Specification of Thermoelectric Module

TES3-69-31-17-40

Description

The TES3-69-31-17-40 is a multistage module designed for greater temperature differential cooling, good for cooling and heating up to 100°C /200°C applications. It is a 69-31-17 couples module in size of 20mm×20mm (top)/20mm ×20mm (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)	104	116	Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side
U_{max} (Voltage)	7.66	8.32	Voltage applied to the module at DT_{max}
I_{max} (Amps)	4.2	4.2	DC current through the modules at DT_{max}
Q_{Cmax} (Watts)	8.90	9.56	Cooling capacity at cold side of the module under DT=0 ºC
AC resistance (Ohms)	1.73	1.86	The module resistance is tested under AC
Tolerance	10%		For thermal and electricity parameters

Geometric Characteristics Dimensions in millimeters
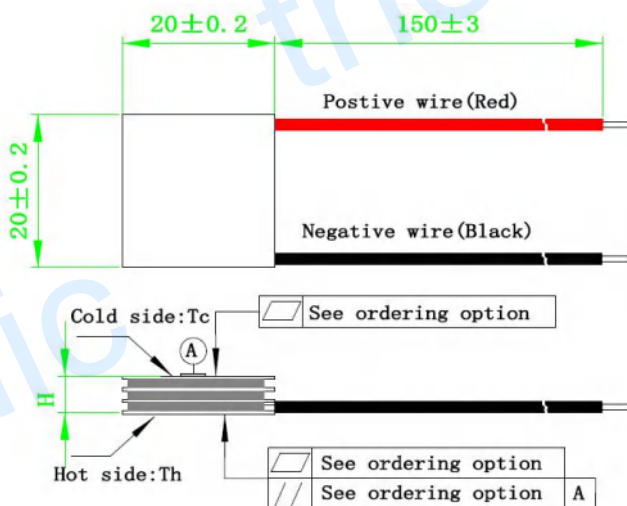
Manufacturing Options

A. Solder:

1. T100: BiSn (Tmelt=138ºC)

2. T200: CuAgSn (Tmelt = 217°C)

3. T240: SbSn (Tmelt = 240°C)

C. Ceramics:

1. Alumina (Al$_2$O$_3$, 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: 5.0± 0.3	0: 0.05/0.05	150±3/Specify

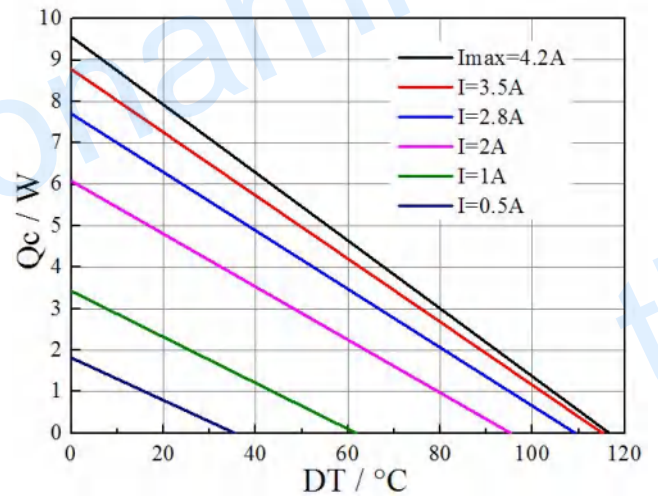# Specification of Thermoelectric Module

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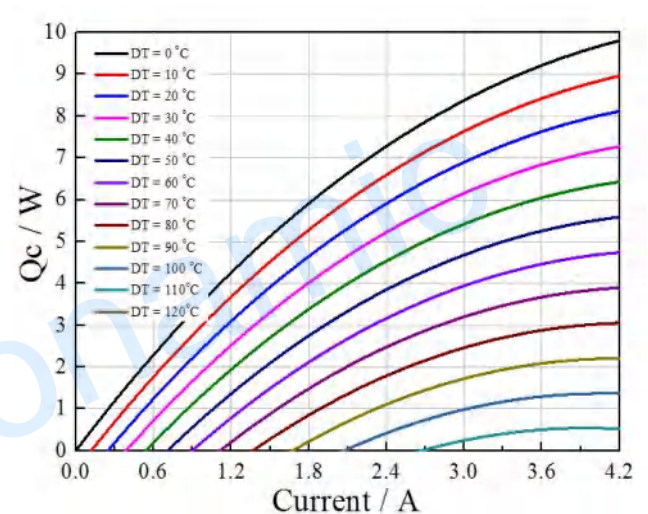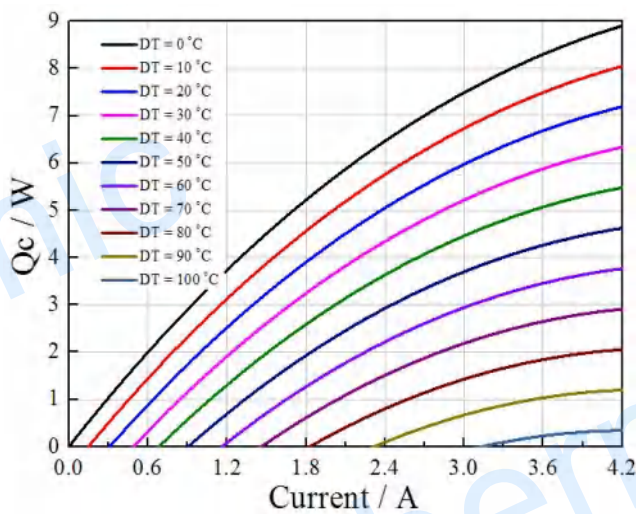### Performance Curves at Th=27 ºC
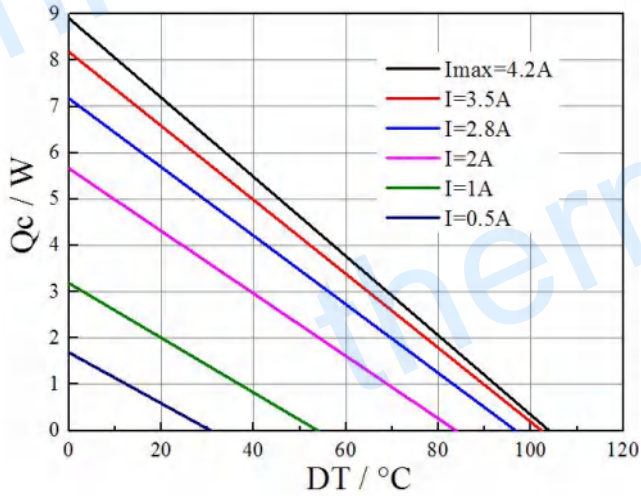
Performance Curves at Th=50 ºC

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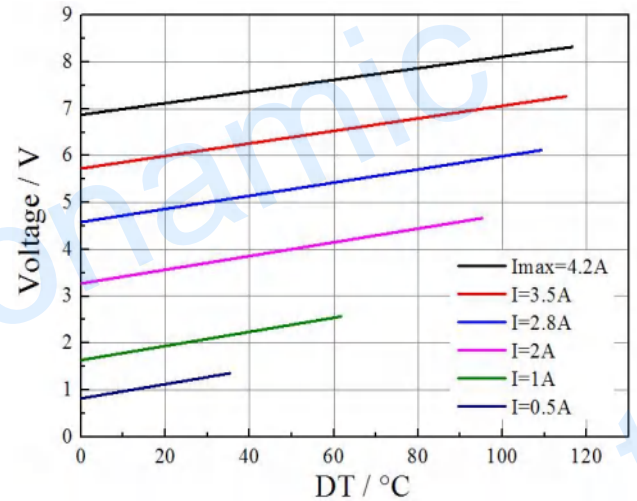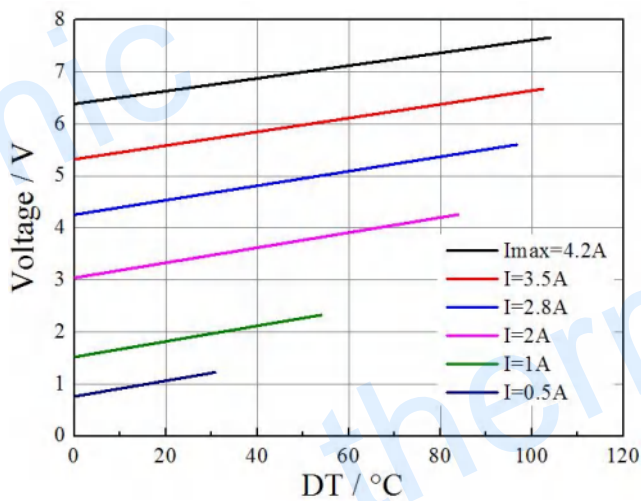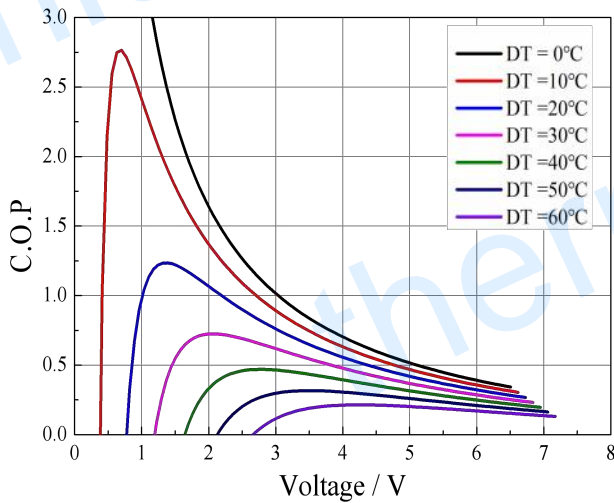
Standard Performance Graph V= f(DT)
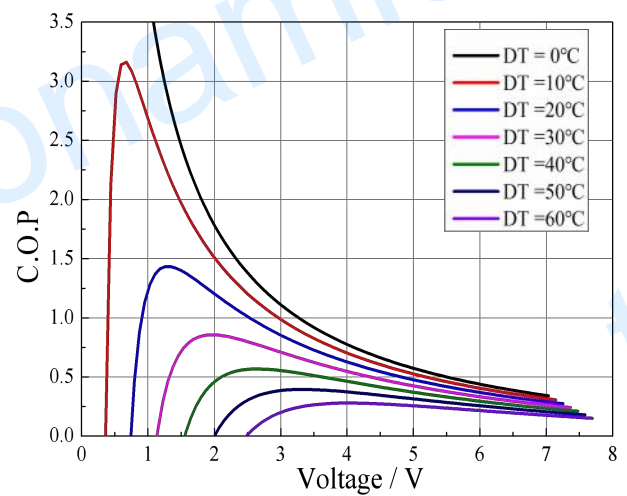
Standard Performance Graph Qc= f(I)

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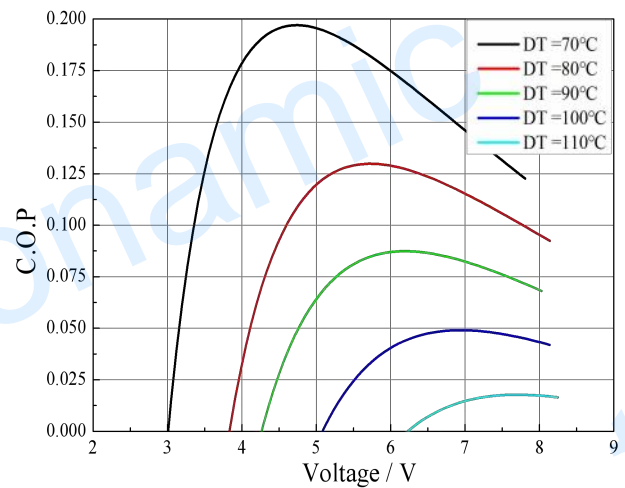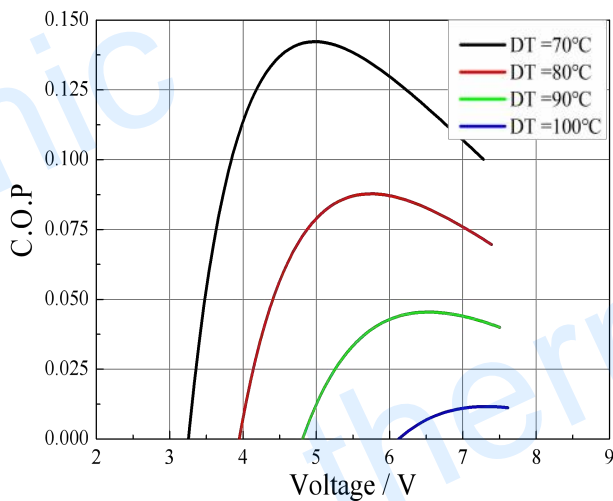
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Performance Curves at Th=27 ºC

Performance Curves at Th=50 ºC

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

Standard Performance Graph COP = f(V) of DT ranged from 70 to 100/110 ˚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

● Storage module below 100 ºC

● Operation below I_{max} or V_{max}

● Work under DC

Note: All specifications subject to change without notice.