Specification of Thermoelectric Module

TEC5-127-71-31-17-8-04

Description

The TEC5-127-71-31-17-8-04 is a multistage module designed for greater temperature differential cooling, good for cooling and heating up to 100 ºC applications. It 127-71-31-17-8 couples module in size of 10mm×10mm (top)/40mm ×40mm (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)	128	143	Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side
U_{max} (Voltage)	14.3	15.5	Voltage applied to the module at DT_{max}
I_{max} (Amps)	4.4	4.4	DC current through the modules at DT_{max}
Q_{Cmax} (Watts)	6.40	6.83	Cooling capacity at cold side of the module under DT=0 ºC
AC resistance (Ohms)	3.25	3.50	The module resistance is tested under AC
Tolerance (%)	± 10		For thermal and electricity parameters

Geometric Characteristics Dimensions in millimeters
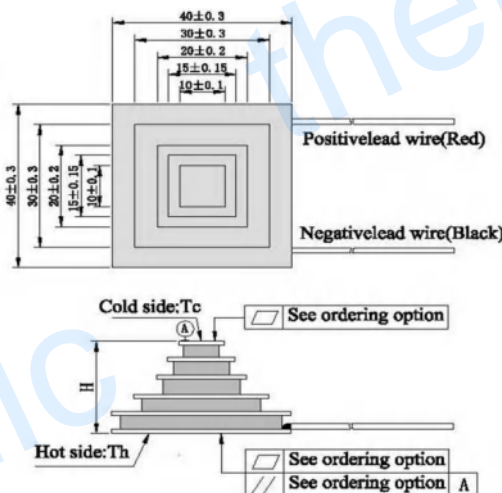
Manufacturing Options

A. Solder:

1. T100: BiSn (Tmelt=138ºC)

2. T200: CuAgSn (Tmelt = 217°C)

3. T240: SbSn (Tmelt = 240°C)

B. Sealant:

1. NS: No sealing (Standard)

2. SS: Silicone sealant

3. EPS: Epoxy sealant

C. Ceramics:

1. Alumina (Al_2O_3, white 96%)

2. Aluminum Nitride (AlN)

D. Ceramics Surface Options:

1. Blank ceramics (not metalized)

2. Metalized

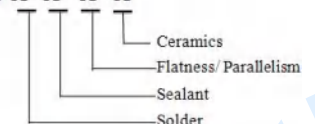## Ordering Option

Suffix	Thickness (mm)	Flatness/ Parallelism (mm)	Lead wire length(mm) Standard/Optional length
TF	0:13.7±0.5	0:0.08/0.08	125±3/Specify
TF	1:13.7±0.25	1:0.03/0.03	125±3/Specify
Eg. TF01: Thickness 13.7 ± 0.5 (mm) and Flatness 0.03/0.03 (mm)			

Naming for the Module

TEC5-127-71-31-17-8-04-X -X - X - X

- Ceramics
- Flatness/ Parallelism
- Sealant
- Solder

TEC5-127-71-31-17-8-04- T100 - NS - TF00 - AlO
T100: Solder, BiSn (Melting Point=138 ℃)
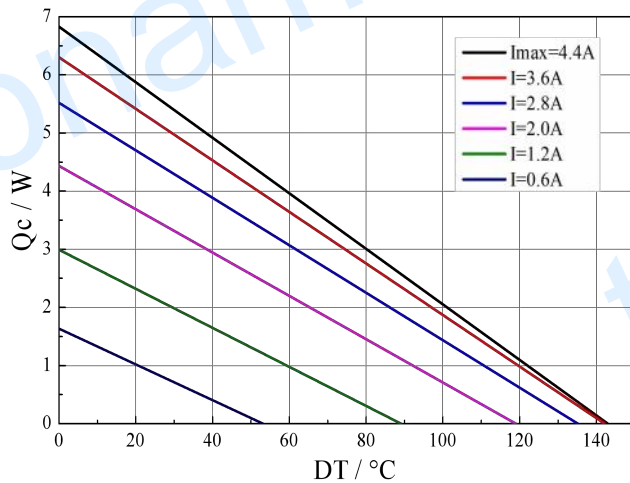NS: No sealing   AlO: Alumina white 96%

Specification of Thermoelectric Module

TEC5-127-71-31-17-8-04

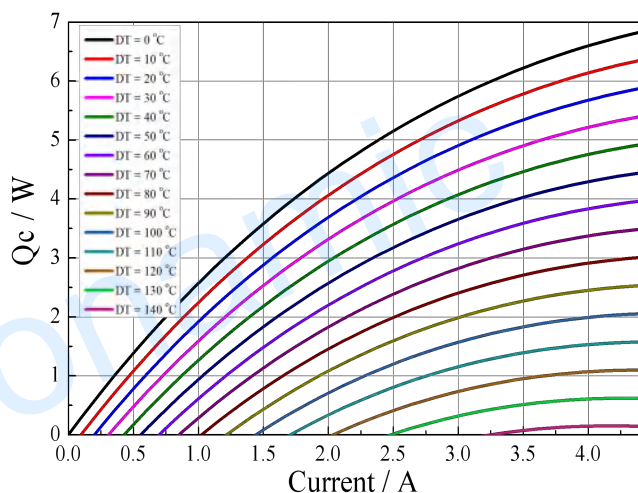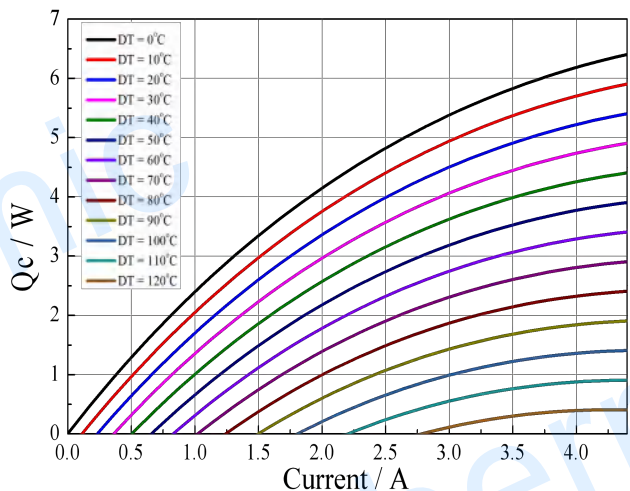**Performance Curves at Th=27 ºC**   **Performance Curves at Th=50 ºC**
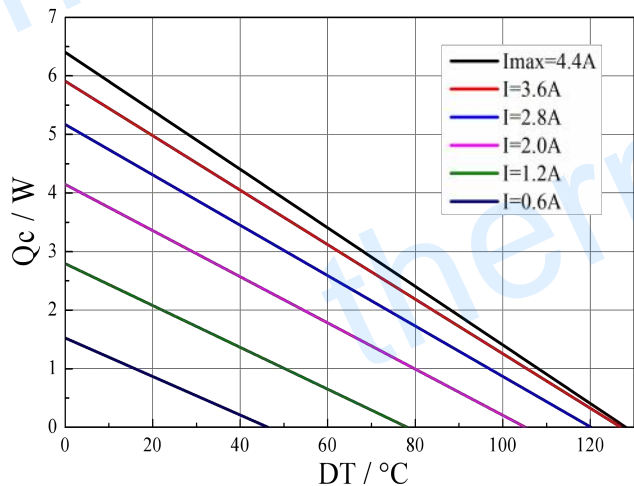
Standard Performance Graph Qc= f(DT)
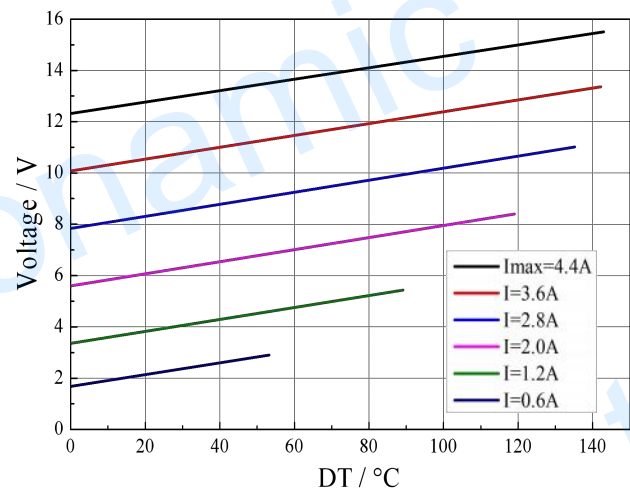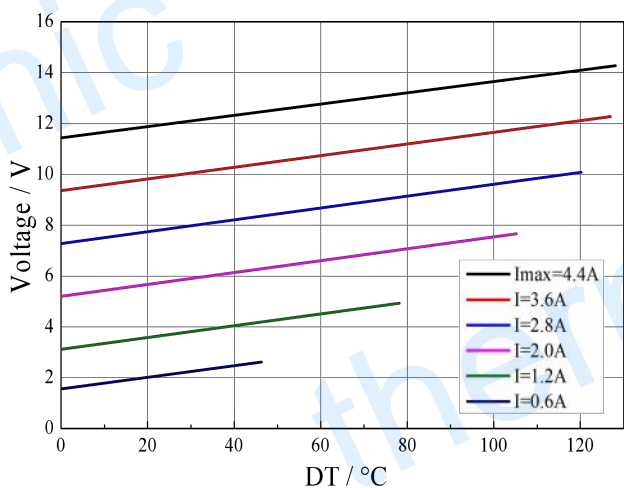
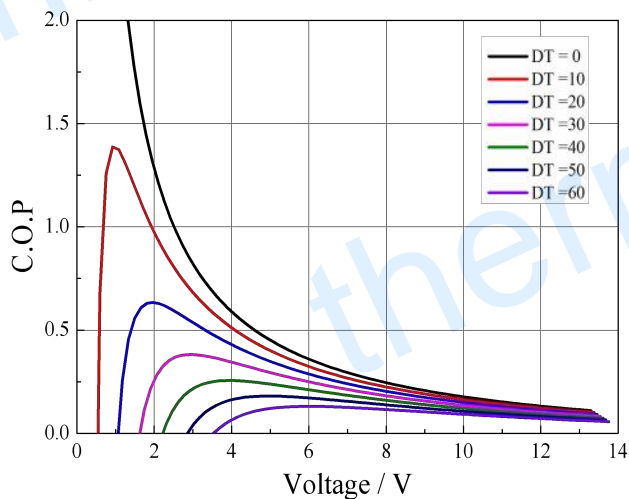Standard Performance Graph V= f(ΔT)

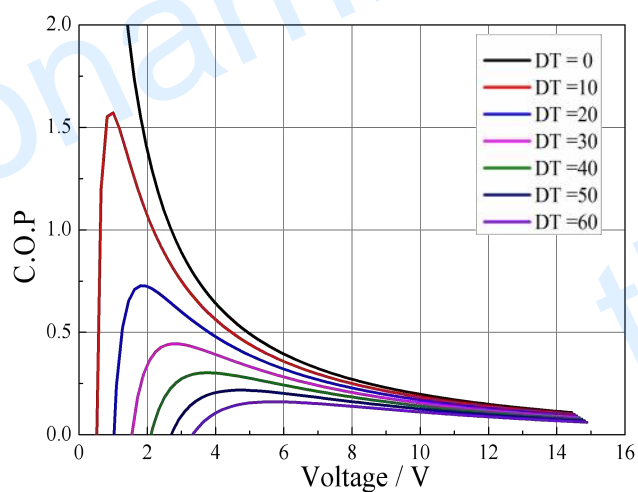Standard Performance Graph Qc= f(V)

Specification of Thermoelectric Module

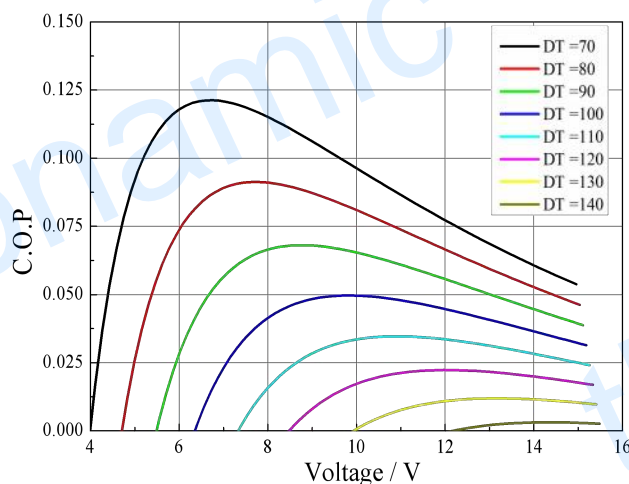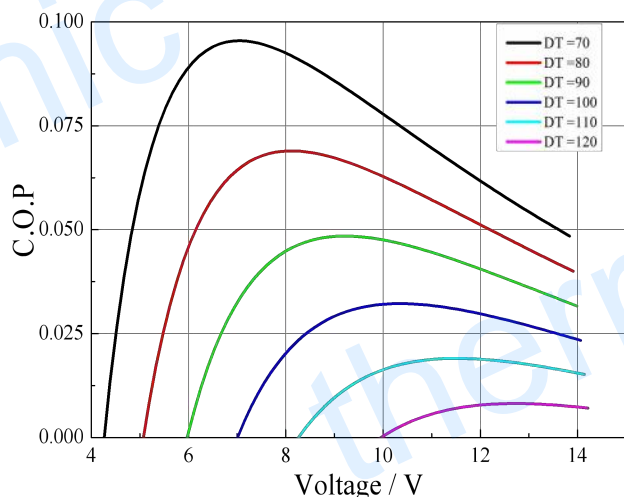## TEC5-127-71-31-17-8-04

Performance Curves at Th=27 ºC

Performance Curves at Th=50 ºC

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

Standard Performance Graph COP = f(V) of ΔT ranged from 70 to 120/140 ˚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