Specification of Thermoelectric Module

TEC1-24126

Description

The 241 couples, 55 mm × 55 mm size single module which is made of our high performance ingot to achieve superior cooling performance and 70℃ or larger delta T max, 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

T_h(ºC)	27	50	Hot side temperature at environment: dry air, N2
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)	30.36	32.69	Voltage applied to the module at DT_{max}
I_{max}(amps)	25.7	25.7	DC current through the modules at DT_{max}
QC_{max}(Watts)	488.6	533.5	Cooling capacity at cold side of the module under DT=0 ºC
AC resistance(ohms)	0.90	0.96	The module resistance is tested under AC
Tolerance (%)	± 10		For thermal and electricity parameters

Geometric Characteristics Dimensions in millimeters

55±0.1
55±0.1
3.3±0.1
Positive lead wire (Red)
50
18 AWG leads PVC insulated
Negative lead wire (Black)
125±3
Cold side:Tc
See ordering option
Hot side:Th
See ordering option
See ordering option A

Manufacturing Options

A. Solder:

1. T100: BiSn (Melting Point=138ºC)

2. T200: CuSn (Melting Point= 227 °C)

B. Sealant:

1. NS: No sealing (Standard)

2. SS: Silicone sealant

3. EPS: Epoxy sealant

4. Customer specify sealing

C. Ceramics:

1. Alumina (Al_2O_3, white 96%)(AlO)

2. Aluminum Nitride (AlN)

D. Ceramics Surface Options:

1. Blank ceramics (not metalized)

2. Metalized (Copper-Nickel plating)

Ordering Option

Suffix	Thickness / H (mm)	Flatness/ Parallelism (mm)	Lead wire length(mm) Standard/Optional length
TF	0:3.3±0.1	0:0.05/0.05	125±3/Specify
TF	1:3.3±0.05	1:0.025/0.025	125±3/Specify
Eg. TF00: Thickness 3.3±0.1(mm) and Flatness 0.05/0.05(mm)			

Naming for the Module

TEC1-24126- X -X - X - X

Ceramics
Flatness/ Parallelism
Sealant
Solder

TEC1-24126-T100 -NS –TF00 -AlO

T100: BiSn (Tmelt=138°C)

NS: No sealing   AlO: Alumina (Al2O3, white 96%)

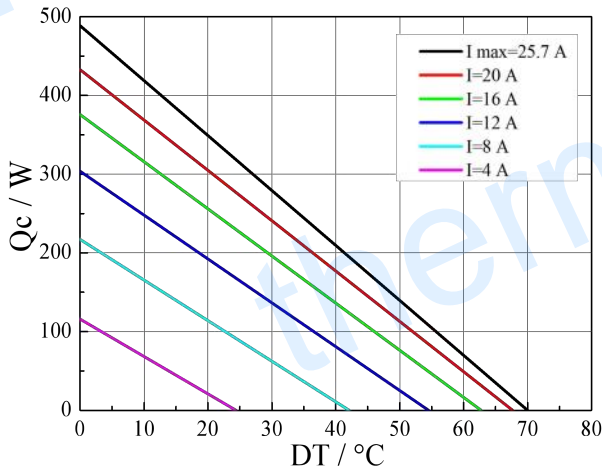TF00: Thickness ±0.1(mm) and Flatness/Parallelism 0.05/0.05(mm)
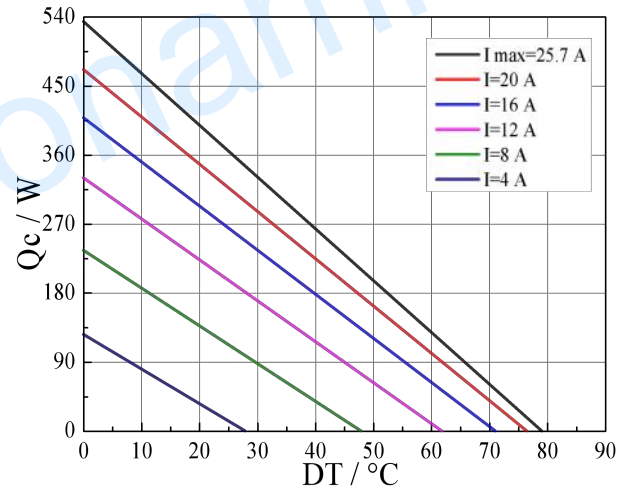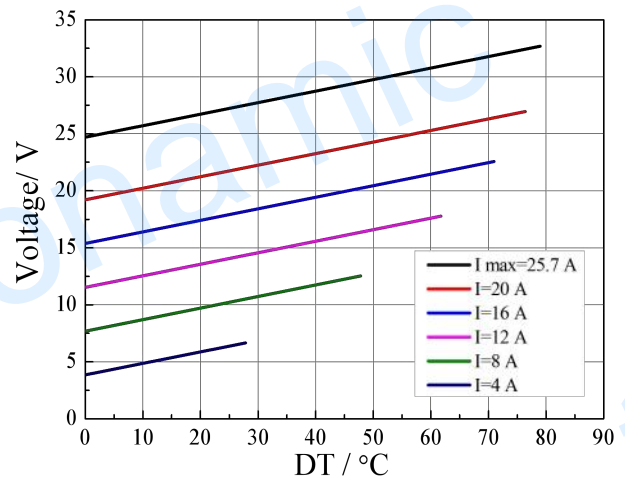
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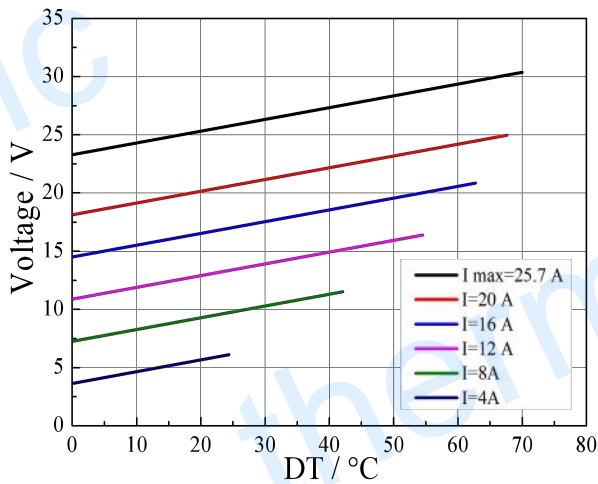## Performance Curves at Th=27 ℃   Performance Curves at Th=50 ℃
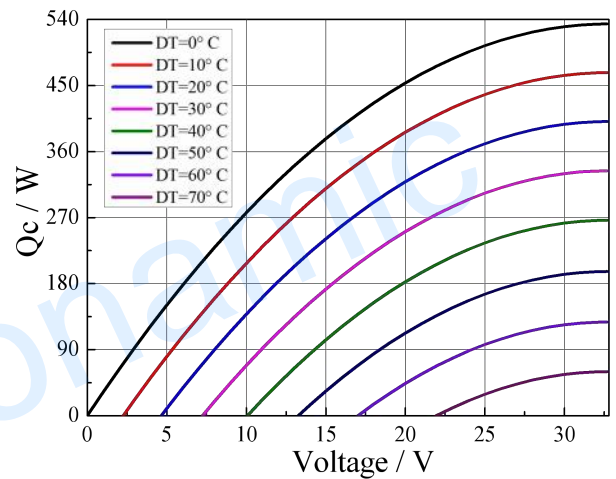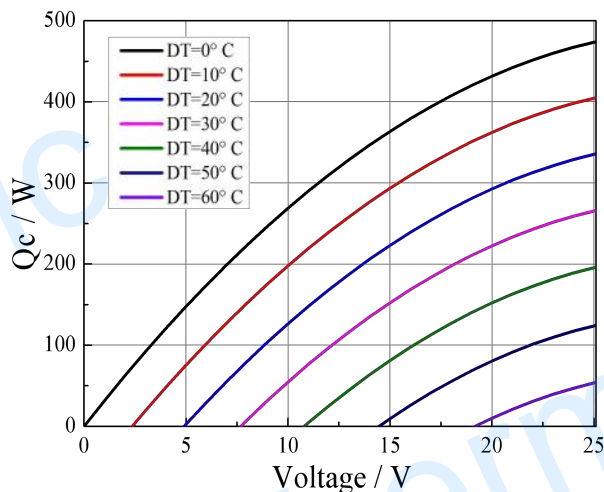

Standard Performance Graph Qc= f(DT)

Standard Performance Graph V= f(DT)

Standard Performance Graph Qc= f(V)
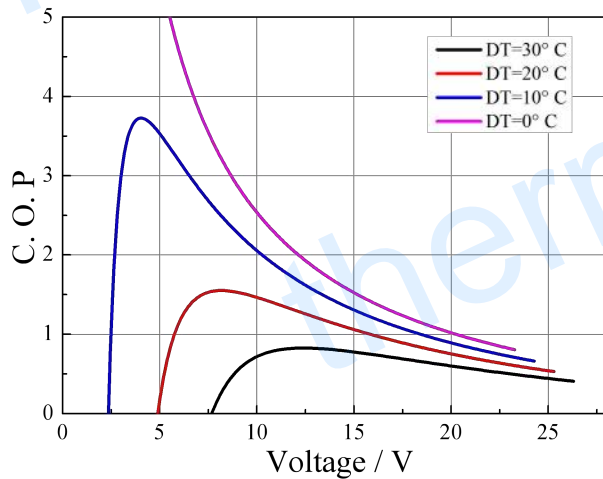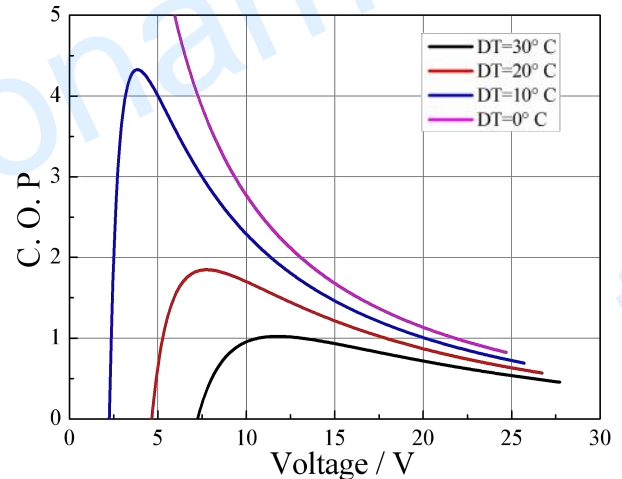
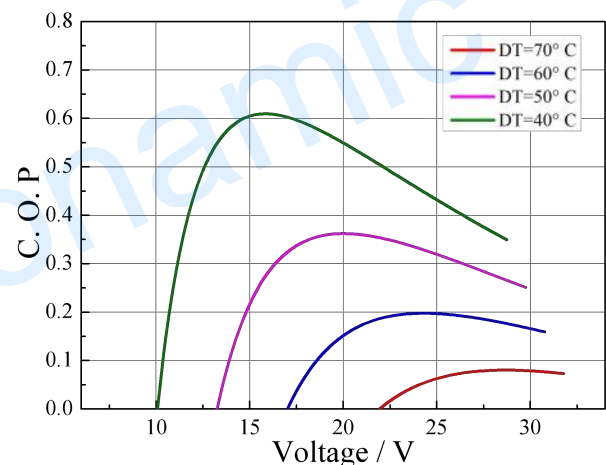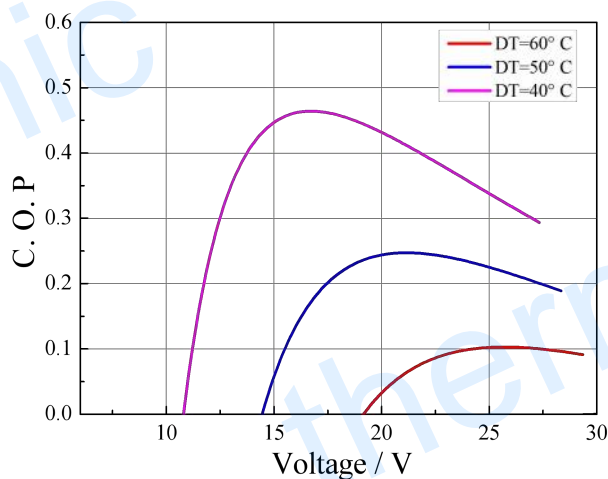# Specification of Thermoelectric Module

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Performance Curves at Th=27 ºC

Performance Curves at Th=50 ºC

Standard Performance Graph COP = f(V) of ΔT 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 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