

Specification of Thermoelectric Module

TEC1-01708

Description

The 17 couples, 15 mm × 15 mm size single module which is made of selected high performance ingot to achieve superior cooling performance and greater delta T up to 70, designed for superior cooling and heating up to 100 °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

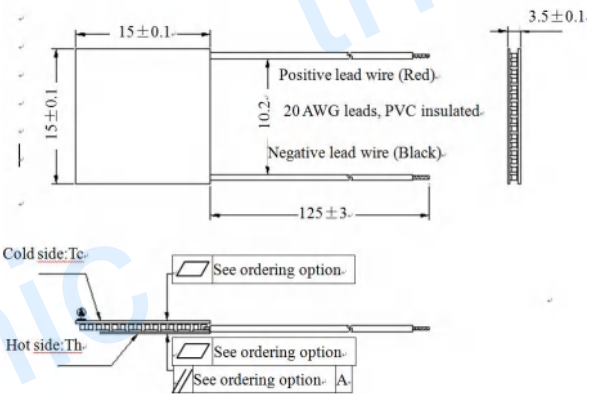
Application

- 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)	2.2	2.3	Voltage applied to the module at DT _{max}
I _{max} (amps)	8.4	8.4	DC current through the modules at DT _{max}
Q _{Cmax} (Watts)	11.5	12.6	Cooling capacity at cold side of the module under DT=0 °C
AC resistance (ohms)	0.2	0.21	The module resistance is tested under AC
Tolerance (%)	± 10		For thermal and electricity parameters

Geometric Characteristics Dimensions in millimeters



Ordering Option

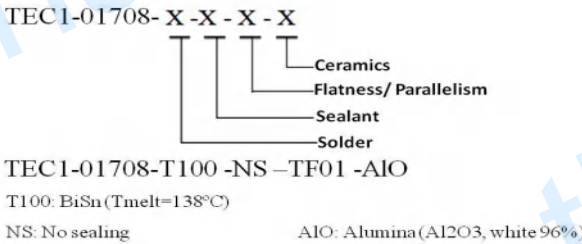
Suffix	Thickness (mm)	Flatness/ Parallelism (mm)	Lead wire length(mm) Standard/Optional length
TF	0:3.5±0.1	0:0.05/0.05	125±1/Specify
TF	1:3.5±0.03	1:0.02/0.02	125±1/Specify

Eg. TF01: Thickness 3.5 ± 0.1 (mm) and Flatness 0.02 / 0.02(mm)

Manufacturing Options

- | | |
|---|-------------------------------------|
| A. Solder: | B. Sealant: |
| 1. T100: BiSn (Tmelt=138°C) | 1. NS: No sealing (Standard) |
| 2. T200: CuAgSn (Tmelt = 217°C) | 2. SS: Silicone sealant |
| 3. T240: SbSn (Tmelt = 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) |

Naming for the Module

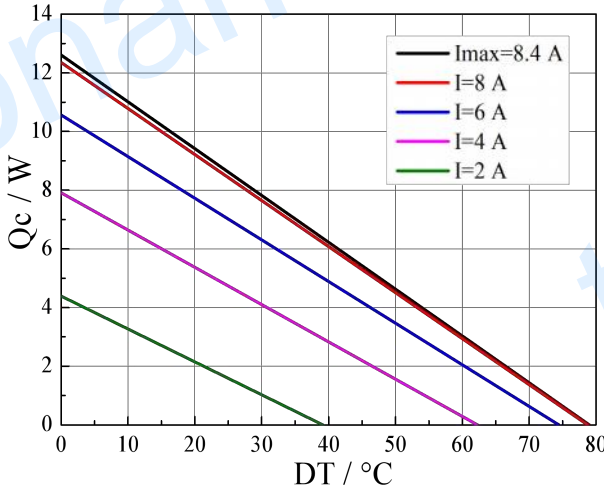
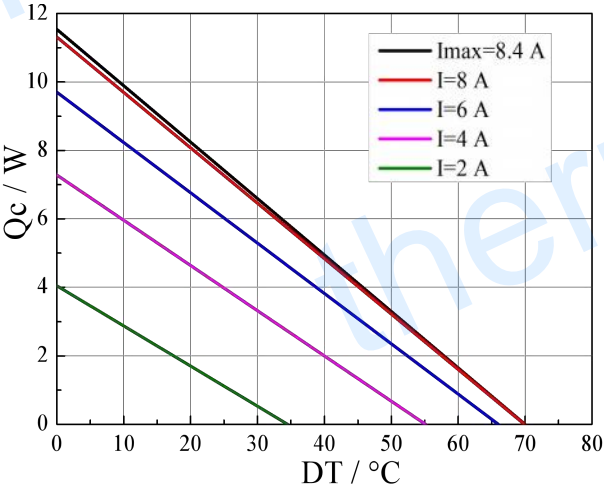


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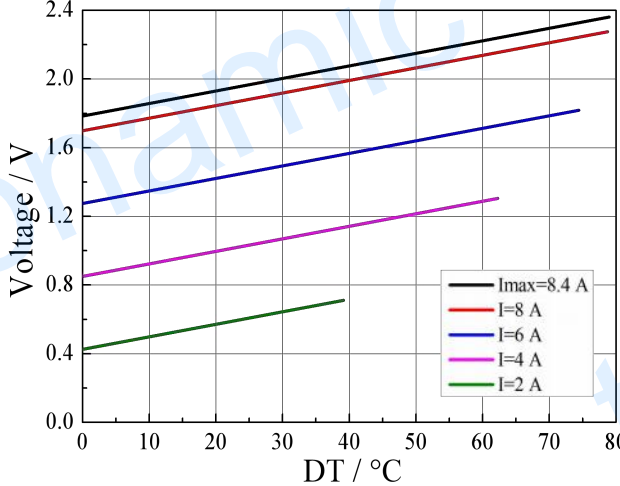
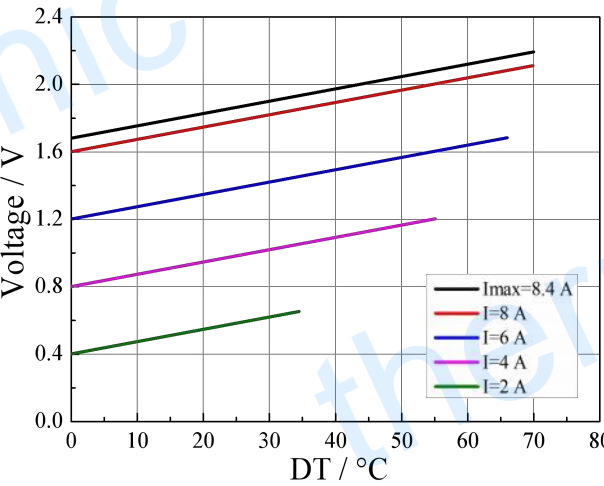
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Performance Curves at Th=27 °C

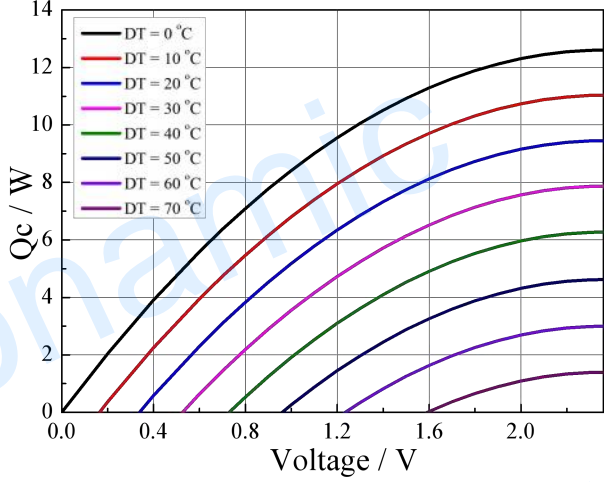
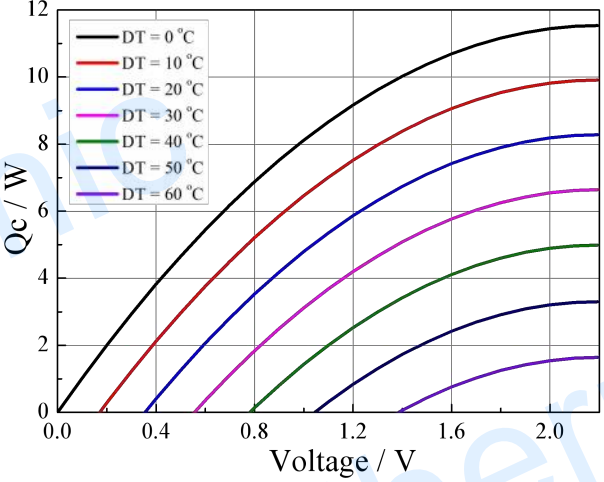
Performance Curves at Th=50 °C



Standard Performance Graph $Q_c = f(DT)$



Standard Performance Graph $V = f(\Delta T)$

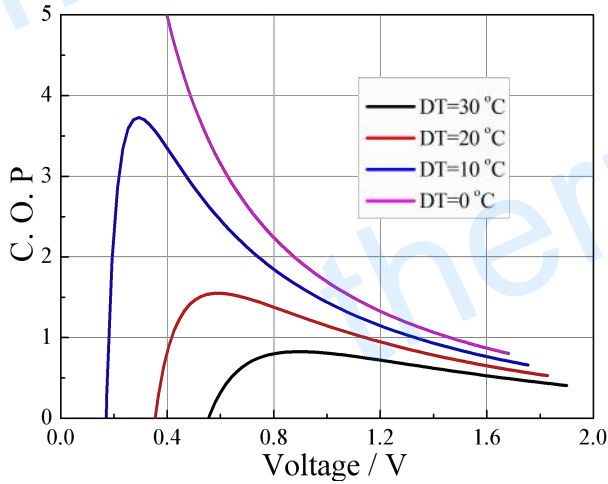


Standard Performance Graph $Q_c = f(V)$

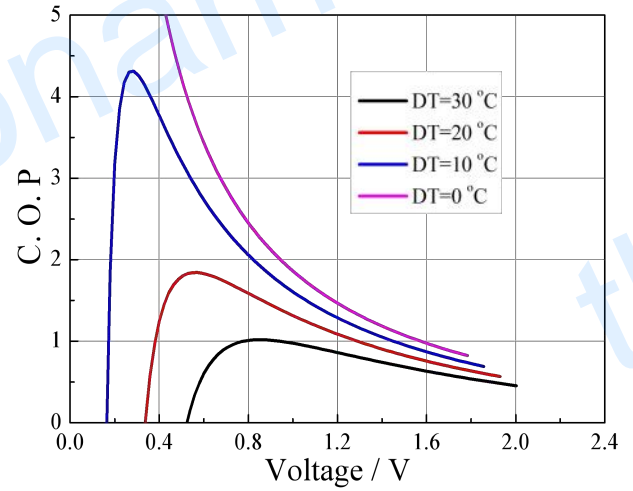
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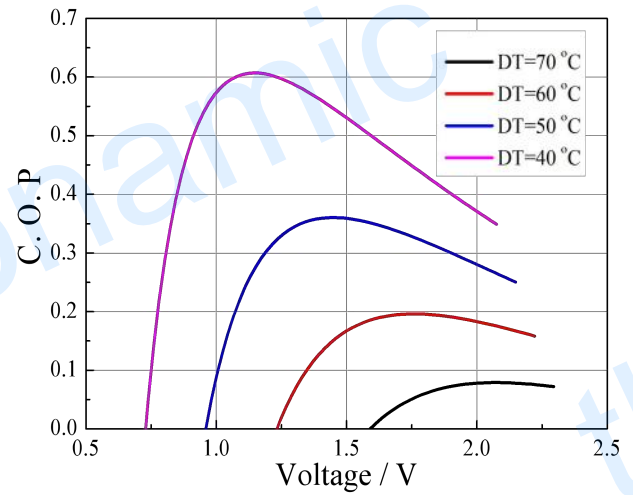
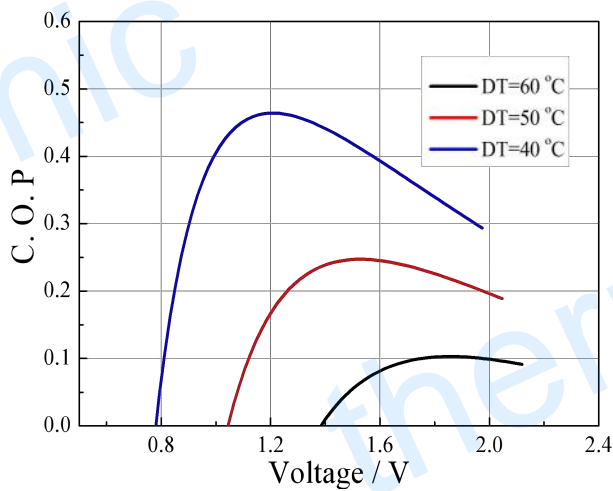
Performance Curves at Th=27 °C



Performance Curves at Th=50 °C



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



Standard Performance Graph COP = f(V) of ΔT 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 or storage module below 100 °C
- Operation below I_{max} or V_{max}
- Work under DC