Specification of Thermoelectric Module

TEC4-127-71-31-17-08

Description

The TEC4-127-71-31-17-08 is a multistage module designed for greater temperature differential cooling, good for cooling and heating up to 100ºC applications. It is a 127-71-31-17 couples module in size of 22.86mm×22.86mm (top)/61.98mm ×61.98mm (bottom). If higher operation or processing temperature is required, please specify, we can design and manufacture according to your special requirements.

Features

- High Temperature Differential
- 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

- Infrared (IR) Sensors
- CCD Sensor
- Gas Analyzers
- Calibration Equipment
- CPU cooler and scientific instrument
- Photonic and medical systems
- Guidance Systems

Performance Specification Sheet

T_h (ºC)	27	50	Hot side temperature at environment: dry air, N_2
DT_{max} (ºC)	112	126	Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side
U_{max} (Voltage)	14.6	16.4	Voltage applied to the module at DT_{max}
I_{max} (Amps)	7.7	7.7	DC current through the modules at DT_{max}
Q_{Cmax} (Watts)	17.1	18.8	Cooling capacity at cold side of the module under DT=0 ºC
AC resistance (Ohms)	1.75	1.9	The module resistance is tested under AC
Tolerance	10%		For thermal and electricity parameters

Geometric Characteristics Dimensions in millimeters
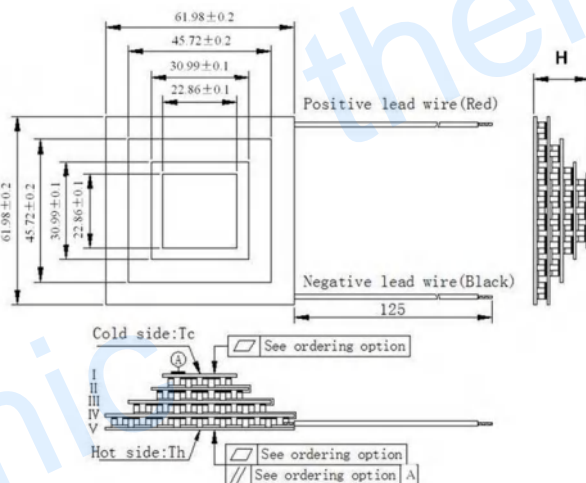
Manufacturing Options

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
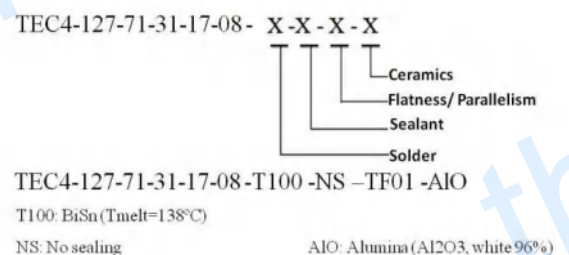
D. Ceramics Surface Options:

1. Blank ceramics (not metalized)

2. Metalized

Ordering Option

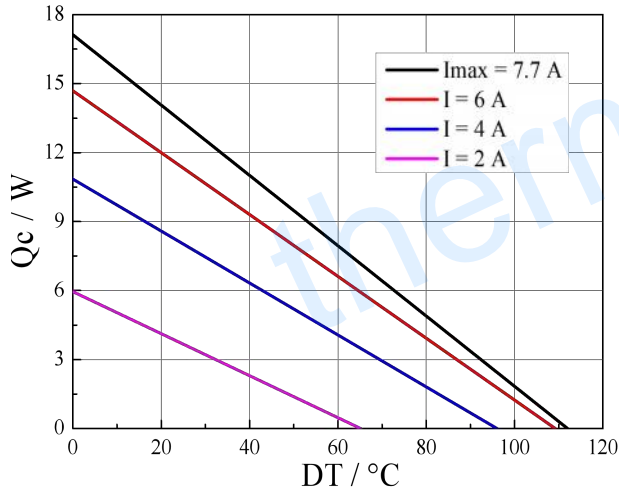| Suffix	Thickness (mm)	Flatness/ Parallelism (mm)	Lead wire length(mm) Standard/Optional length
TF	0: 17.4±0.4	0: 0.12/0.12	125±1/Specify
TF	1: 17.4±0.2	1:0.06/0.06	125±1/Specify
Eg. TF01: Thickness 13.3±0.4 (mm) and Flatness/ Parallelism ：.06/0.06(mm)			

Naming for the Module

TEC4-127-71-31-17-08- X -X - X - X

— Ceramics
— Flatness/ Parallelism
— Sealant
— Solder

TEC4-127-71-31-17-08 -T100 -NS –TF01 -AlO

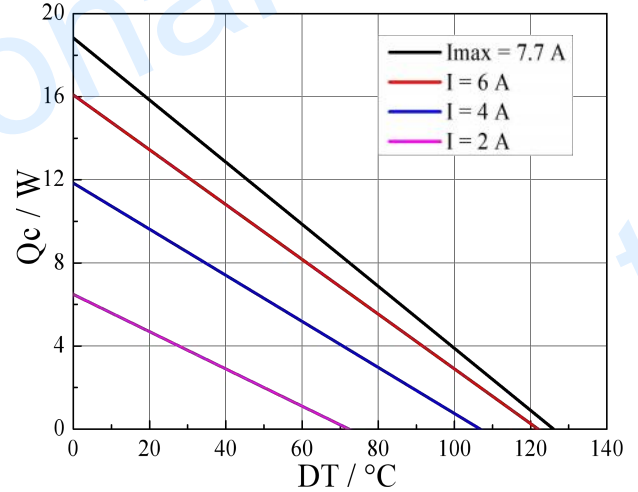T100: BiSn (Tmelt=138ºC)

NS: No sealing

AlO: Alumina (Al2O3, white 96%)

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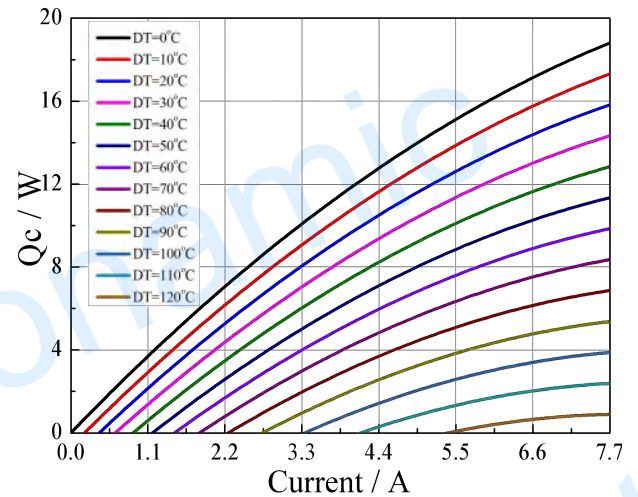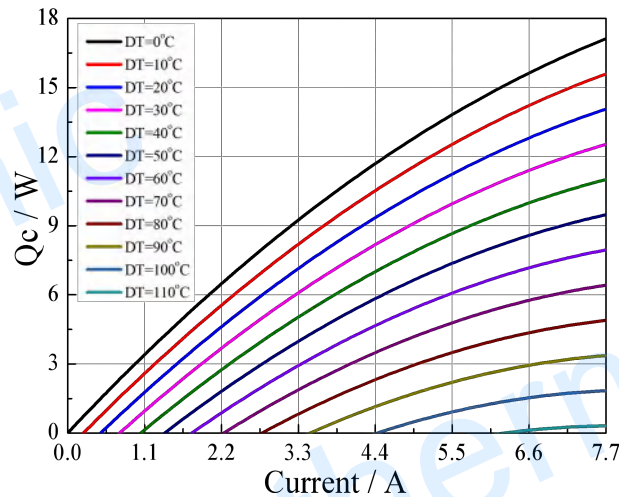### Performance Curves at Th=27 ºC

Performance Curves at Th=50 ºC

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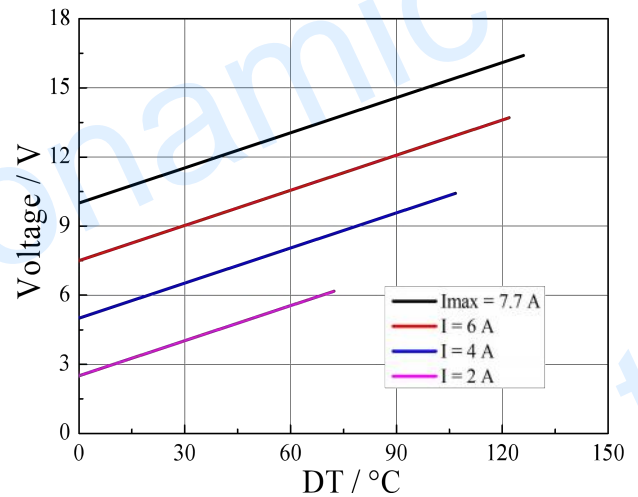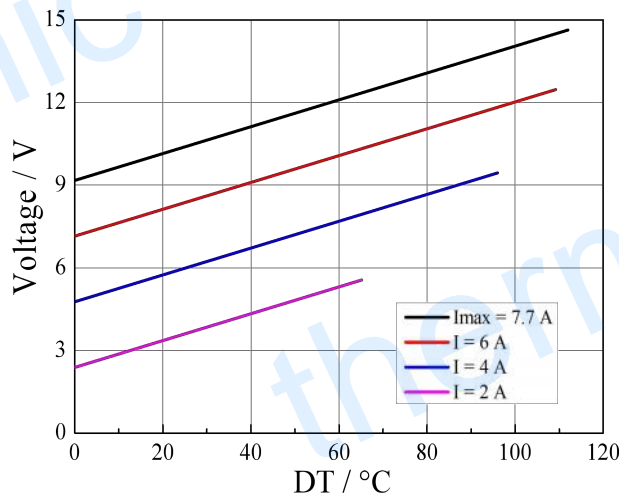
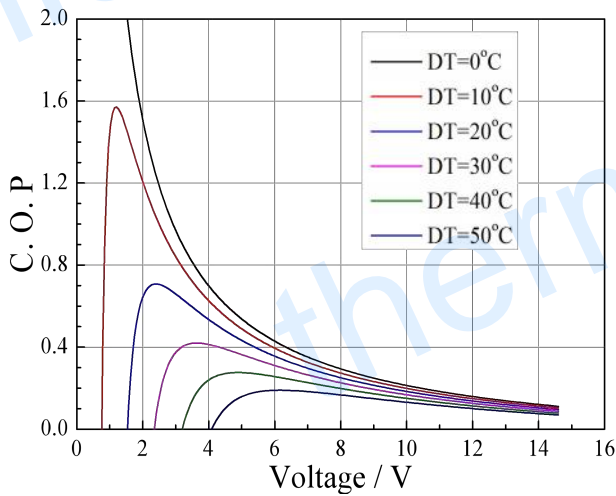Standard Performance Graph V= f(DT)

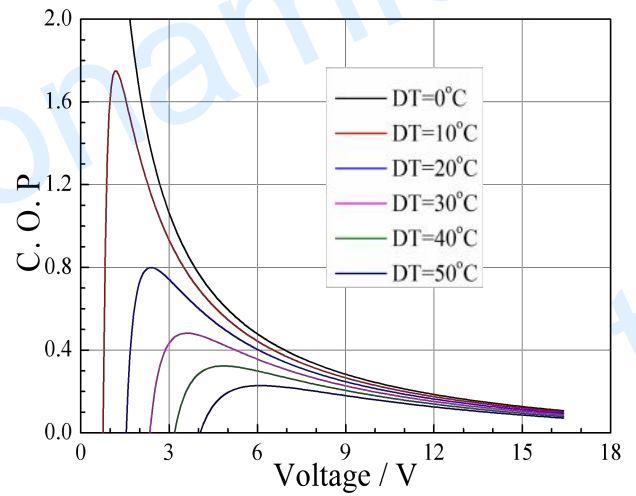Standard Performance Graph Qc= f(I)

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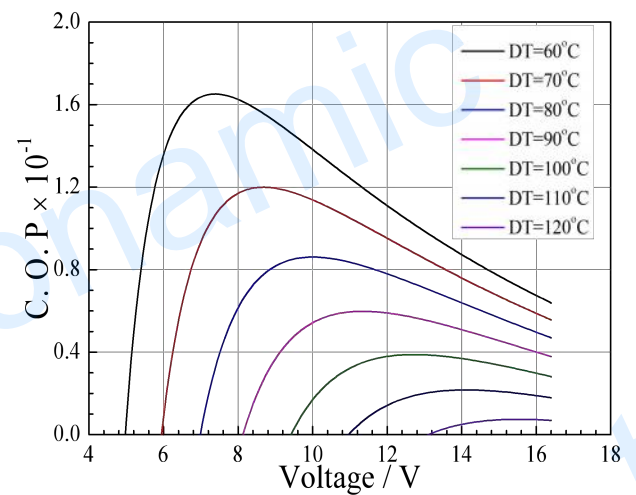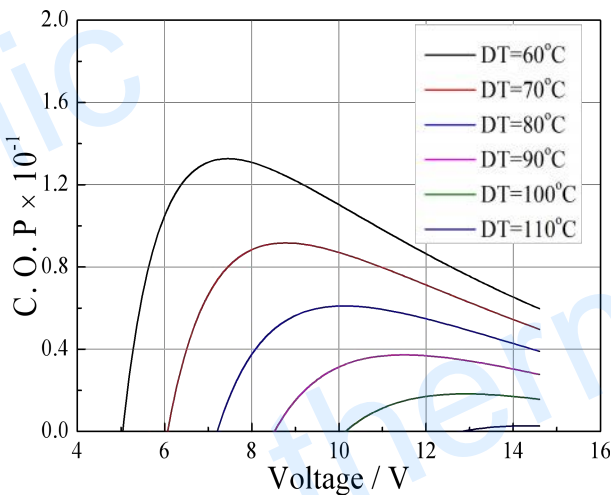
TEC4-127-71-31-17-08

Performance Curves at Th=27 ºC

Performance Curves at Th=50 ºC

Standard Performance Graph COP = f(V) of DT ranged from 0 to 50 ˚C

Standard Performance Graph COP = f(V) of DT ranged from 60 to 110/120 ˚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 or storage module below 100 ºC

● Operation below I_{max} or V_{max}

● Work under DC

Note: All specifications subject to change without notice.