

# Specification of Thermoelectric Module

## TEHC1-03505

### Description

The 35 couples, 15 mm × 30 mm size single module which is made of our high performance ingot to achieve superior cooling performance and 74° C or larger delta Tmax, is designed for superior cooling and heating applications. Beyond the standard below, we can design and manufacture the custom made module according to your special requirements.

### Features

- High effective cooling and efficiency
- 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

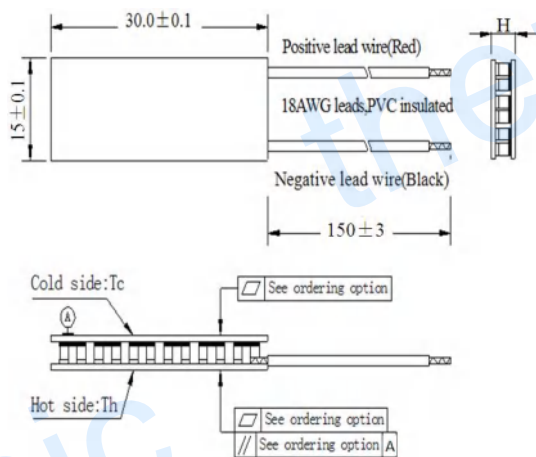
### Application

- 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, N2  |
| DTmax (°C)           | 74   | 83   | Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side |
| Umax (Voltage)       | 4.6  | 5.0  | Voltage applied to the module at DTmax  |
| Imax (Amps)          | 5.4  | 5.4  | DC current through the modules at DTmax   |
| QCmax (Watts)        | 15.5 | 16.7 | Cooling capacity at cold side of the module under DT=0°C  |
| AC resistance (Ohms) | 0.65 | 0.69 | 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 (Tmelt=138°C)
2. T200: CuAgSn (Tmelt = 217°C)
3. T240: SbSn (Tmelt = 240°C)

#### B. Sealant:

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

#### C. Ceramics:

1. Alumina (Al<sub>2</sub>O<sub>3</sub>, white 96%)
2. Aluminum Nitride (AlN)

#### D. Ceramics Surface Options:

1. Blank ceramics (not metalized)
2. Metalized

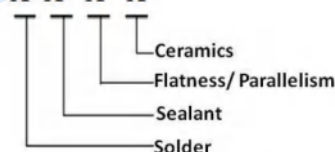
### Flatness/ Parallelism Option

| Suffix | Thickness H / (mm) | Flatness/ Parallelism (mm) | Lead wire length (mm) Standard/Optional length |
|--------|--------------------|----------------------------|--|
| TF     | 0:3.8±0.10         | 0:0.07/0.07                | 150±3/Specify                                  |
| TF     | 1:3.8±0.03         | 1:0.025/0.025              | 150±3/Specify                                  |

Eg. TF01: Thickness 3.8±0.10(mm) and Flatness 0.025/0.025 (mm)

### Naming for the Module

TEHC1-03505-X-X-X-X



TEHC1-03505-T100-NS -TF01 -A10

T100: BiSn (Tmelt=138°C)

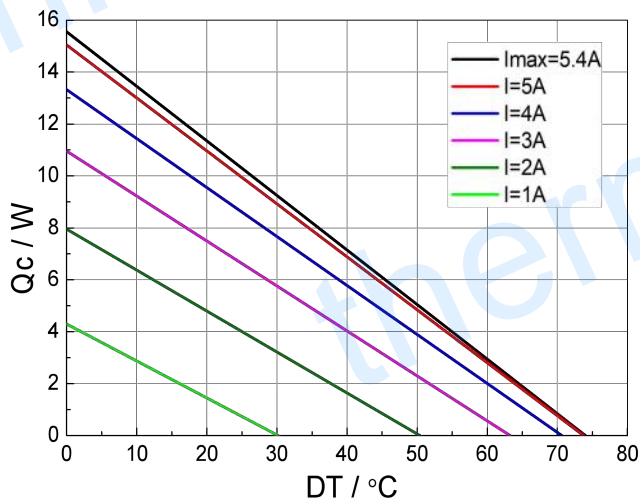
NS: No sealing

A10: Alumina(Al<sub>2</sub>O<sub>3</sub>, white 96%)

# Specification of Thermoelectric Module

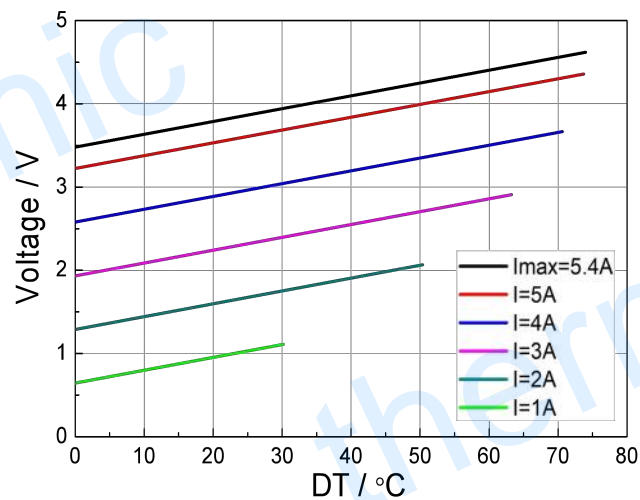
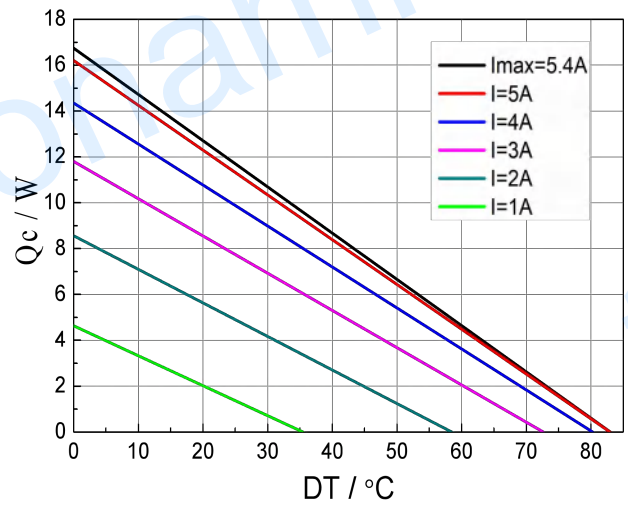
TEHC1-03505

## Performance Curves at Th=27 °C

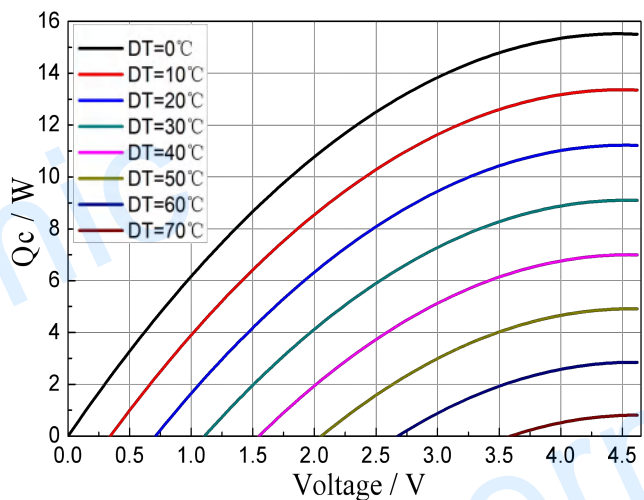
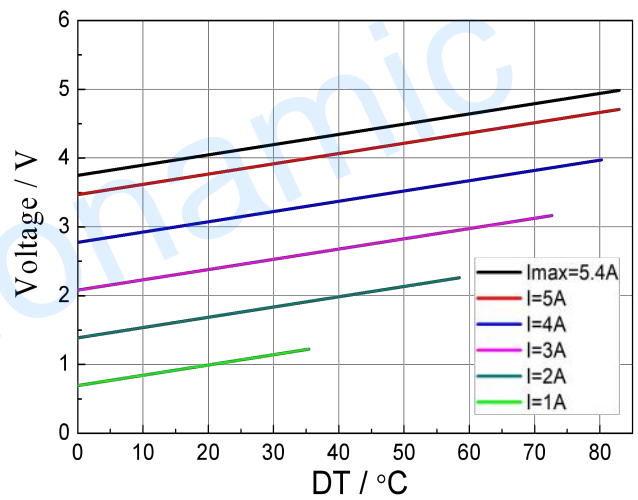


Standard Performance Graph  $Q_c = f(DT)$

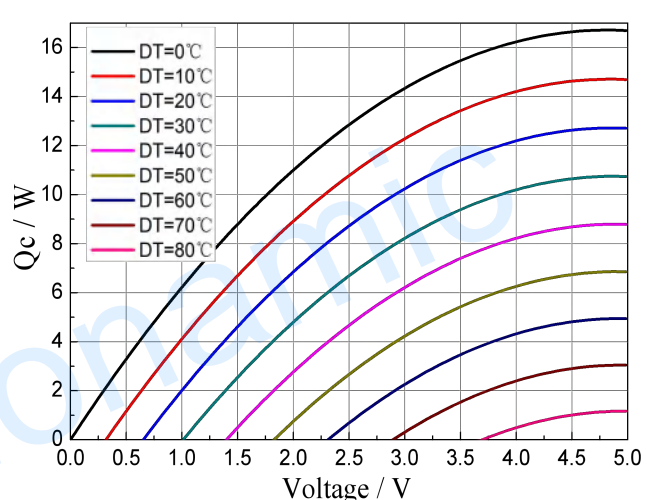
## Performance Curves at Th=50 °C



Standard Performance Graph  $V = f(DT)$



Standard Performance Graph  $Q_c = f(V)$



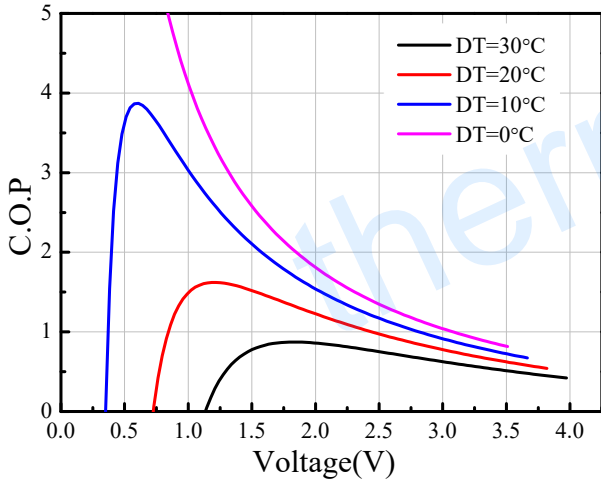
Creative technology with fine manufacturing processes provides you the reliable and quality products

Tel: +86-791-88198288 Fax: +86-791-88198308 Email: [sales@thermonamic.com.cn](mailto:sales@thermonamic.com.cn) Web Site: [www.thermonamic.com.cn](http://www.thermonamic.com.cn)

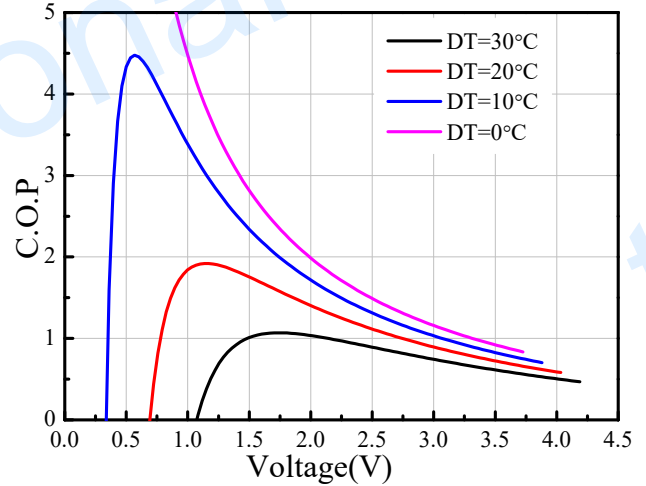
## Specification of Thermoelectric Module

TEHC1-03505

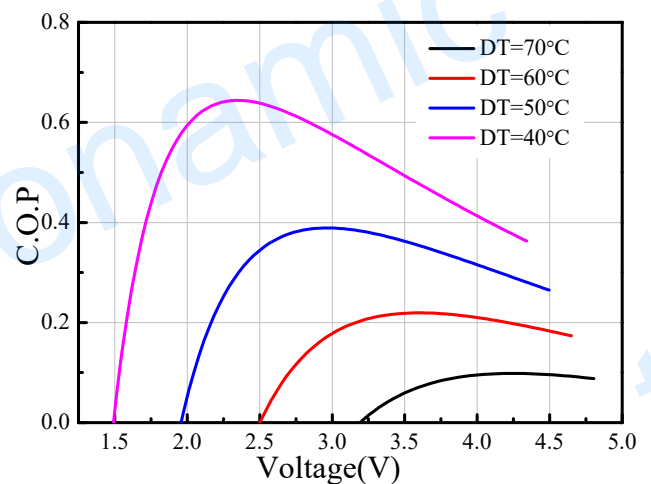
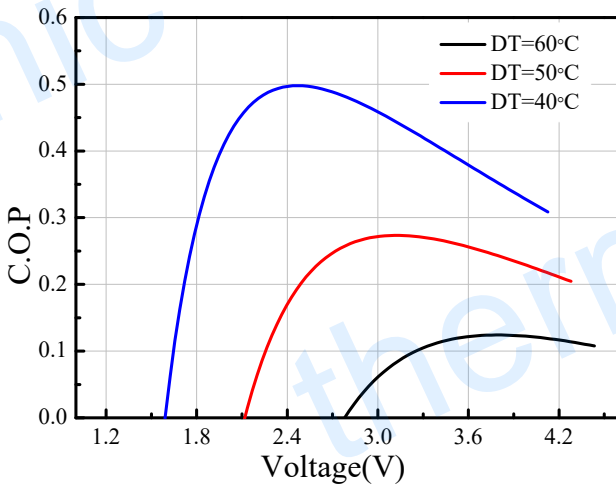
### Performance Curves at Th=27 °C



### 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 or storage module below melting point of solder
- Operation below  $I_{max}$  or  $V_{max}$
- Work under DC

**Note:** All specifications subject to change without notice.

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](mailto:sales@thermonamic.com.cn) Web Site: [www.thermonamic.com.cn](http://www.thermonamic.com.cn)