

Specification of Thermoelectric Module

TEHC1-19916

Description

The 199 couples, 40mm × 40mm size 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

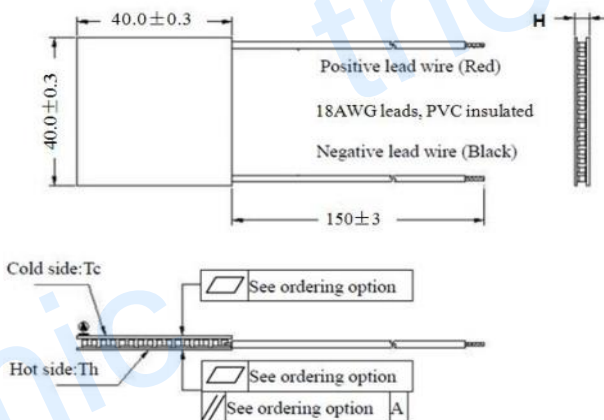
Application

- 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)	26.3	28.3	Voltage applied to the module at DT _{max}
I _{max} (amps)	14.7	14.7	DC current through the modules at DT _{max}
Q _{Cmax} (Watts)	240.7	259.1	Cooling capacity at cold side of the module under DT=0 °C
AC resistance(ohms)	1.35	1.45	The module resistance is tested under AC
Tolerance (%)	± 10		For thermal and electricity parameters

Geometric Characteristics Dimensions in millimeters



Manufacturing Options

A. Solder:

1. T100: BiSn (T_{melt}=138°C)
2. T200: CuAgSn (T_{melt} = 217°C)
3. T240: SbSn (T_{melt} = 240°C)

B. Sealant:

1. NS: No sealing (Standard)
2. SS: Silicone sealant
3. EPS: Epoxy sealant

C. Ceramics:

1. Alumina (Al₂O₃, white 96%)
2. Aluminum Nitride (AlN)

D. Ceramics Surface Options:

1. Blank ceramics (not metalized)
2. Metalized

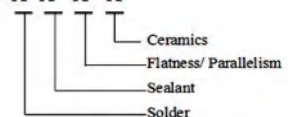
Ordering Option

Naming for the Module

Suffix	Thickness (mm)	Flatness/ Parallelism (mm)	Lead wire length(mm) Standard/Optional length
TF	0:3.1 ± 0.1	0: 0.08/0.08	150±3/Specify
TF	1:3.1 ± 0.03	1: 0.03/0.03	150±3/Specify

Eg. TF01: Thickness 3.1 ± 0.1 (mm) and Flatness 0.03/0.03 (mm)

TEHC1-19916- X-X-X-X



TEHC1-19916-T100-NS-TF01-A1O

T100: BiSn(T_{melt}=138°C)

NS: No sealing

A1O: Alumina white 96%

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

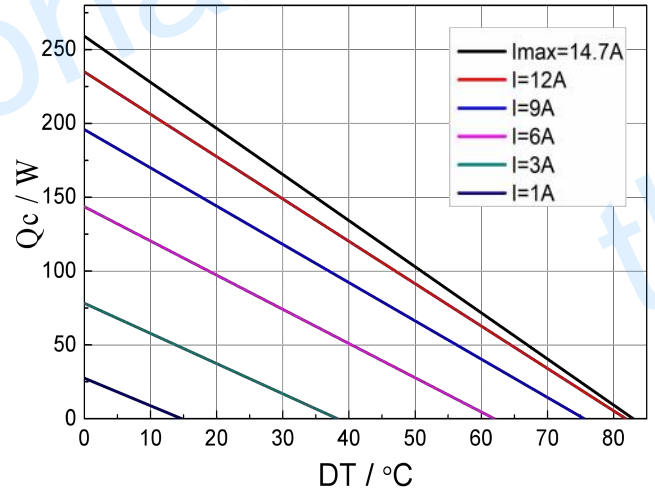
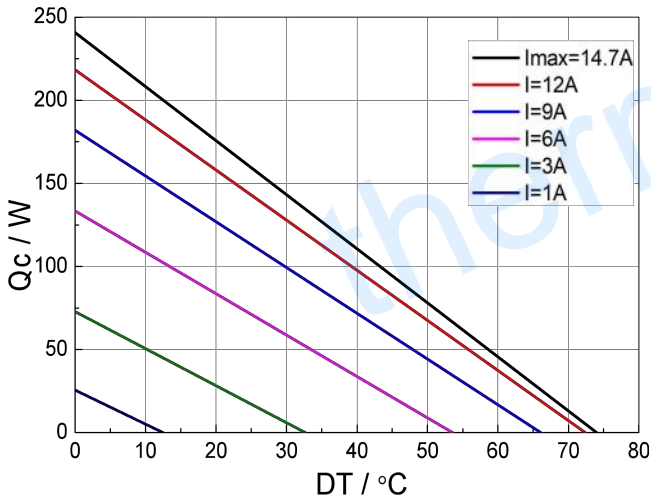
Tel: +86-791-88198288 Fax: +86-791-88198308 Email: sales@thermonamic.com.cn Web Site: www.thermonamic.com.cn

Specification of Thermoelectric Module

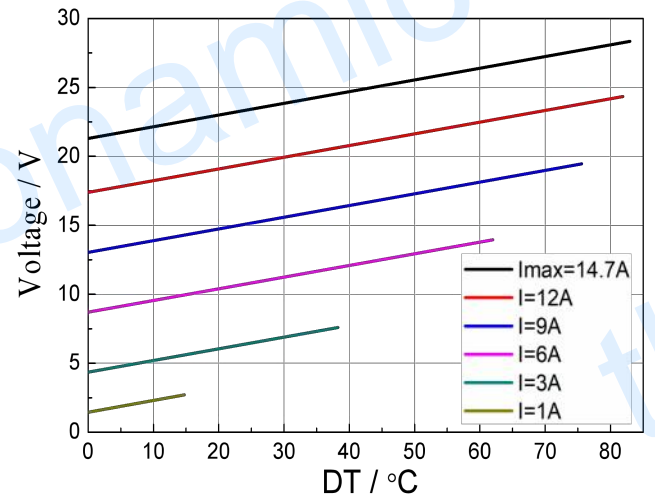
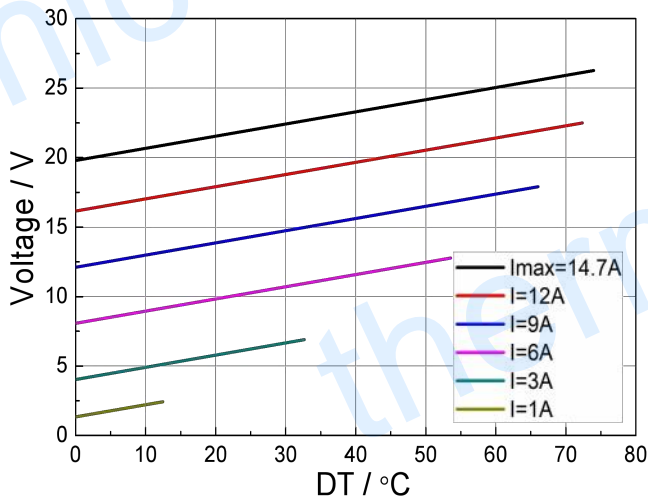
TEHC1-19916

Performance Curves at $T_h=27^\circ\text{C}$

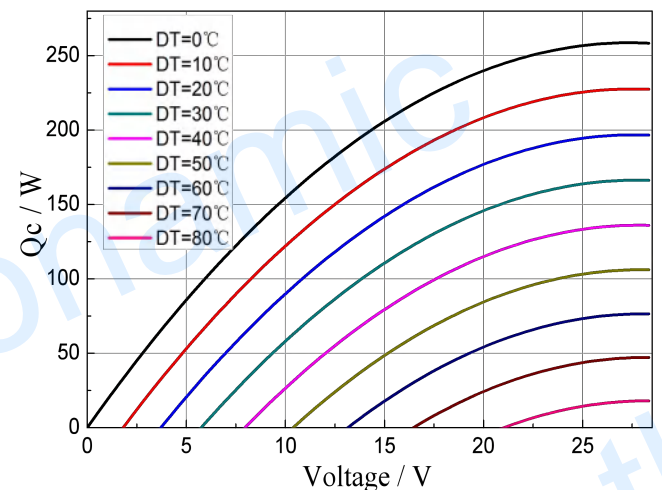
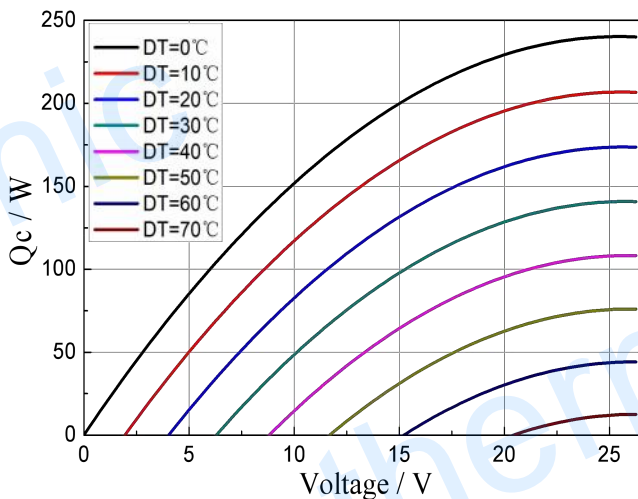
Performance Curves at $T_h=50^\circ\text{C}$



Standard Performance Graph $Q_c = f(DT)$



Standard Performance Graph $V = f(DT)$



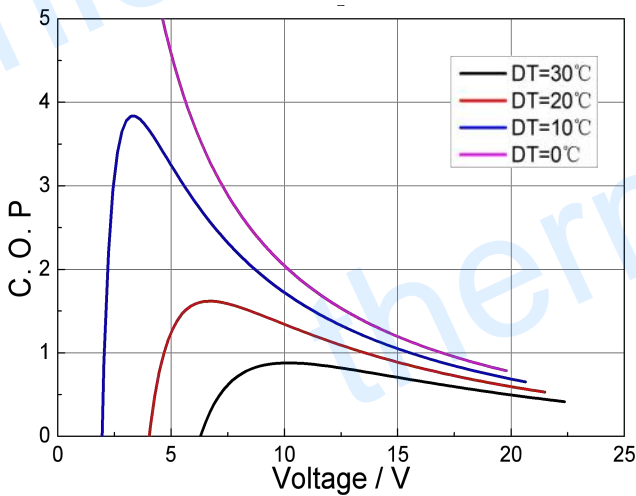
Standard Performance Graph $Q_c = f(V)$

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

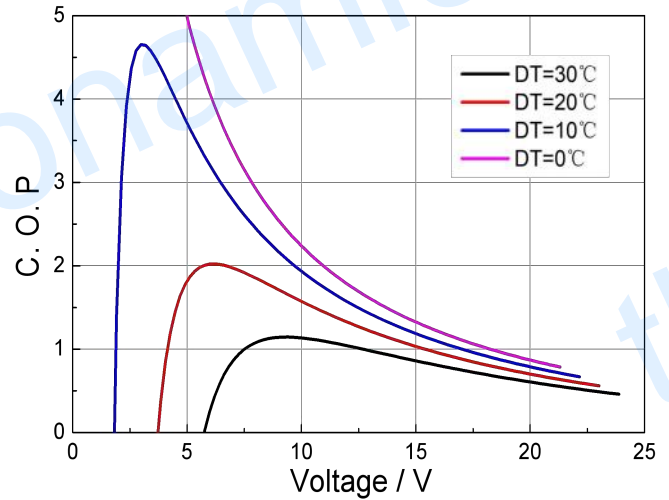
Specification of Thermoelectric Module

TEHC1-19916

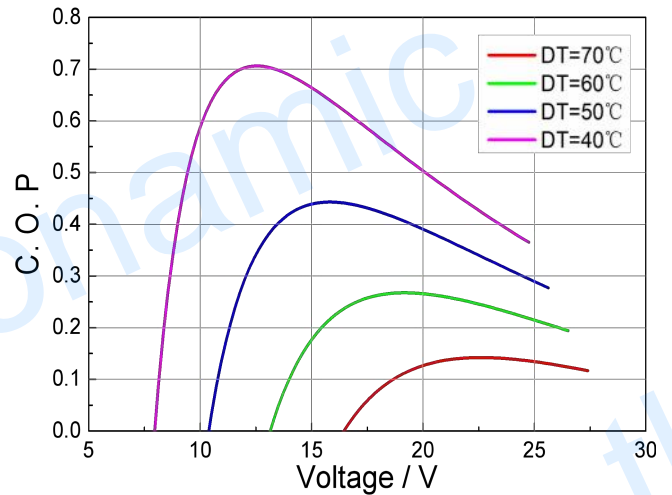
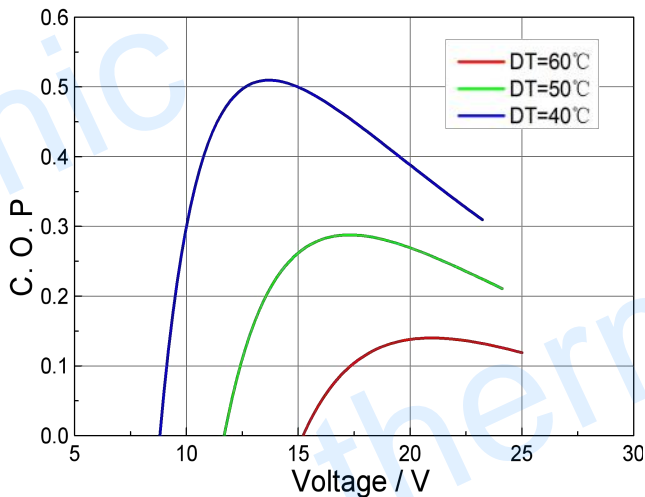
Performance Curves at Th=27 °C



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.