

Specification of Thermoelectric Module

TEHC1-12403CH4.7

Description

The 124 couples, 40 mm × 40 mm size single module which is made of selected high performance ingot to achieve superior cooling performance and greater delta T up to 74 °C, 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

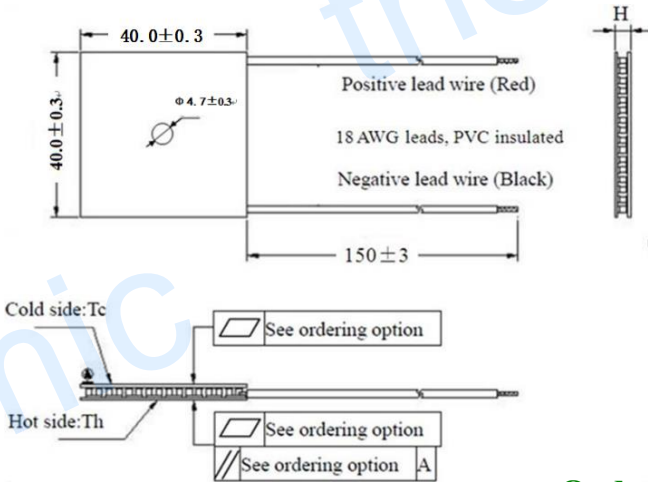
Application

- 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)	74	83	Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side
U _{max} (Voltage)	16.1	17.4	Voltage applied to the module at DT _{max}
I _{max} (amps)	3.9	3.9	DC current through the modules at DT _{max}
Q _{Cmax} (Watts)	40.3	43.3	Cooling capacity at cold side of the module under DT=0 °C
AC resistance (ohms)	3.10	3.34	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

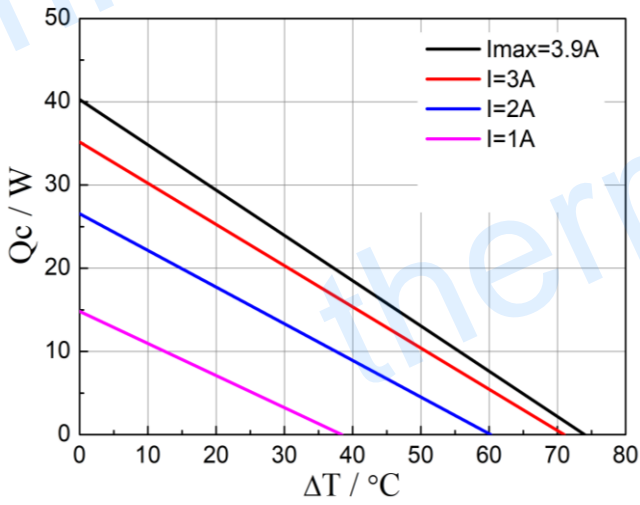
Suffix	Thickness H / (mm)	Flatness/ Parallelism (mm)	Lead wire length (mm) Standard/Optional length
TF	0:4.8 ±0.1	0:0.08/0.08	150±3/Specify
TF	1:4.8 ±0.03	1:0.03/0.03	150±3/Specify

Eg. TF01: Thickness 4.8±0.1(mm) and Flatness 0.03/0.03(mm)

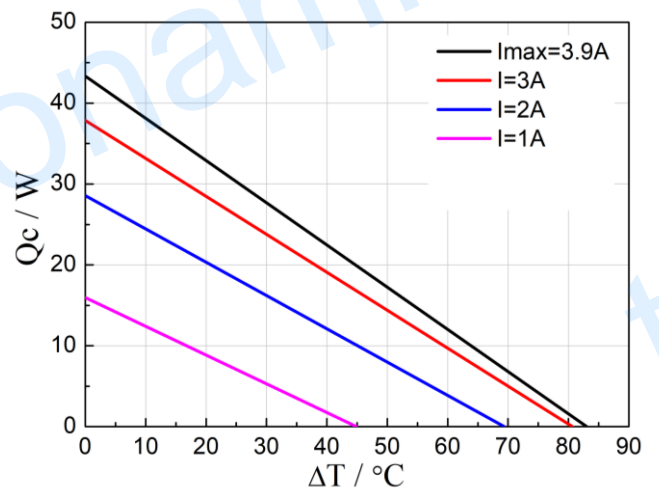
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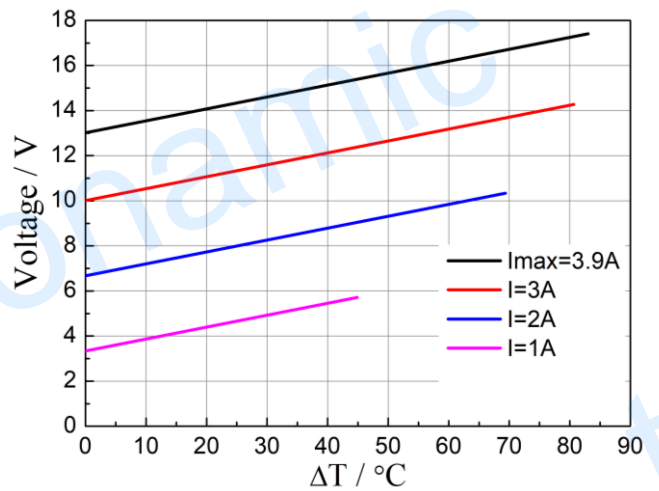
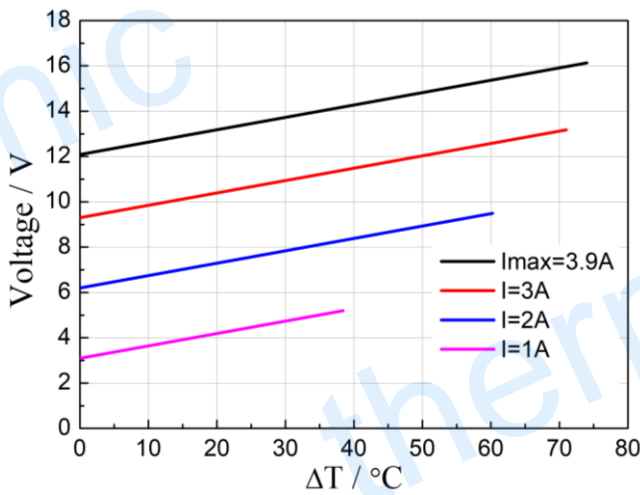
Performance Curves at Th=27 °C



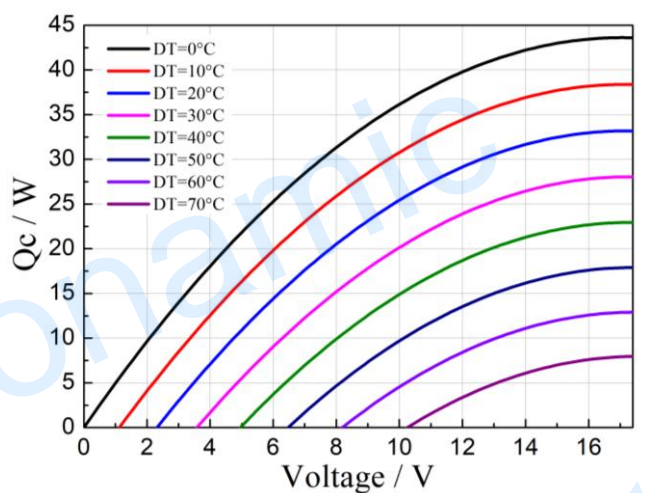
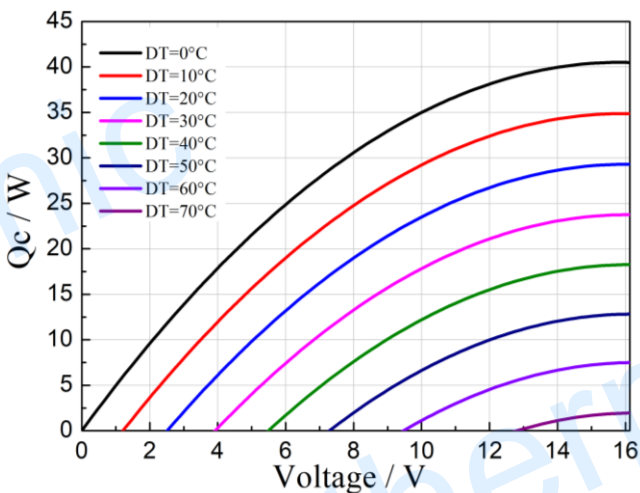
Performance Curves at Th=50 °C



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



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



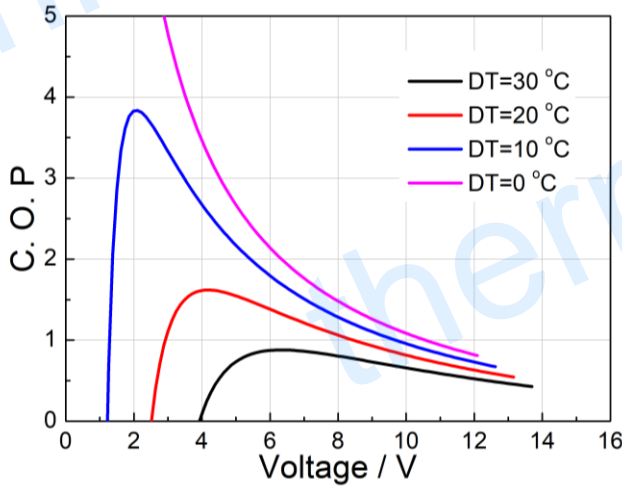
Standard Performance Graph $Q_c = f(V)$

Creative technology with fine manufacturing processes provides you the reliable and quality products

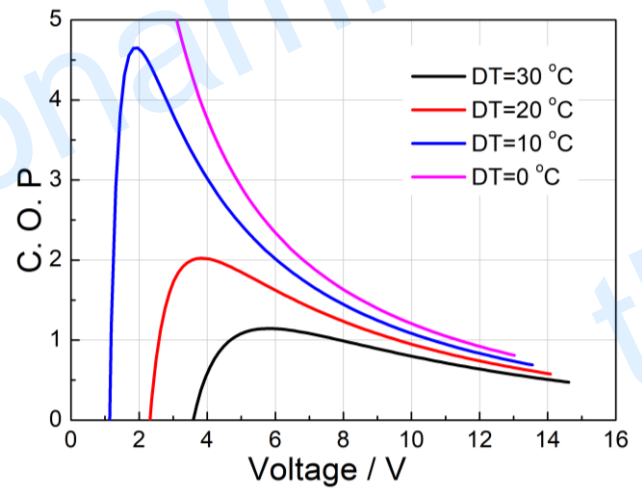
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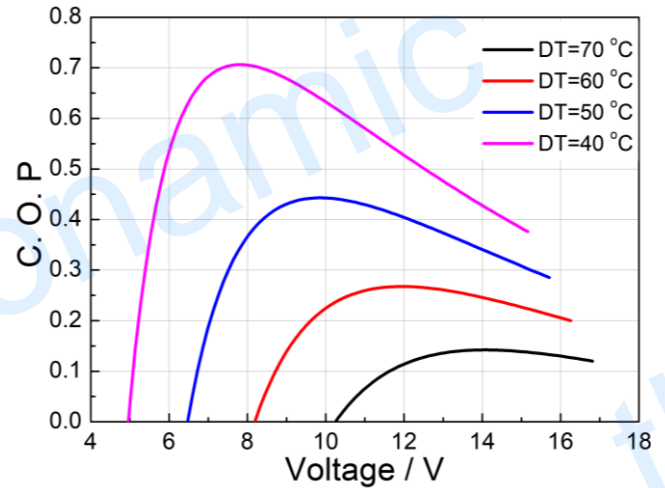
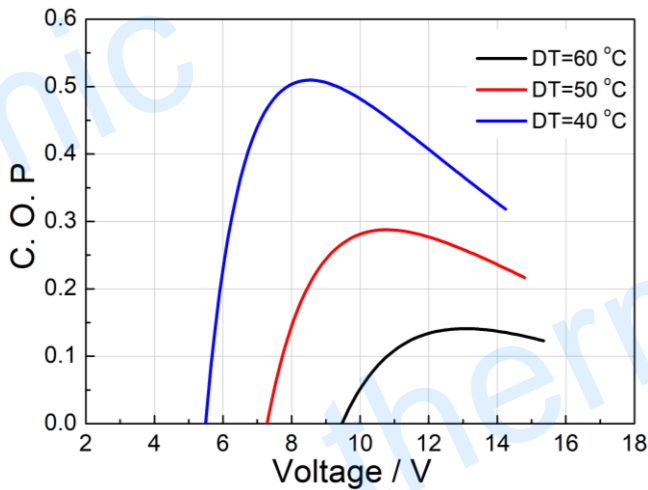
Performance Curves at Th=27 °C



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.