

Specification of Thermoelectric Module

TEFC1-04904

Description

The 49 couples, 6.28 mm × 6.28 mm size single module which is made of selected high performance ingot to achieve superior cooling performance and greater delta T up to 70 °C, designed for superior cooling and heating up to 100 °C /200 °C applications. If higher operation or processing temperature is required, please specify, we can design and manufacture the custom made module according to your special requirements.

Features

- No moving parts, no noise, and solid-state
- Compact structure, small in size, light in weight
- Environmental friendly
- RoHS compliant
- Precise temperature control
- Exceptionally reliable in quality, high performance

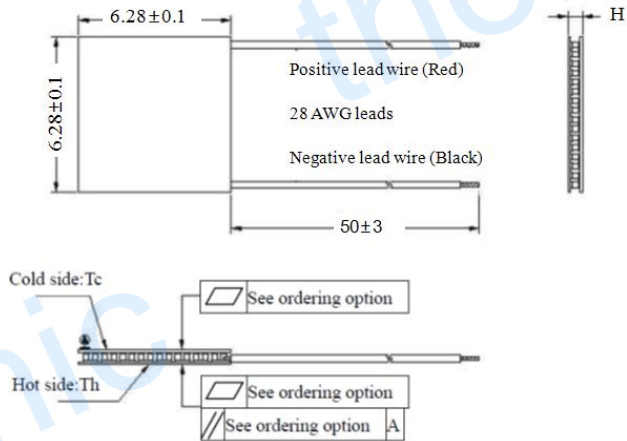
Application

- Food and beverage service refrigerator
- Portable cooler box for cars
- Liquid cooling
- Temperature stabilizer
- CPU cooler and scientific instrument
- Photonic and medical systems

Performance Specification Sheet

Th (°C)	27	50	Hot side temperature at environment: dry air, N ₂
DT _{max} (°C)	70	79	Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side
U _{max} (Voltage)	6.05	6.54	Voltage applied to the module at DT _{max}
I _{max} (amps)	0.40	0.40	DC current through the modules at DT _{max}
Q _{Cmax} (Watts)	1.57	1.69	Cooling capacity at cold side of the module under DT=0 °C
AC resistance (ohms)	11.5	12.4	The module resistance is tested under AC
Tolerance (%)	10%		For thermal and electricity parameters

Geometric Characteristics Dimensions in millimeters



Manufacturing Options

- | | |
|---|-------------------------------------|
| A. Solder: | B. Sealant: |
| 1. T100: BiSn (T _{melt} =138°C) | 1. NS: No sealing (Standard) |
| 2. T200: CuAgSn (T _{melt} = 217°C) | 2. SS: Silicone sealant |
| 3. T240: SbSn (T _{melt} = 240°C) | 3. EPS: Epoxy sealant |
| C. Ceramics: | D. Ceramics Surface Options: |
| 1. Alumina (Al ₂ O ₃ , white 96%) | 1. Blank ceramics (not metalized) |
| 2. Aluminum Nitride (AlN) | 2. Metalized |

Ordering Option

Suffix	Thickness H (mm)	Flatness/ Parallelism (mm)	Lead wire length(mm) Standard/Optional length
TF	0: 2.0±0.10	0: 0.03/0.03	50±3/Specify
TF	1: 2.0±0.03	1: 0.015/0.015	50±3/Specify

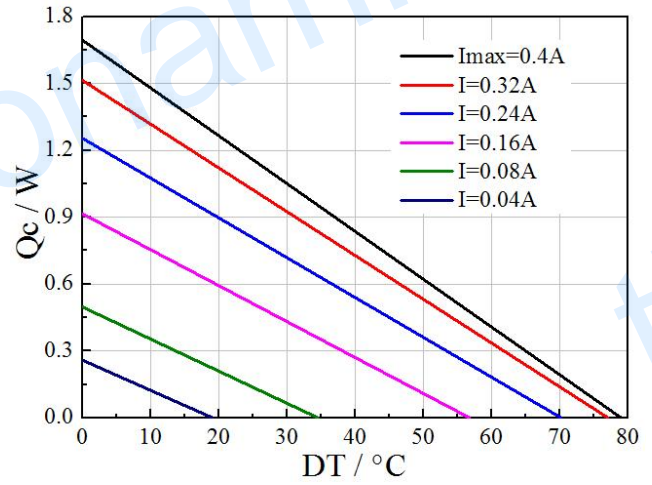
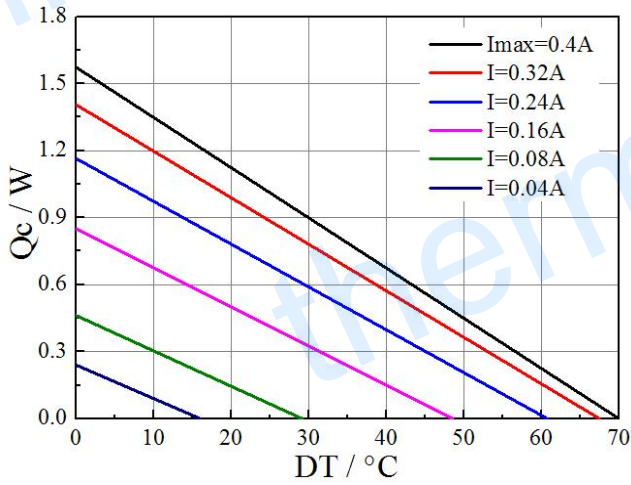
Eg. TF01: Thickness 2.0± 0.10 (mm) and Flatness 0.015 / 0.015(mm)

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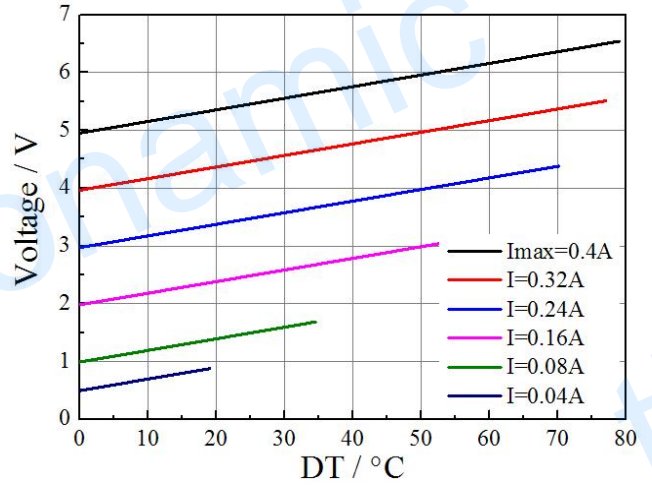
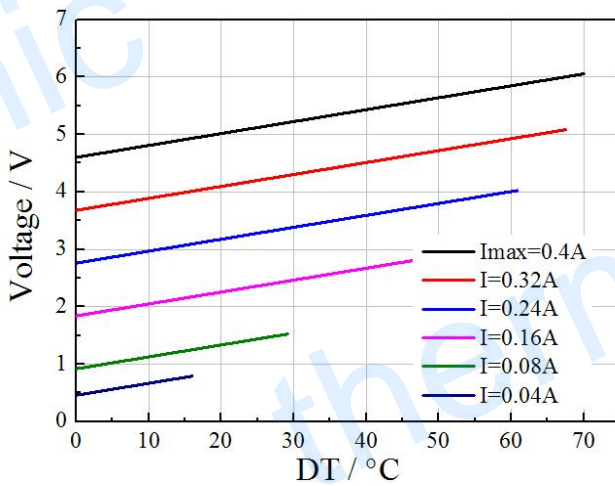
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Performance Curves at Th=27 °C

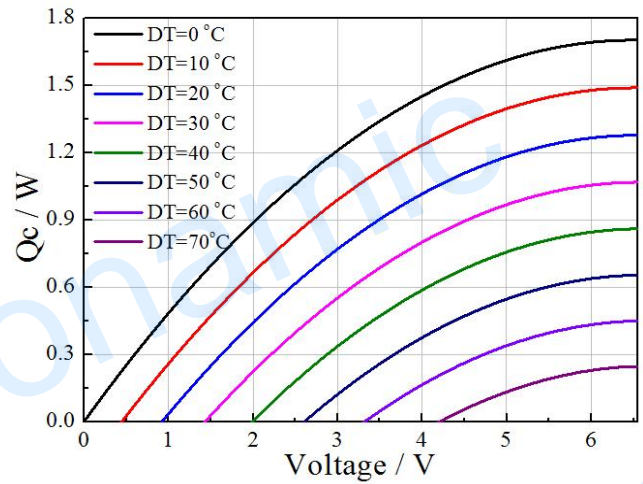
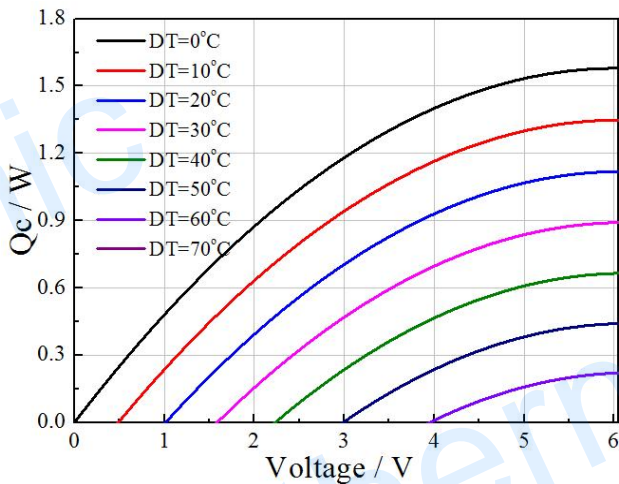
Performance Curves at Th=50 °C



Standard Performance Graph $Q_c = f(DT)$



Standard Performance Graph $V = f(DT)$

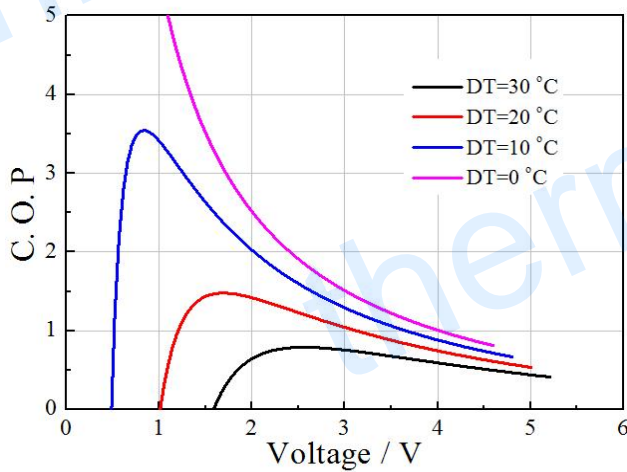


Standard Performance Graph $Q_c = f(V)$

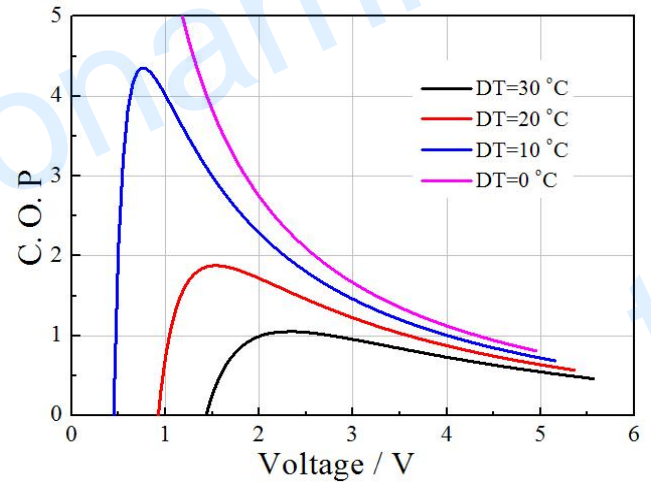
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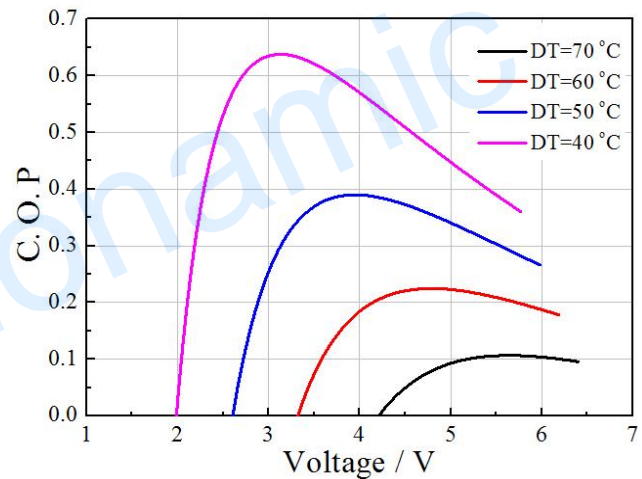
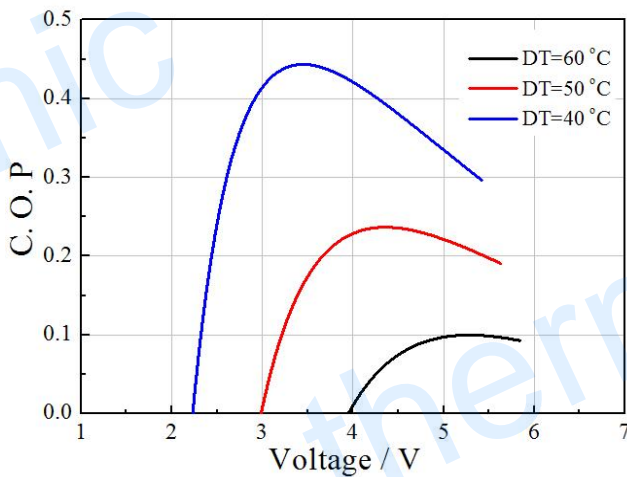
Performance Curves at Th=27 °C



Performance Curves at Th=50 °C



Standard Performance Graph COP = f(V) of DT ranged from 0 to 30 °C



Standard Performance Graph COP = f(V) of DT ranged from 40 to 60/70 °C

Remark: The coefficient of performance (COP) is the cooling power Q_c /Input power ($V \times I$).

Operation Cautions

- Attach the cold side of module to the object to be cooled
- Attach the hot side of module to a heat radiator for heat dissipating
- Operation below I_{max} or V_{max}
- Work under DC

Note: All specifications subject to change without notice.