Specification of Thermoelectric Module

TES1-15280P

Description

The 152 couples, 16.2 mm × 72.4mm/ 16.76 mm × 76.88mm size module which is made of selected high performance ingot to achieve superior cooling performance and greater delta T up to 70 ºC, designed for superior cooling and heating up to 100/200 ºC applications. If higher operation or processing temperature is required, please specify, 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

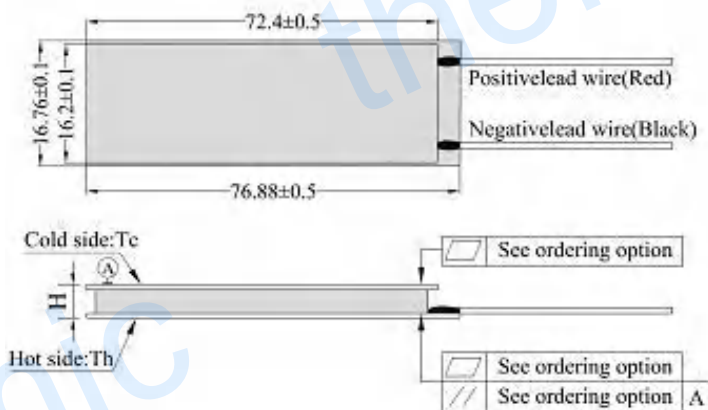● Exceptionally reliable in quality, high performance

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)	19.3	20.9	Voltage applied to the module at DT_{max}
I_{max} (amps)	9.1	9.1	DC current through the modules at DT_{max}
Q_{Cmax} (Watts)	108.5	116.8	Cooling capacity at cold side of the module under DT=0 ºC
AC resistance (ohms)	1.6	1.7	The module resistance is tested under AC
Tolerance (%)	10%		For thermal and electricity parameters

Geometric Characteristics Dimensions in millimeters

Positivelead wire(Red)

Negativelead wire(Black)

Cold side:Tc

Hot side:Th

See ordering option

See ordering option

See ordering option

Manufacturing Options

A. Solder:

1. T100: BiSn (Tmelt=138ºC)

2. T200: CuSn (Tmelt = 227 °C)

B. Sealant:

1. NS: No sealing (Standard)

2. SS: Silicone sealant

3. EPS: Epoxy sealant

4. Customer specify sealing

   other than above

C. Ceramics:

1. Alumina (Al_2O_3, white 96%)

2. Aluminum Nitride (AlN)

**D. Ceramics Surface Options:**

1. Blank ceramics (not metallized)

2. Metallized (Au plating)

Ordering Option

Suffix	Thickness H (mm)	Flatness/ Parallelism (mm)	Lead wire length(mm) Standard/Optional length
TF	0:2.4 ± 0.1	0: 0.1/0.13	20±1/Specify
TF	1:2.4 ± 0.05	1: 0.08/0.1	20±1/Specify
TF	2:2.4 ± 0.025	2: 0.05/0.08	20±1/Specify

Eg. TF01: Thickness 2.4 ± 0.1 (mm) and Flatness 0.08/0.1 (mm)

Naming for the Module

TES1-15280P - X-X - X - X

Ceramics
Flatness/ Parallelism
Sealant
Solder
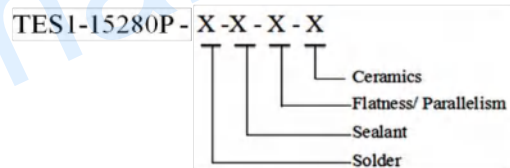
TES1-15280P–T100 -NS –TF01 -AlO

T100: BiSn (Tmelt=138ºC)

NS: No sealing   AlO: Alumina white 96%

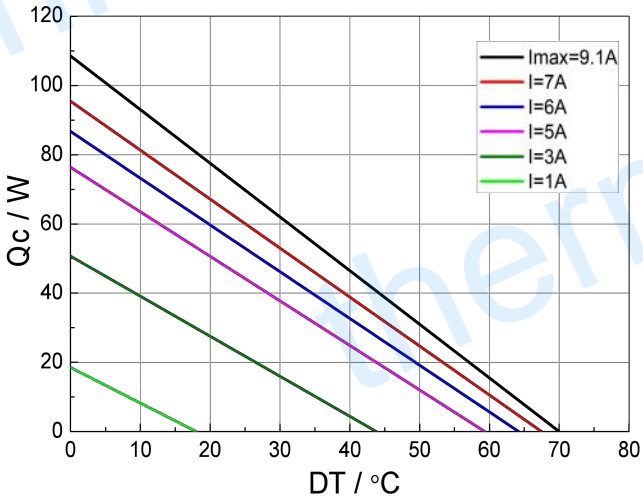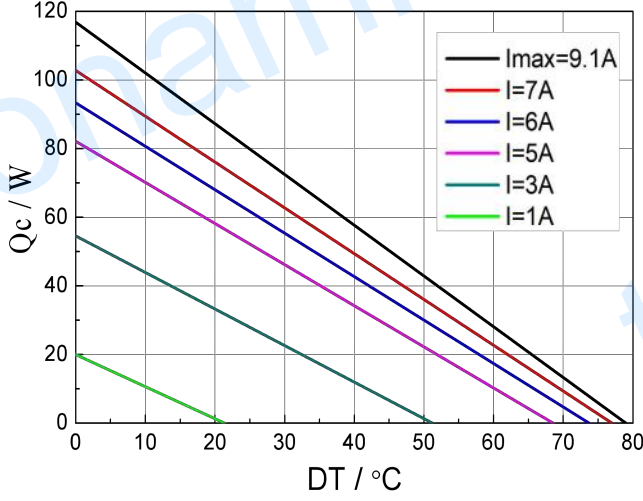TF01: Thickness ±0.1 (mm) and Flatness/Parallelism 0.080/0.1(mm)

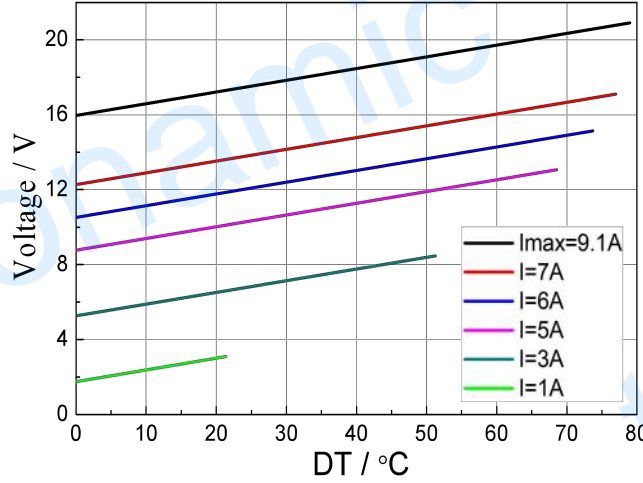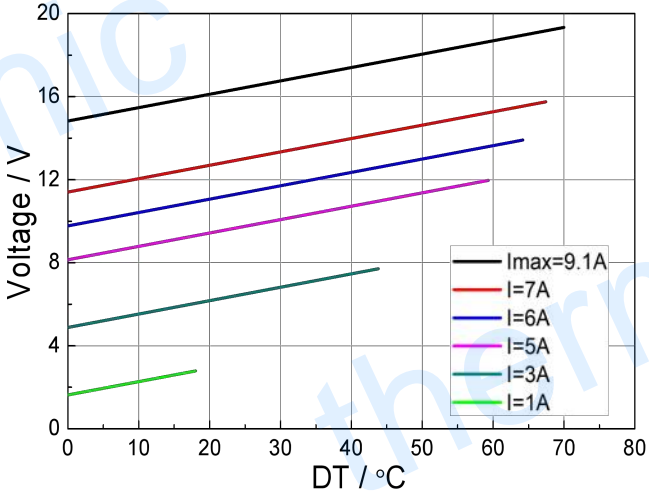# Specification of Thermoelectric Module

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Performance Curves at Th=27 ºC

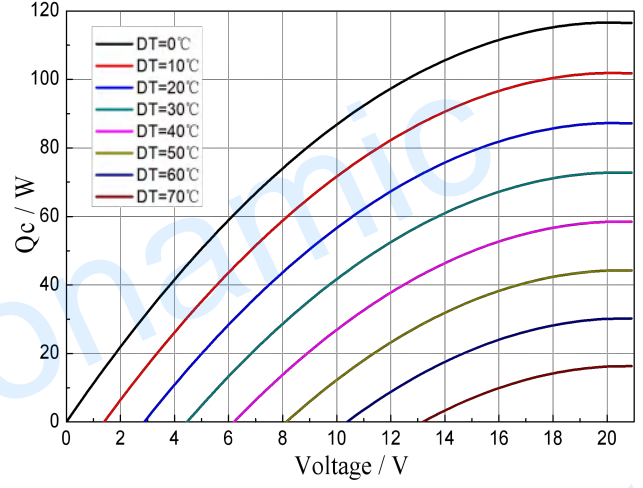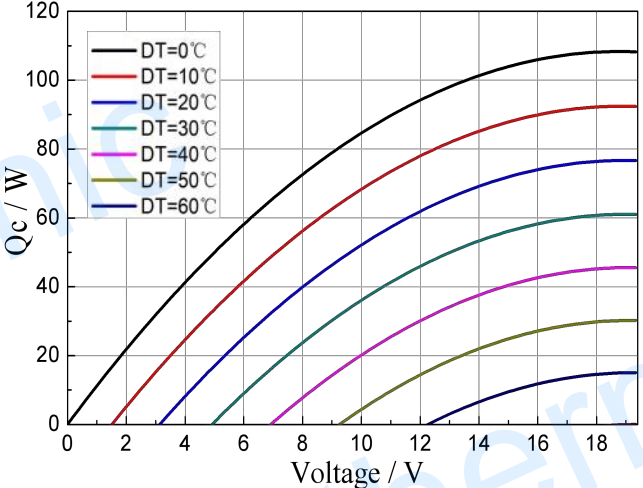## Performance Curves at Th=50 ºC

Standard Performance Graph Qc= f(DT)
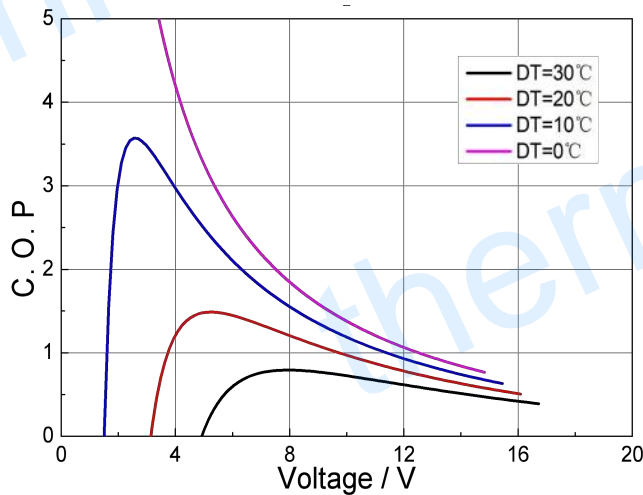

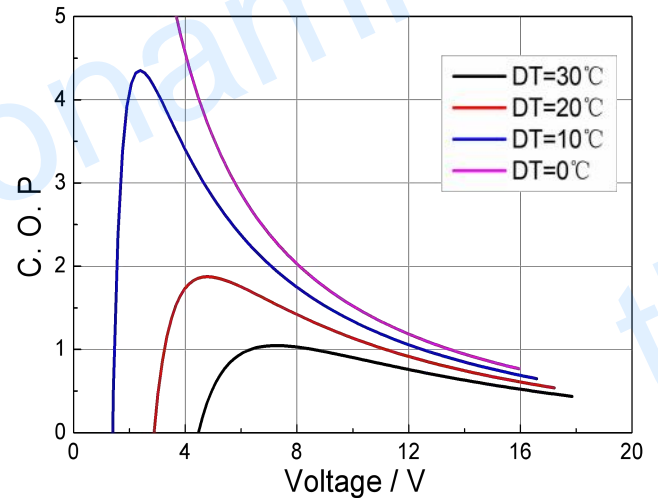Standard Performance Graph V= f(DT)

Standard Performance Graph Qc= f(V)

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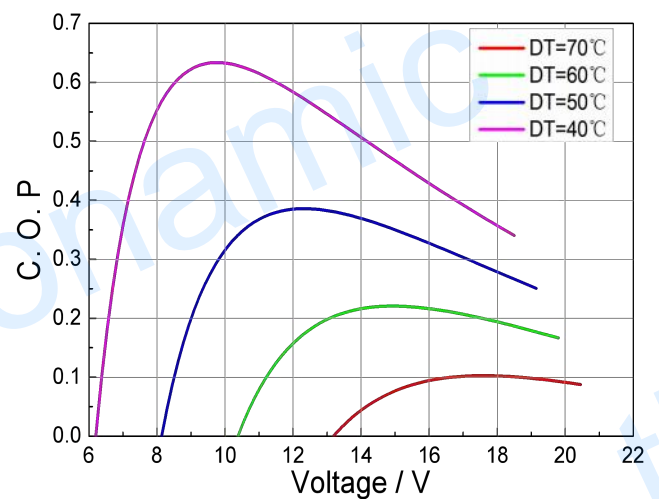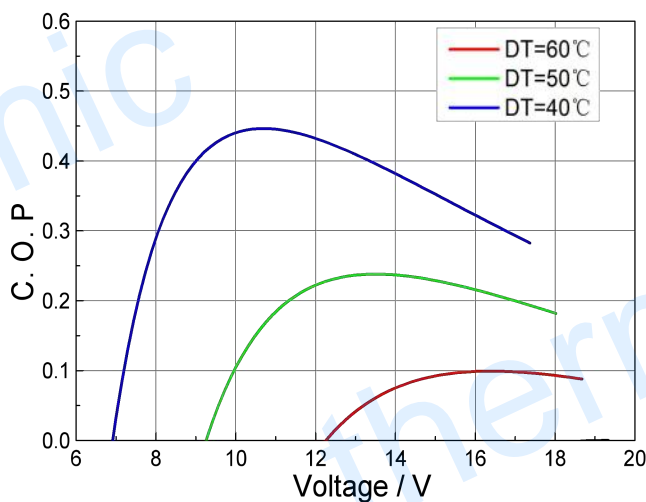
TES1-15280P

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

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

Note: All specifications subject to change without notice.