

## Specification of Thermoelectric Module

### TES1-01732x2T100

#### Description

The 17 couples, 26×26 mm size module is a single stage module which is made of our high performance ingot to achieve superior cooling performance and 70°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

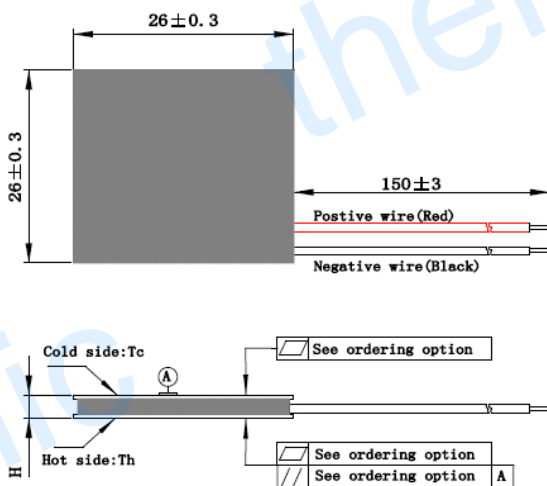
#### Application

- 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 <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)	2.11	2.28	Voltage applied to the module at DT <sub>max</sub>
I <sub>max</sub> (Amps)	3.21	3.21	DC current through the modules at DT <sub>max</sub>
Q <sub>Cmax</sub> (Watts)	4.37	4.70	Cooling capacity at cold side of the module under DT=0 °C
AC resistance (Ohms)	0.50	0.54	The module resistance is tested under AC
Tolerance (%)	± 10		For thermal and electricity parameters

#### Geometric Characteristics Dimensions in millimeters



#### Manufacturing Options

##### A. Solder:

T100: BiSn (T<sub>melt</sub>=138°C)

##### B. Sealant:

NS: No sealing

##### C. Ceramics:

AlO: Al<sub>2</sub>O<sub>3</sub>, white 96%

##### D. Ceramics Surface Options:

Blank ceramics (not metalized)

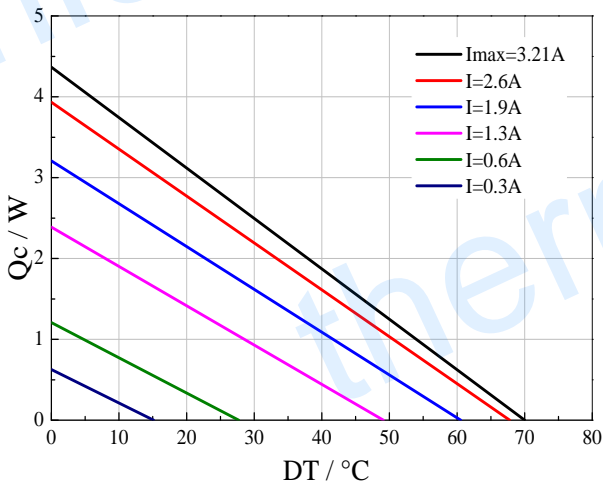
#### Ordering Option

Suffix	Thickness H (mm)	Flatness/ Parallelism (mm)Parallelism (mm)	Lead wire length(mm)Standard/ Optional length
TF	0: 2.3± 0.10	0: 0.07/0.07	150±3/Specify

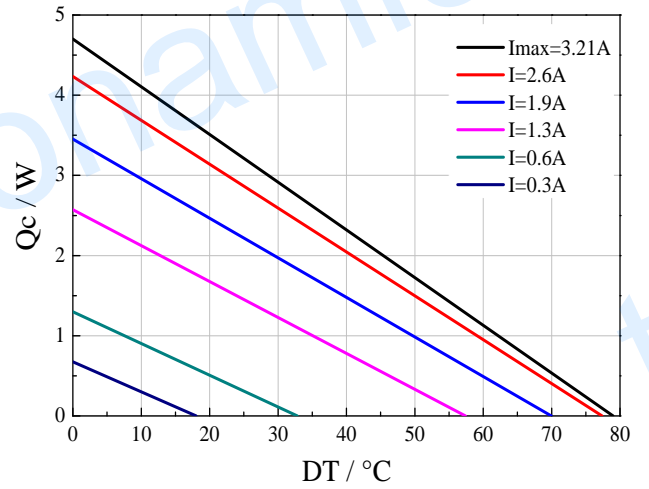
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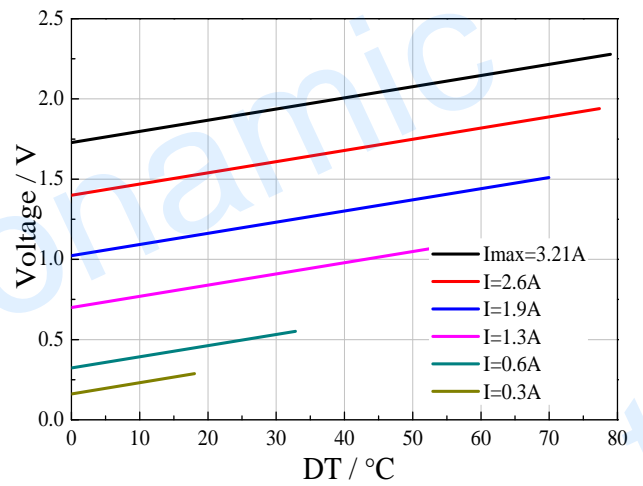
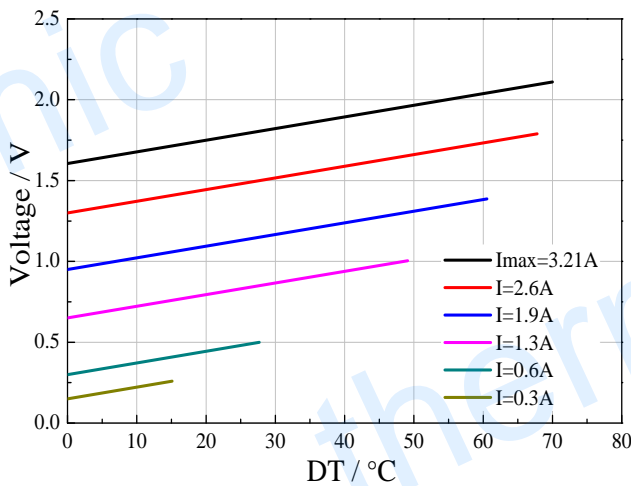
Performance Curves at  $T_h=27^\circ\text{C}$



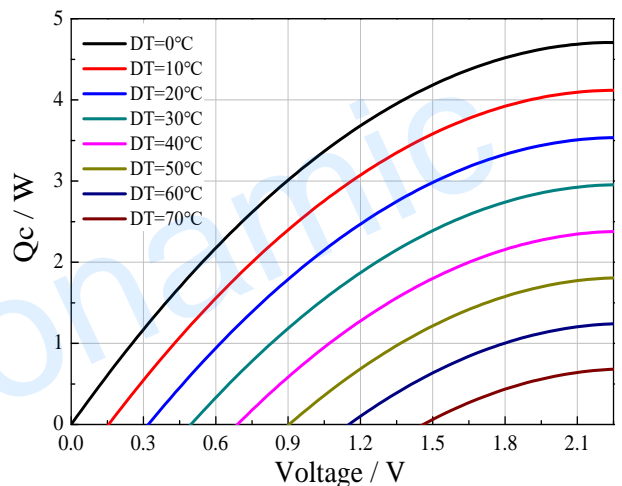
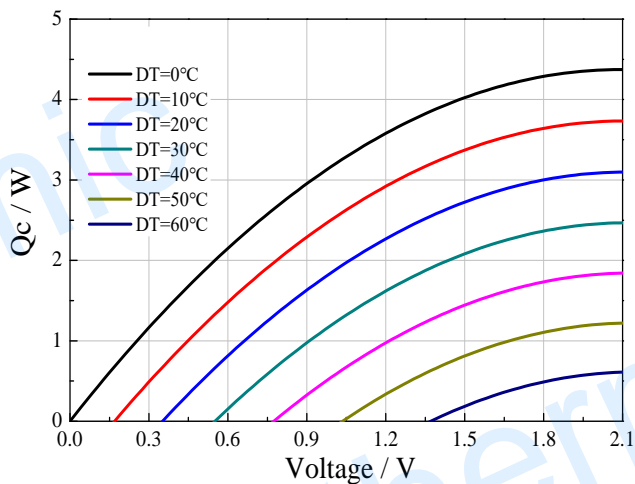
Performance Curves at  $T_h=50^\circ\text{C}$



Standard Performance Graph  $Q_c = f(DT)$



Standard Performance Graph  $V = f(DT)$

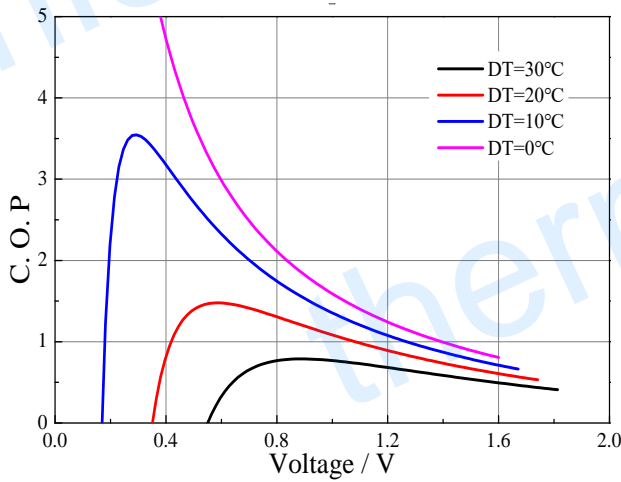


Standard Performance Graph  $Q_c = f(V)$

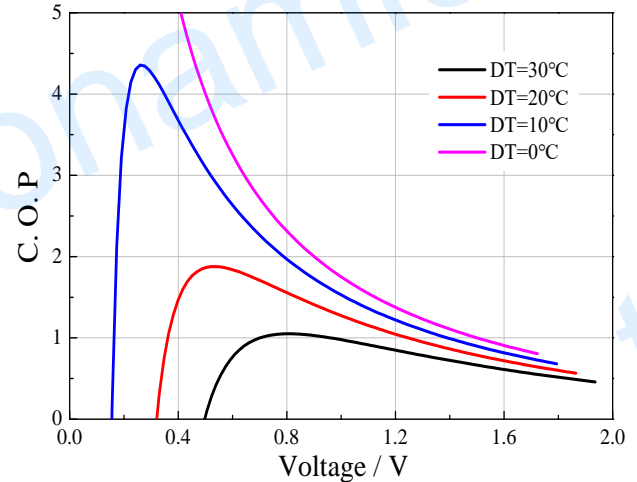
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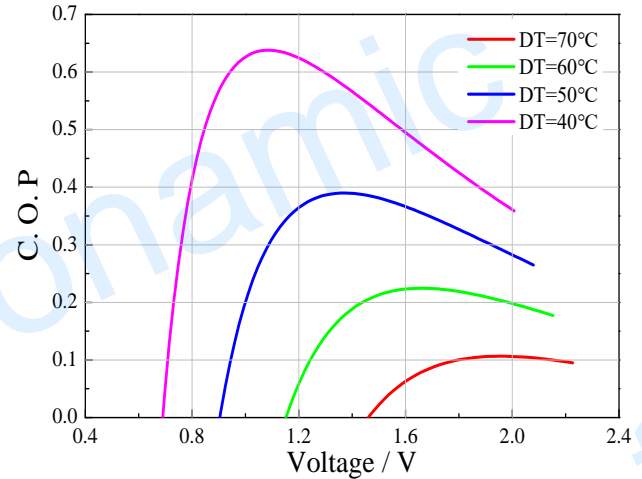
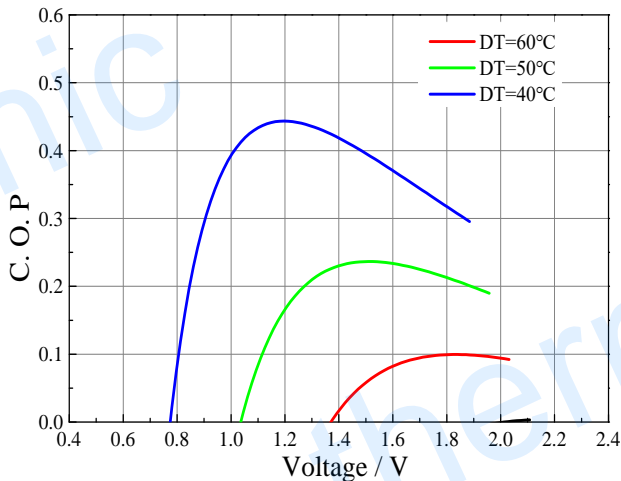
### Performance Curves at Th=27 °C



### 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 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  $I_{max}$  or  $V_{max}$
- Work under DC

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