

# Power-Cycling Series PC7,16,F1,4040,TA,W6 Thermal Cycling Module



The PowerCycling Series is a thermoelectric module (TEM) designed for thermal cycling between multiple temperature set points and is ideal for applications in healthcare [and others] where fast temperature changes are required. The module is specially constructed to reduce the amount of stress induced on the TE elements during operation. This product line has been tested to withstand 500K cycles without degradation in performance. The TEMs are assembled using Bismuth Telluride semiconductor material and thermally conductive Aluminum Oxide ceramics.

## FEATURES

- High thermal cycling capability
- Precise temperature control
- Reliable solid state operation
- No sound or vibration
- RoHS Compliant

## APPLICATIONS

- Molecular Diagnostics
- Clinical Diagnostics
- Analytical Instrumentation
- Electronic Enclosure Cooling
- Chillers (Liquid Cooling)

## PERFORMANCE SPECIFICATIONS

|                           |      |      |
|---------------------------|------|------|
| Hot Side Temperature (°C) | 25°C | 50°C |
| Qmax (Watts)              | 76.3 | 83.8 |
| Delta Tmax (°C)           | 67   | 75   |
| I <sub>max</sub> (Amps)   | 7.0  | 7.0  |
| V <sub>max</sub> (Volts)  | 18.3 | 20.7 |
| Module Resistance (Ohms)  | 2.43 | 2.74 |

| SUFFIX | THICKNESS        | FLATNESS & PARALLELISM | HOT FACE | COLD FACE | LEAD LENGTH |
|--------|------------------|------------------------|----------|-----------|-------------|
| TA     | 0.130" ± 0.001"  | 0.001" / 0.001"        | Lapped   | Lapped    | 6"          |
| TB     | 0.130" ± 0.0005" | 0.0005" / 0.0005"      | Lapped   | Lapped    | 6"          |

## SEALING OPTION

| SUFFIX | SEALANT | COLOR | TEMP RANGE    | DESCRIPTION                              |
|--------|---------|-------|---------------|--|
| RT     | RTV     | White | -60 to 204 °C | Non-corrosive, silicone adhesive sealant |

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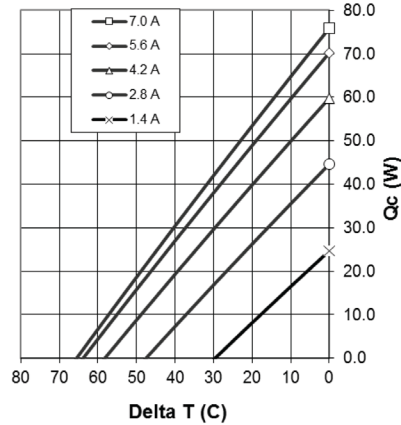
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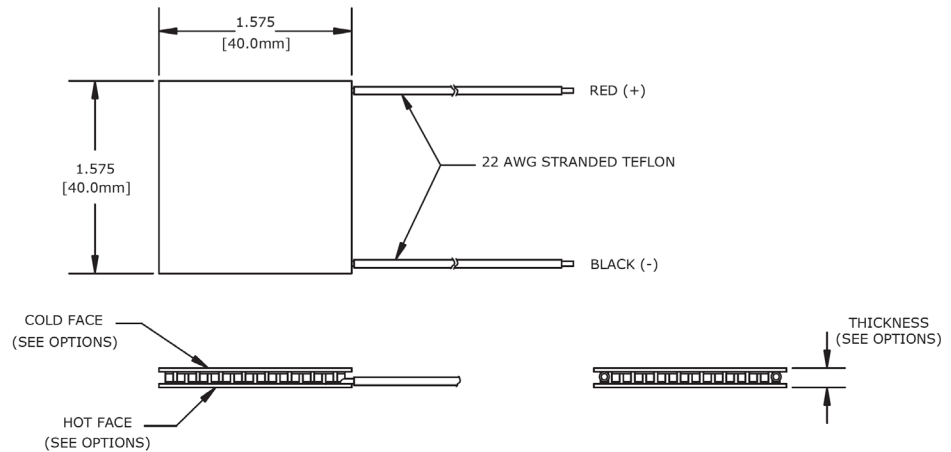
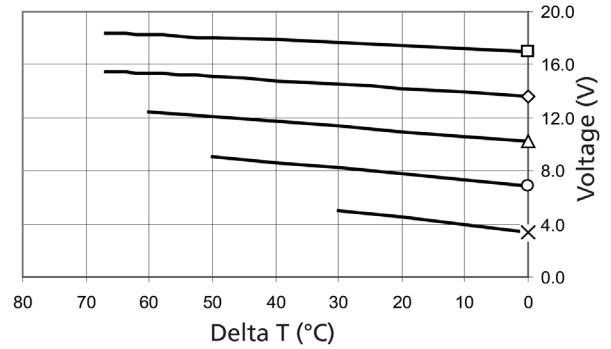
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## Performance Curves at Th = 25°C

### Electric



### Thermo



Ceramic Material: Alumina (Al<sub>2</sub>O<sub>3</sub>)  
Solder Construction: 232°C, Tin Antimony (SnSb)

### OPERATING TIPS

- Max Operating Temperature: 120°C
- Do not exceed I<sub>max</sub> or V<sub>max</sub> when operating module
- Reference assembly guidelines for recommended installation
- Solder tinning also available on metallized ceramics

THR-DS-PC7,16,F1,4040,TA,W6\_092215

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