Specification of Thermoelectric Module
TEC1-12706

Description

The 127 couples, 40 mm × 40 mm size single stage module is made of selected high performance ingot to achieve superior cooling performance and greater delta T up to 70 ℃, designed for superior cooling and heating up to 100 ℃ requirement. 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

- High effective cooling and efficiency.
- No moving parts, no noise, and solid-state
- Compact structure, small in size, light in weight
- Environmental friendly, RoHS compliant
- Precise temperature control
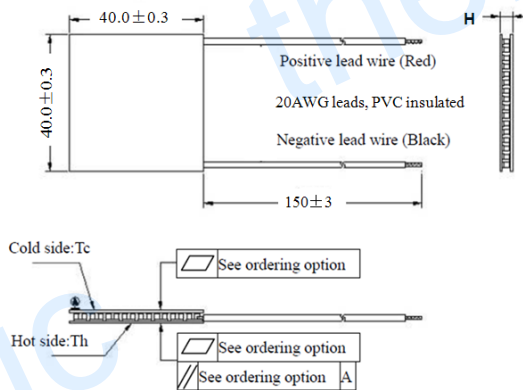- Exceptionally reliable in quality, high performance

Application

- Food and beverage service refrigerator
- Portable cooler box for cars
- Liquid cooling
- Temperature stabilizer
- Photonic and medical systems

Performance Specification Sheet

T_h(℃)	27	50	Hot side temperature at environment: dry air, N_2
DT_{max}(℃)	70	79	Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side
U_{max}(Voltage)	16.0	17.2	Voltage applied to the module at DT_{max}
I_{max}(amps)	6.1	6.1	DC current through the modules at DT_{max}
Q_{Cmax}(Watts)	61.4	66.7	Cooling capacity at cold side of the module under DT=0 ℃
AC resistance(ohms)	2.0	2.2	The module resistance is tested under AC
Tolerance (%)	±10		For thermal and electricity parameters

Geometric Characteristics Dimensions in millimeters

40.0±0.3
40.0±0.3
Positive lead wire (Red)
20AWG leads, PVC insulated
Negative lead wire (Black)
150±3
H

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

Sealing Option

A. Solder:

1. T100: BiSn (Melting Point=138℃)

2. T200: CuSn (Melting Point=227℃)

B. Sealant:

1. NS: No sealing (Standard)

2. SS: Silicone sealant

3. EPS: Epoxy sealant

4. Customer specify sealing

C. Ceramics:

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

2. AlN :Aluminum Nitride

3. AL : Aluminum substrate

D. Ceramics Surface Options:

1. Blank ceramics (not metalized)

2. Metalized (Copper-Nickel plating)

Ordering Option

Suffix	Thickness (mm)	Flatness/ Parallelism (mm)	Lead wire length(mm) Standard/Optional length
TF	0:3.8±0.1	0:0.035/0.035	150±3/Specify
TF	1:3.8±0.05	1:0.025/0.025	150±3/Specify
TF	2:3.8±0.025	2:0.015/0.015	150±3/Specify
Eg. TF01: Thickness 3.8 ±0.1 (mm) and Flatness 0.025 / 0.025 (mm)			

Naming for the Module

TEC1-12706 - X -X - X - X

Ceramics
Flatness/ Parallelism
Sealant
Solder
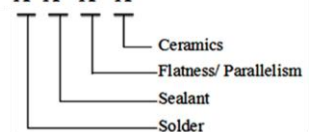
TEC1-12706—T100 -NS –TF01 -AlO

T100: BiSn (Tmelt=138°C)

NS: No sealing　　　　　　AlO: Alumina white 96%

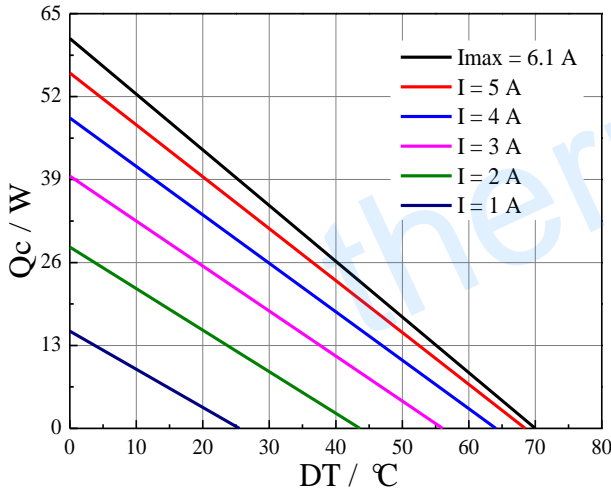TF01: Thickness ±0.1 (mm) and Flatness/Parallelism 0.025/0.025(mm)
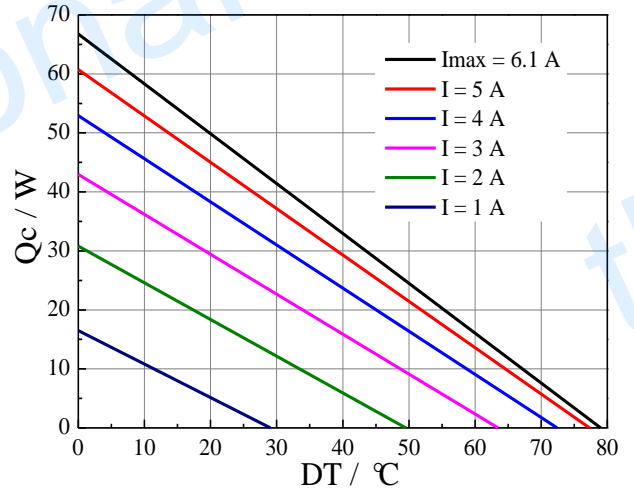
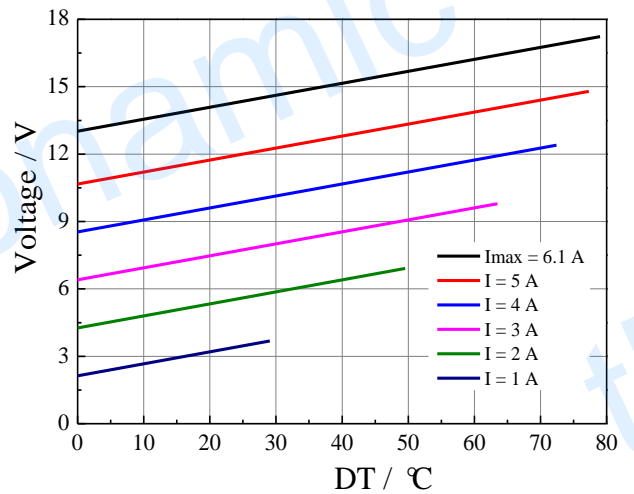# Specification of Thermoelectric Module

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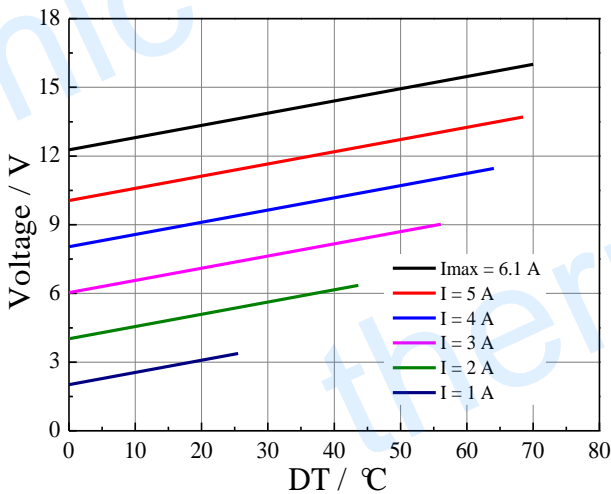## Performance Curves at Th=27 ℃

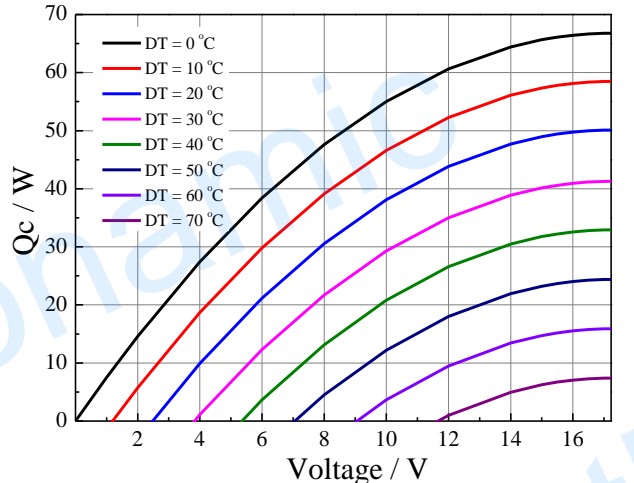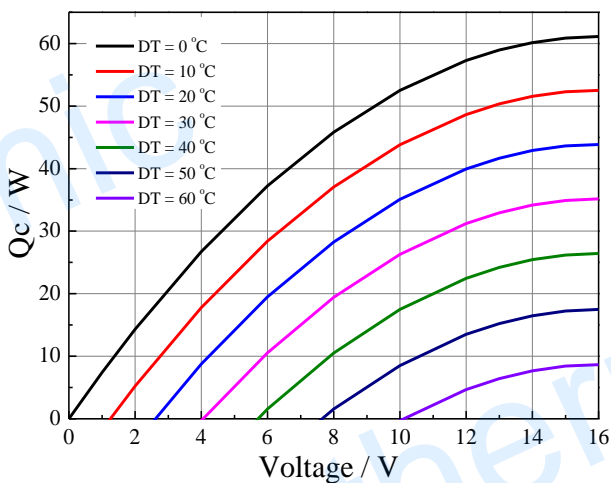## Performance Curves at Th=50 ℃

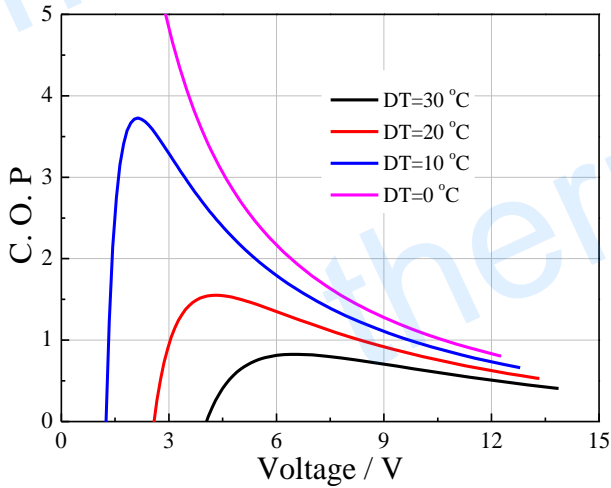Standard Performance Graph Qc= f(DT)

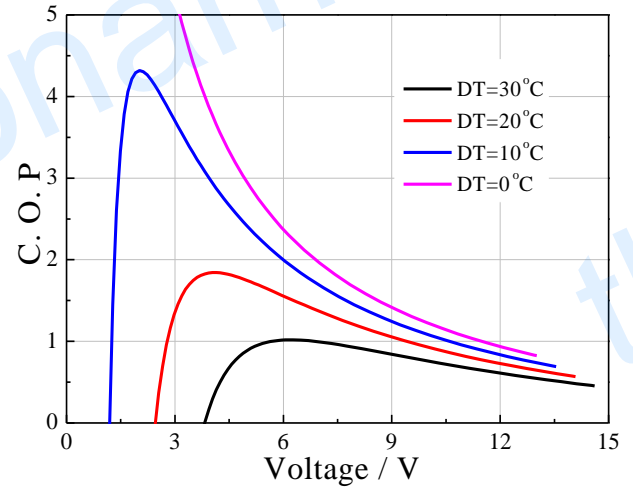Standard Performance Graph V= f(ΔT)

Standard Performance Graph Qc= f(V)

Creative technology with fine manufacturing processes provides you the reliable and quality products

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Performance Curves at Th=27 ℃

Performance Curves at Th=50 ℃

Standard Performance Graph COP = f(V) of ΔT ranged from 0 to 30 ˚C
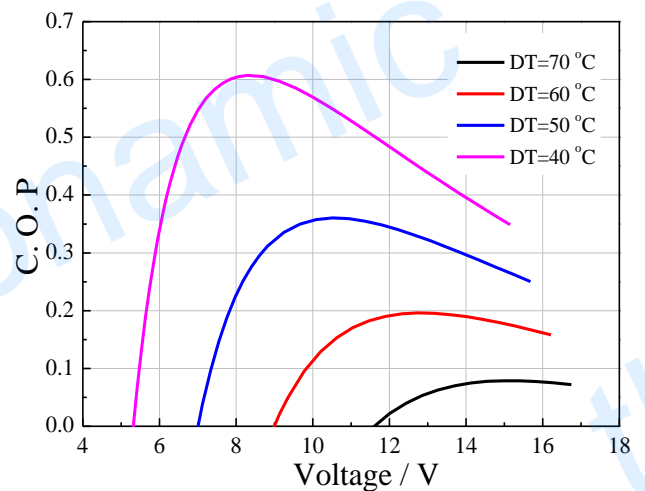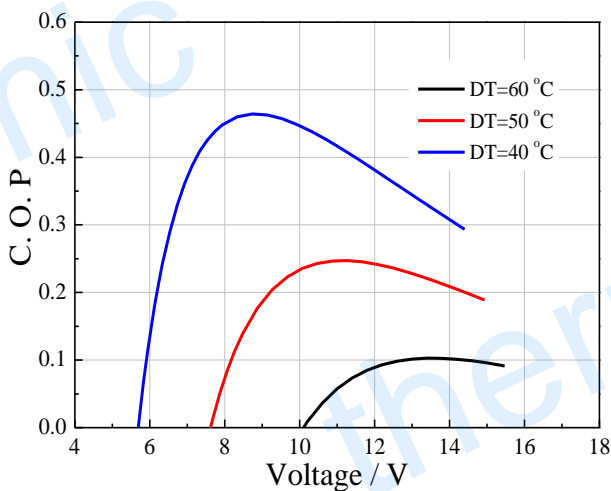
Standard Performance Graph COP = f(V) of ΔT ranged from 40 to 60/70 ˚C

Remark: The coefficient of performance (COP) is the cooling power Q_c/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

● Storage module below 100 ℃

● Operation below I_{max} or V_{max}

● Work under DC