Specification of Thermoelectric Module

TEC1-19940

Description

The 199 couples, 62 mm × 62 mm size single module which is made of our high performance ingot to achieve superior cooling performance and 70 ºC 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

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)	25.0	26.6	Voltage applied to the module at DT_{max}
I_{max} (Amps)	40	40	DC current through the modules at DT_{max}
Q_{Cmax} (Watts)	627.9	680.4	Cooling capacity at cold side of the module under DT=0 ºC
AC resistance (Ohms)	0.49	0.53	The module resistance is tested under AC
Tolerance (%)	± 10		For thermal and electricity parameters

Geometric Characteristics Dimensions in millimeters
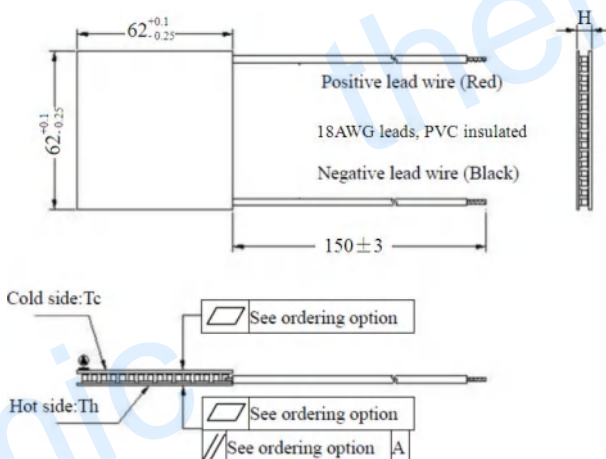
Manufacturing Options

A. Solder:

1. T100: BiSn (Tmelt=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

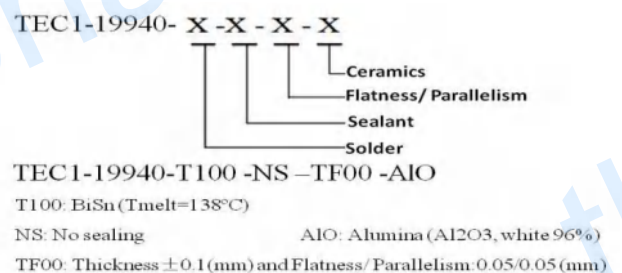**D. Ceramics Surface Options:**

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	0:0.12/0.12	150±3/Specify
TF	1:3.8±0.05	1:0.06/0.06	150±3/Specify
Eg. TF00: Thickness 3.8±0.1(mm) and Flatness 0.012/0.012(mm)			

Naming for the Module

TEC1-19940- X-X - X - X

- Ceramics
- Flatness/ Parallelism
- Sealant
- Solder

TEC1-19940-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 ºC
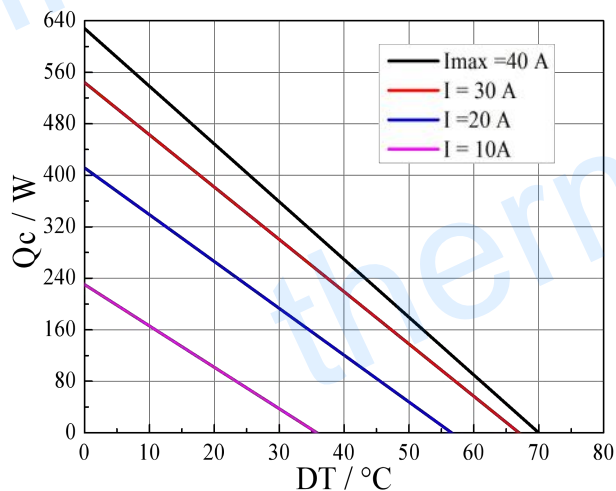
Performance Curves at Th=50 ºC

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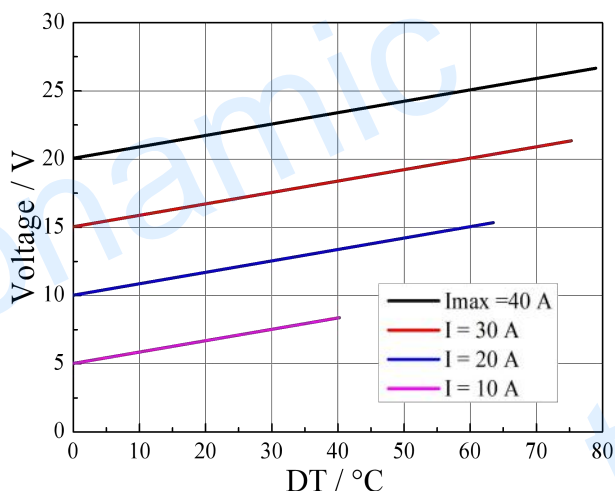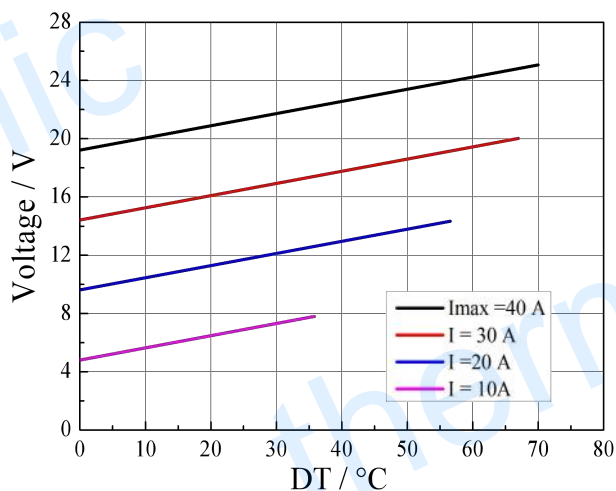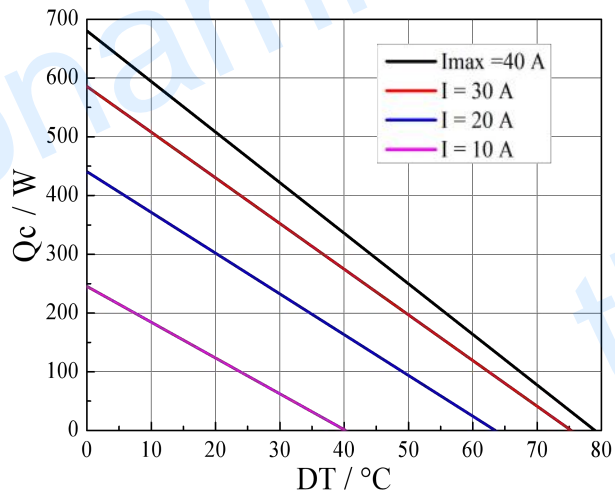
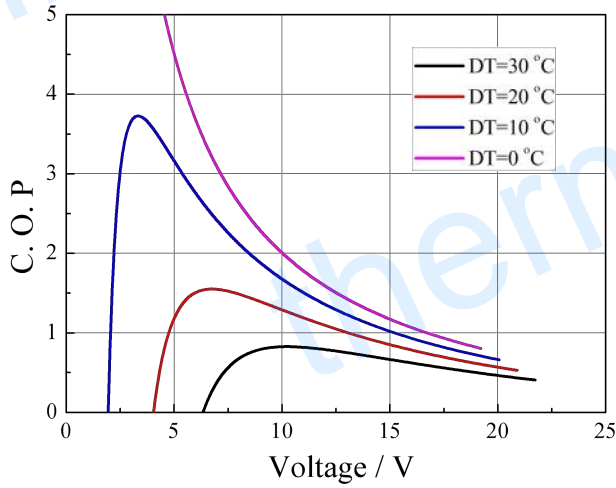Standard Performance Graph V= f(DT)
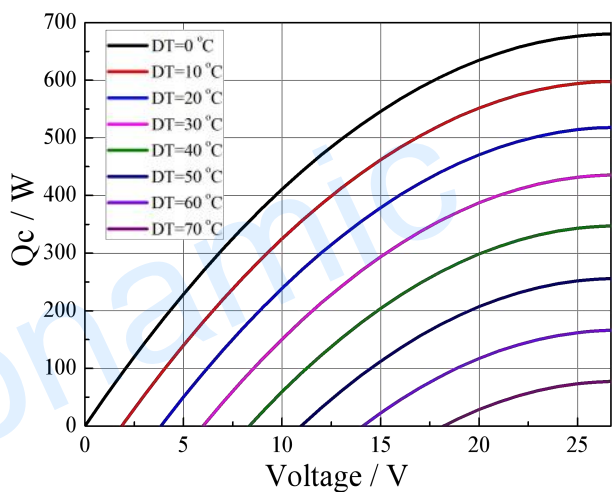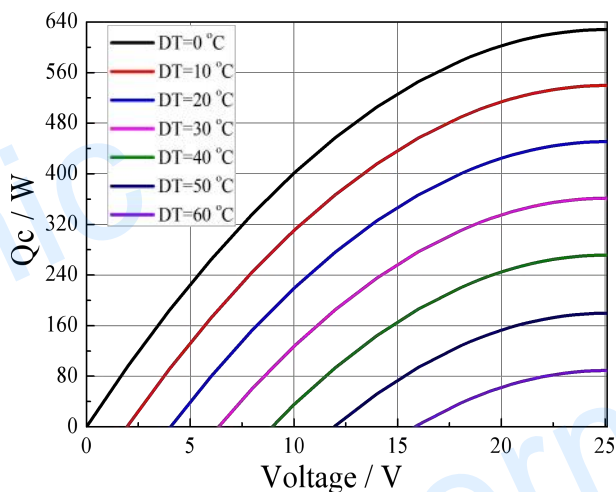
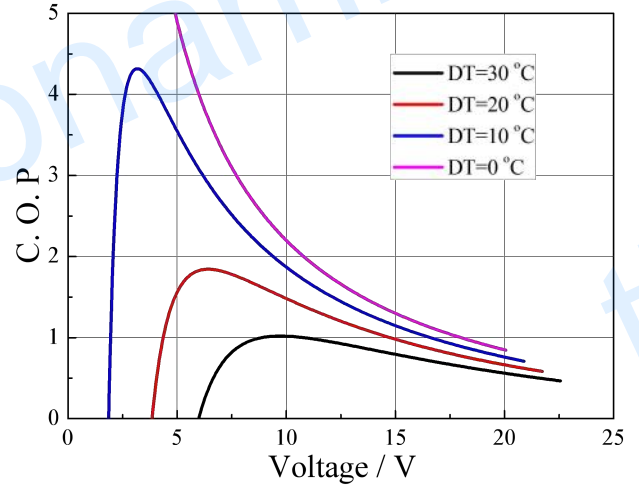Standard Performance Graph Qc= f(V)

Specification of Thermoelectric Module
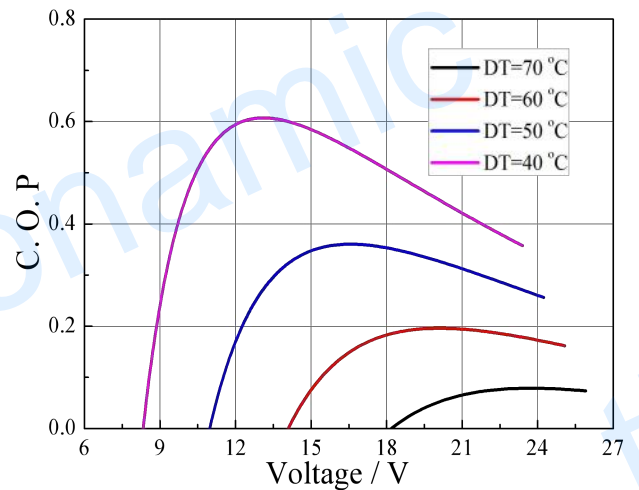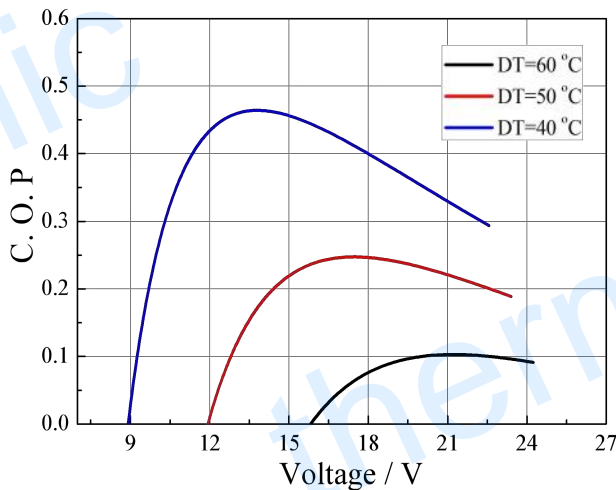
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Performance Curves at Th=27 ºC

Performance Curves at Th=50 ºC

Standard Performance Graph COP = f(V) of 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 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