Specification of Thermoelectric Module

TES1-24132

Description

The 241 couples, 40 mm x 40 mm size module is a single stage module which is made of our high performance ingot to achieve superior cooling performance and 70℃ 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
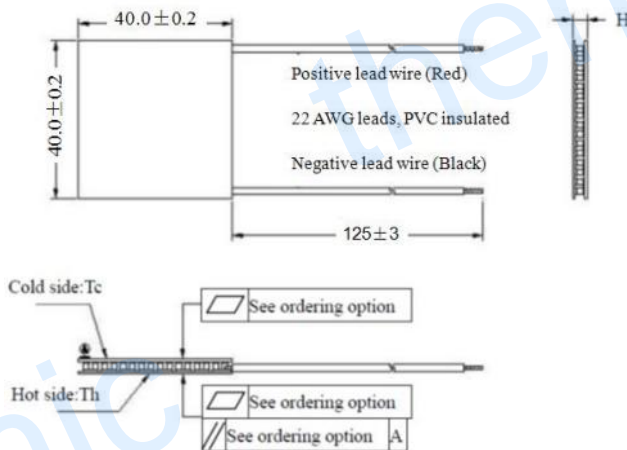- Exceptionally reliable in quality, high performance

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 (ºC)	27	50	Hot side temperature at environment: dry air, N_2
DT_{max} (ºC)	70	79	Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side
U_{max} (Voltage)	29.9	32.3	Voltage applied to the module at DT_{max}
I_{max} (Amps)	3.2	3.2	DC current through the modules at DT_{max}
Q_{Cmax} (Watts)	61.7	66.5	Cooling capacity at cold side of the module under DT=0 ºC
AC resistance (Ohms)	7.10	7.65	The module resistance is tested under AC
Tolerance (%)	± 10		For thermal and electricity parameters

Geometric Characteristics Dimensions in millimeters

40.0±0.2
40.0±0.2
Positive lead wire (Red)
22 AWG leads, PVC insulated
Negative lead wire (Black)
125±3
H

Cold side:Tc
See ordering option
Hot side:Th
See ordering option
See ordering option   A

Manufacturing Options

A. Solder:

1. T100: BiSn (Tmelt=138ºC)

2. T200: CuAgSn (Tmelt = 217°C)

3. T240: SbSn (Tmelt = 240°C)

C. Ceramics:

1. Alumina (Al_2O_3, white 96%)

2. Aluminum Nitride (AlN)

B. Sealant:

1. NS: No sealing (Standard)

2. SS: Silicone sealant

3. EPS: Epoxy sealant

D. Ceramics Surface Options:

1. Blank ceramics (not metalized)

2. Metalized

Ordering Option
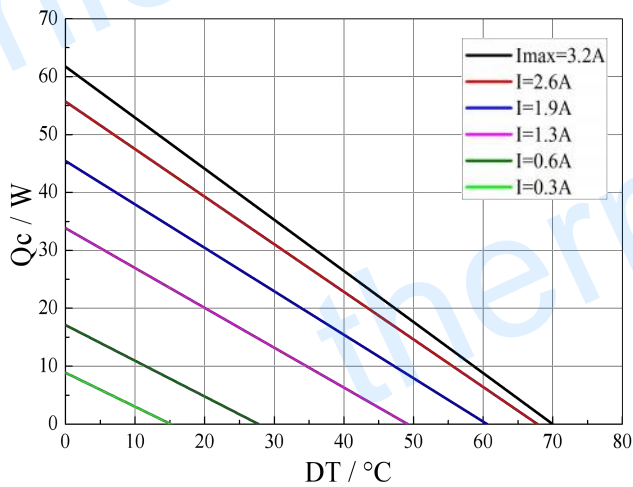
Suffix	Thickness H (mm)	Flatness/ Parallelism (mm)	Lead wire length(mm) Standard/Optional length
TF	0:3.8± 0.1	0: 0.08/0.08	125±3/Specify
TF	1: 3.8± 0.03	1: 0.03/0.03	125±3/Specify

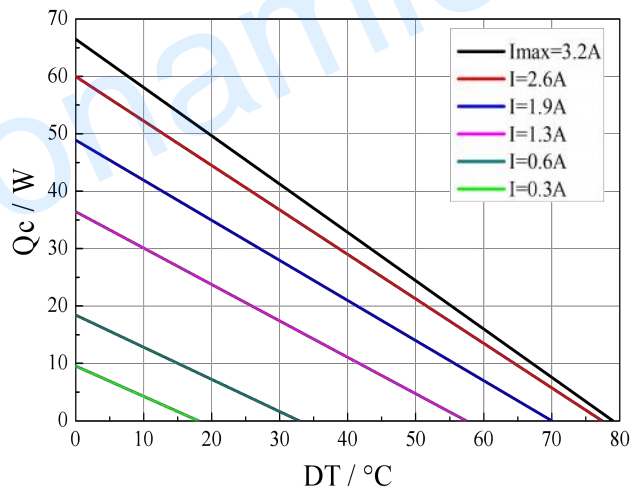Eg. TF00: Thickness 3.8± 0.1 (mm) and Flatness 0.08/0.08 (mm)

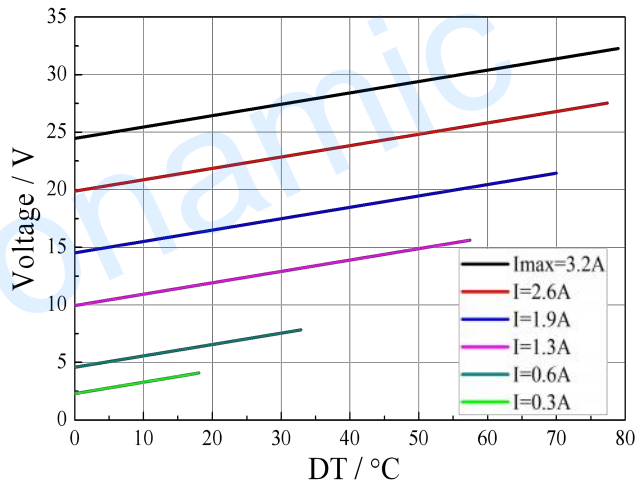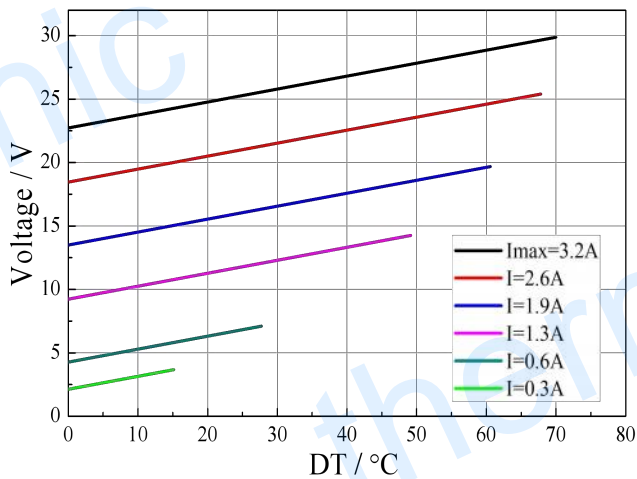# Specification of Thermoelectric Module

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Performance Curves at Th=27 ℃

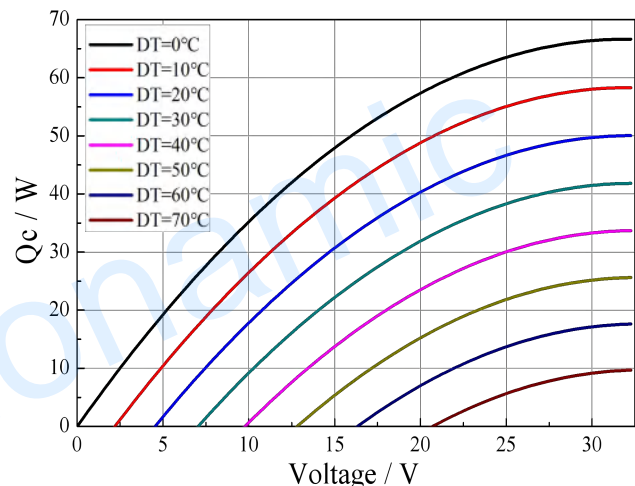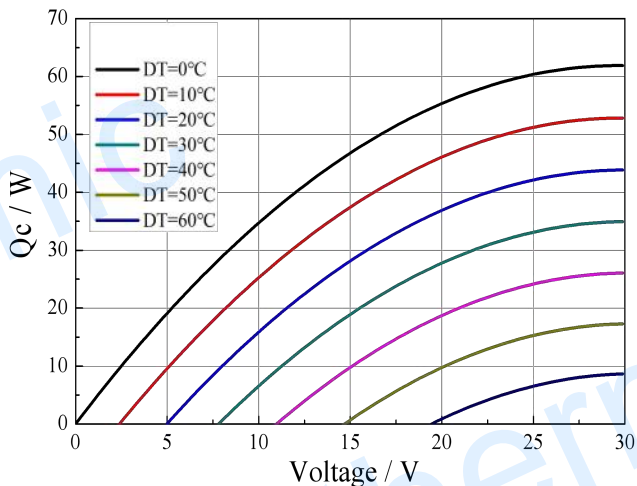### Performance Curves at Th=50 ℃

Standard Performance Graph Qc= f(DT)
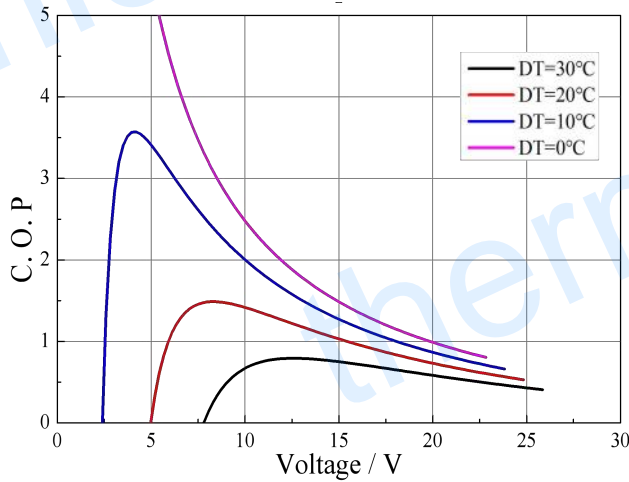
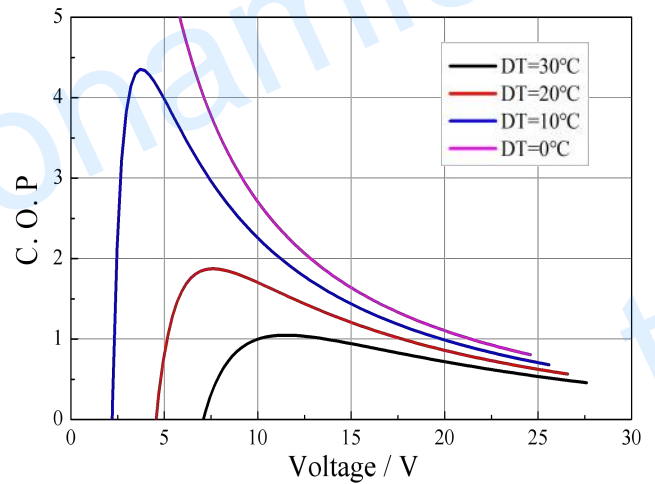Standard Performance Graph V= f(DT)

Standard Performance Graph Qc= f(V)

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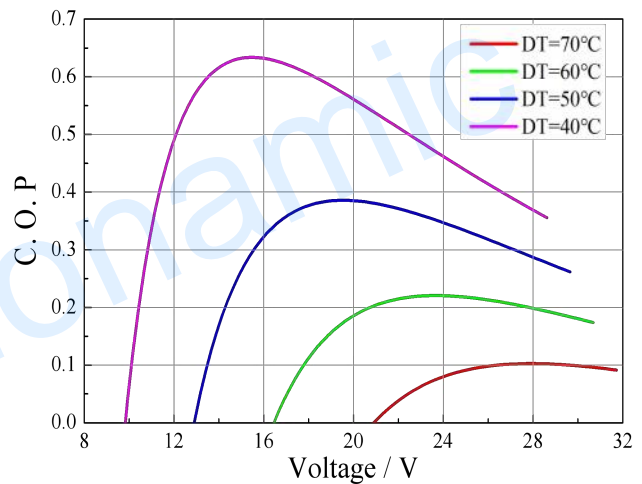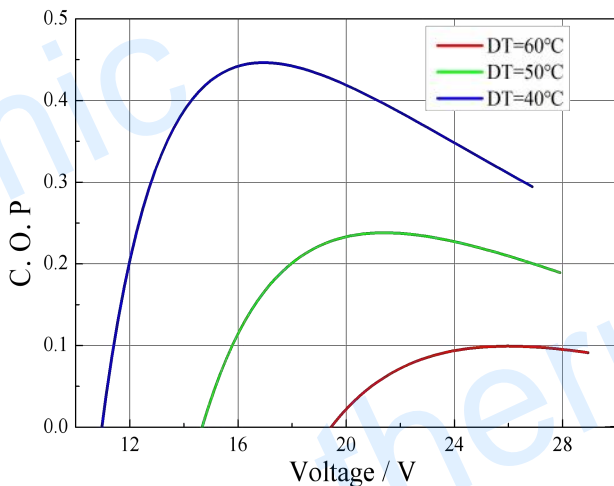
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Performance Curves at Th=27 ºC

Performance Curves at Th=50 ºC

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 Qc/Input power (V × 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.