# **Specification of Thermoelectric Module**

## TEC1-01704

### Description

The 17 couples, 15mm x 15mm size module is a single stage module which is made of our high performance ingot to achieve superior cooling performance and  $70^{\circ}$ 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

- 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

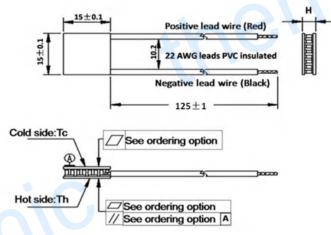
### **Performance Specification Sheet**

### Application

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

Th (°C)	27	50	Hot side temperature at environment: dry air, N <sub>2</sub>	
DT <sub>max</sub> (°C)	70	79	Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side	
U <sub>max</sub> (Voltage)	2.16	2.31	Voltage applied to the module at DT <sub>max</sub>	
I <sub>max</sub> (Amps)	5.2	5.2	DC current through the modules at DT <sub>max</sub>	
Q <sub>Cmax</sub> (Watts)	6.9	7.5	Cooling capacity at cold side of the module under DT=0 °C	
AC resistance (Ohms)	0.35	0.38	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 (Tmelt=138°C)1. NS: No sealing (Standard)2. T200: CuAgSn (Tmelt = 217°C)2. SS: Silicone sealant3. T240: SbSn (Tmelt = 240°C)3. EPS: Epoxy sealantC. Ceramics:D. Ceramics Surface Options:1. Alumina (Al<sub>2</sub>O<sub>3</sub>, white 96%)1. Blank ceramics (not metalized)

2. Aluminum Nitride (AlN)

2. Metalized

Naming for the Module

### **Ordering Option**

Suffix	Thickness H (mm)	Flatness/ Parallelism (mm)	Lead wire length(mm) Standard/Optional length	$\frac{\text{TEC1-01704-} \text{x} - \text{x} - \text{x}}{\prod \prod \prod Ceramics}$
TF	0:4.0± 0.1	0: 0.05/0.05	125±1/Specify	Flatness/Parallelism
TF	$1:4.0 \pm 0.03$	1: 0.02/0.02	125±1/Specify	Solder TEC1-01704-T100-NS -TF01 -AIO
Eg. TF01: Thickness 4.0± 0.1 (mm) and Flatness 0.02/0.02 (mm)				T100: BiSn (Tmelt=138°C) NS: No sealing AlO: Alumina, white 96%

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3

2

1

0.0

0.3

0.6

0.9

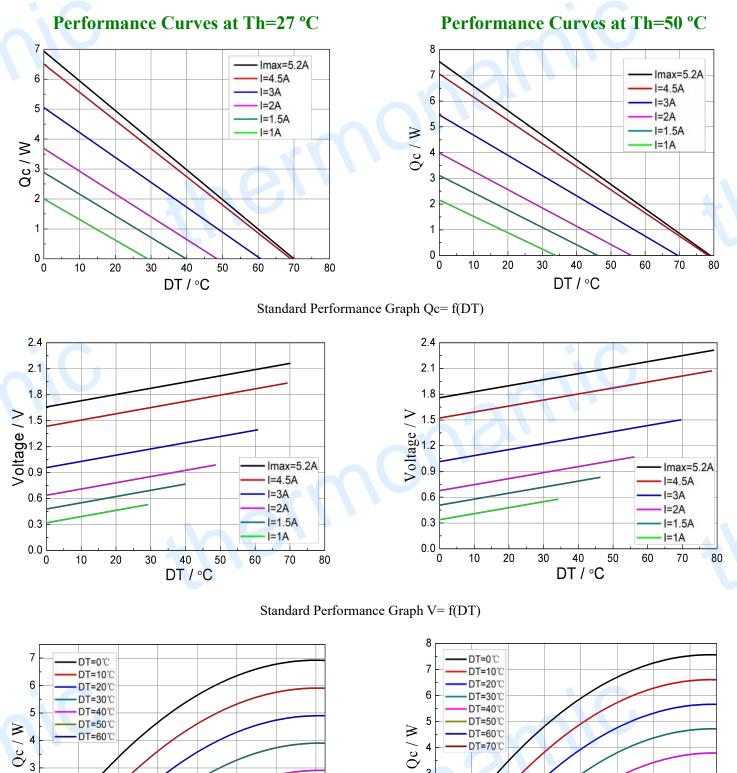
1.2

Voltage / V

1.5

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Standard Performance Graph Qc = f(V)

2.1

1.8

3

2

0.0

0.3

0.6

0.9

1.2

Voltage / V

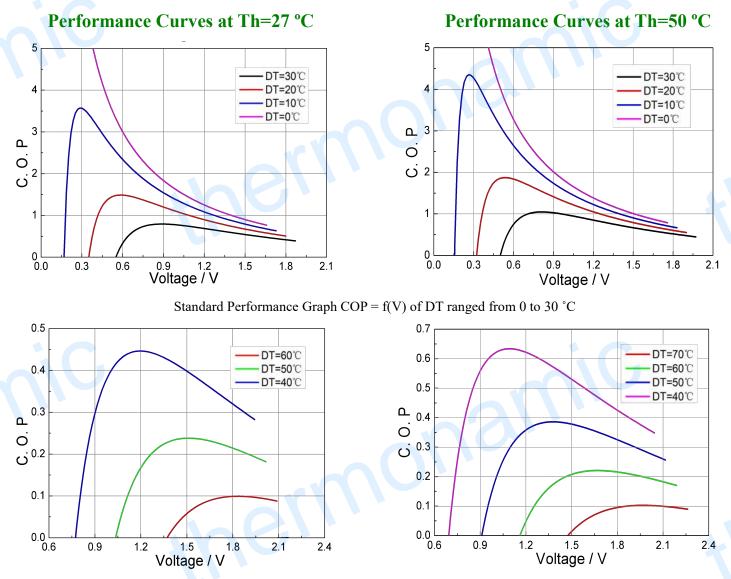
1.5

2.1

1.8

# **Specification of Thermoelectric Module**

## **TEC1-01704**



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 Qc/Input power ( $V \times I$ ).

## **Operation Caution**

- 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<sub>max</sub> or V<sub>max</sub>
- Work under DC

Note: All specifications subject to change without notice.