| Suffix | Thickness | Flatness / Parallelism | Hot Face | Cold Face | Lead Length |
|--------|-------------------------------------|--|----------|-----------|---------------------|
| TA | 1.956 ±0.025 mm 0.077 ± 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 |
|--------|---------|-------|--------------|--|
| EP | Epoxy | Black | -55 to 150°C | Low density syntactic foam epoxy encapsulant |

NOTES

1. Max operating temperature: 80°C
2. Do not exceed I_{max} or V_{max} when operating module
3. Reference assembly guidelines for recommended installation

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Date: 04/24/2020