Specification of Thermoelectric Module

TEC2-46-23-025

Description

The TEC2-46-23-025T250 is a multistage module designed for greater temperature differential cooling, good for cooling and heating up to 100 °C applications. It is a 46-23 couples module in size of 20 mm × 32mm (top) / 20mm × 35mm (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

Th (°C)	27	50	Hot side temperature at environment: dry air, N_2
DT_{max} (°C)	91	101	Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side
U_{max} (Voltage)	5.52	5.95	Voltage applied to the module at DT_{max}
I_{max} (Amps)	2.5	2.5	DC current through the modules at DT_{max}
Q_{Cmax} (Watts)	6.8	7.3	Cooling capacity at cold side of the module under DT=0 °C
AC resistance (Ohms)	2.15	2.32	The module resistance is tested under AC
Tolerance (%)	± 10		For thermal and electricity parameters

Geometric Characteristics Dimensions in millimeters
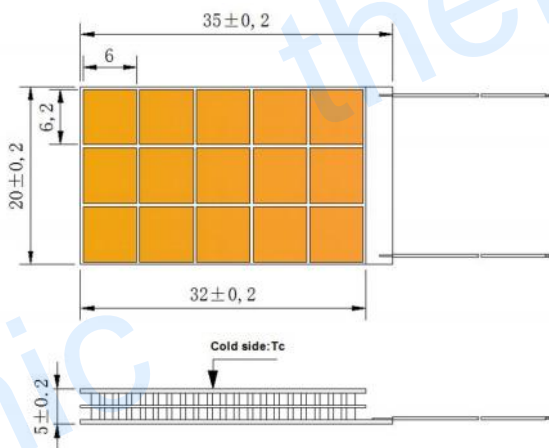
Manufacturing Options

A. Solder:

1. T100: BiSn (Tmelt=138ºC)

2. T200: CuSn (Tmelt = 227 °C)

B. Sealant:

1. NS: No sealing (Standard)

2. SS: Silicone sealant

3. EPS: Epoxy sealant

4. Customer specify sealing

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

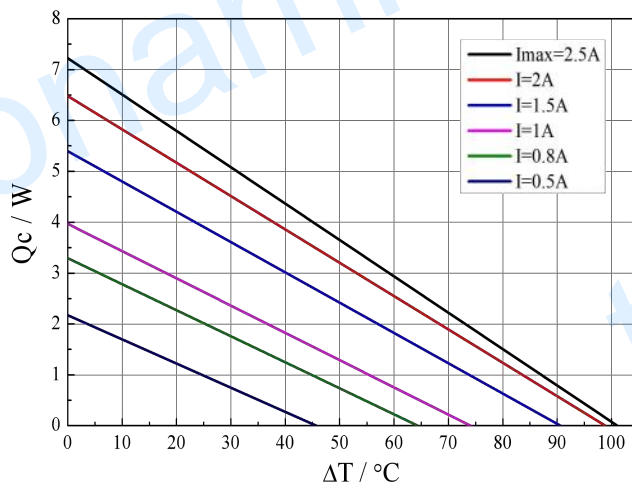| Suffix	Thickness (mm)	Flatness/ Parallelism (mm)	Lead wire length(mm) Standard/Optional length
TF	0: 5.0± 0.2	0: Face II 0.08/0.08, Face III 0.10/0.10	125 ± 3 / Specify
TF	1: 5.0± 0.15	1: Face II 0.05/0.05, Face III 0.08/0.08	125 ± 3 / Specify
TF	2: 5.0± 0.1	2: Face II 0.03/0.03, Face III 0.05/0.05	125 ± 3 / Specify
Eg. TF02: Thickness ± 0.2(mm) and Flatness Face II 0.03/0.03, Face III 0.05/0.05			

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Performance Curves at Th=27 ºC
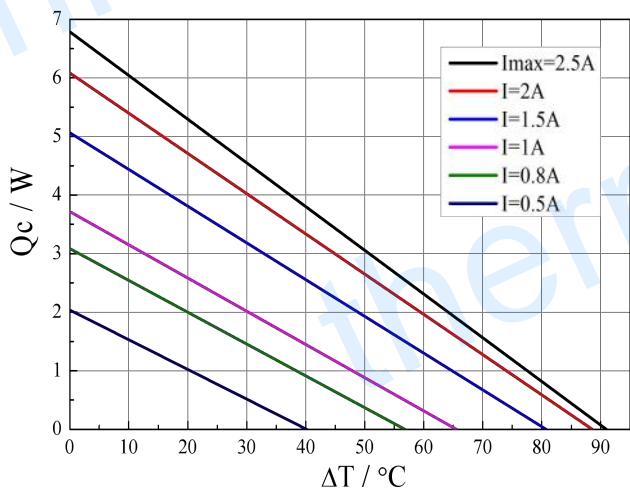
Standard Performance Graph Qc= f(ΔT)

Performance Curves at Th=50 ºC

Standard Performance Graph V= f(ΔT)

Standard Performance Graph Qc= f(V)

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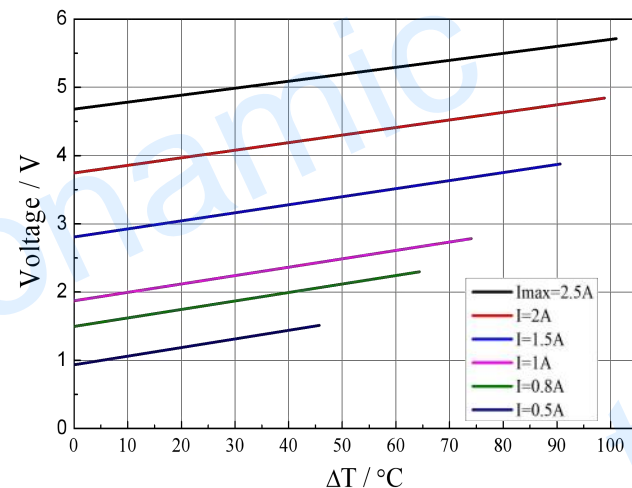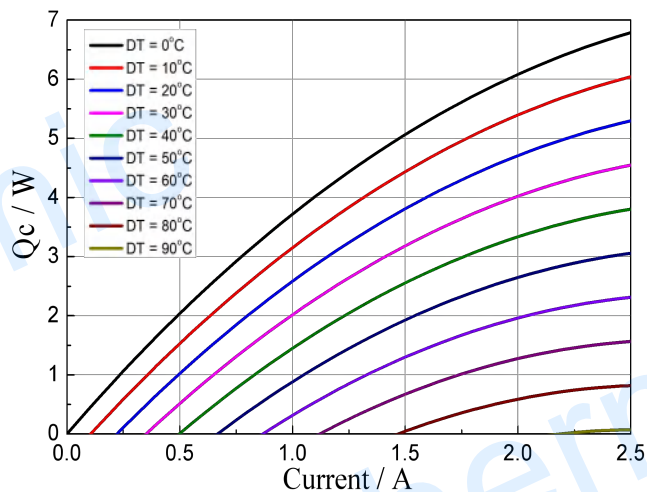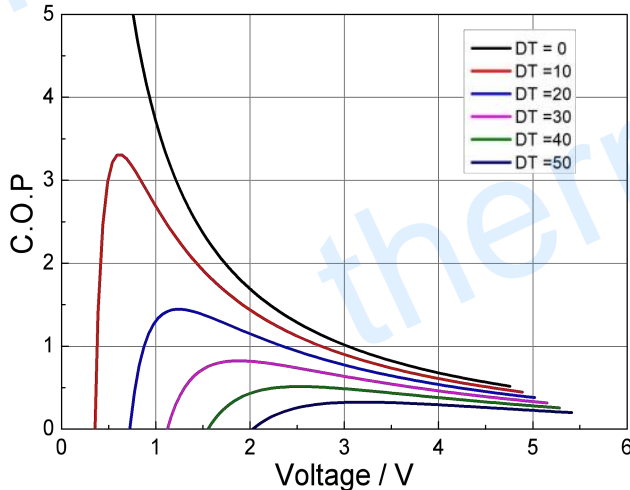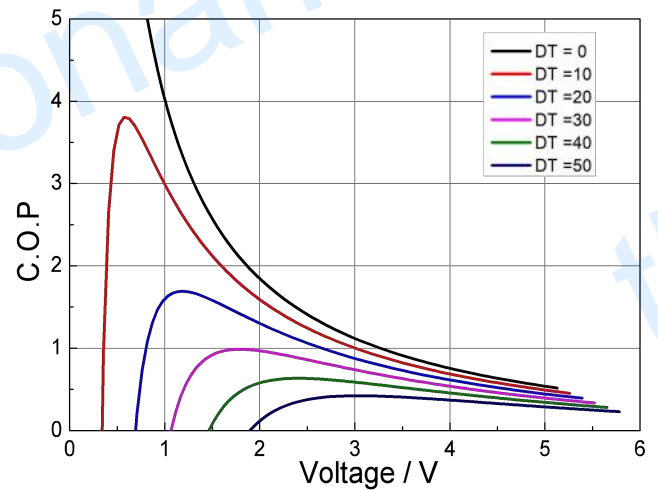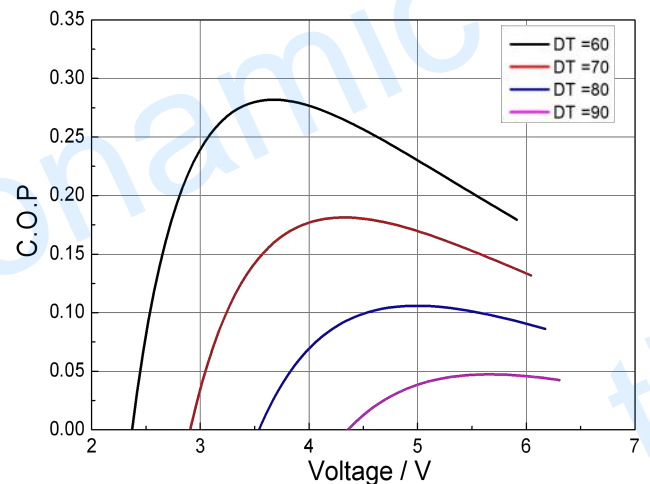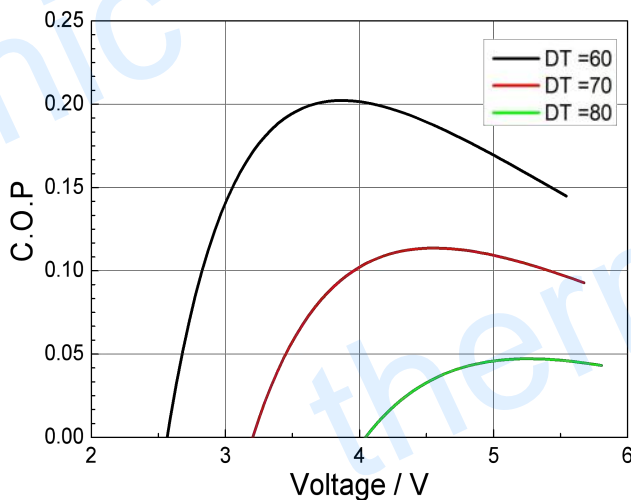
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Performance Curves at Th=27 ºC

Performance Curves at Th=50 ºC

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

Standard Performance Graph COP = f(V) of ΔT ranged from 60 to 80/90 ˚C

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