

Specification of Thermoelectric Module

TEC2-71-31-04

Description

The TEC2-71-31-04 is a multistage module designed for greater temperature differential cooling, good for cooling and heating up to 100 °C applications. It is a 71-31 couples module in size of 20 mm × 20 mm (top) / 30 mm × 30 mm (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

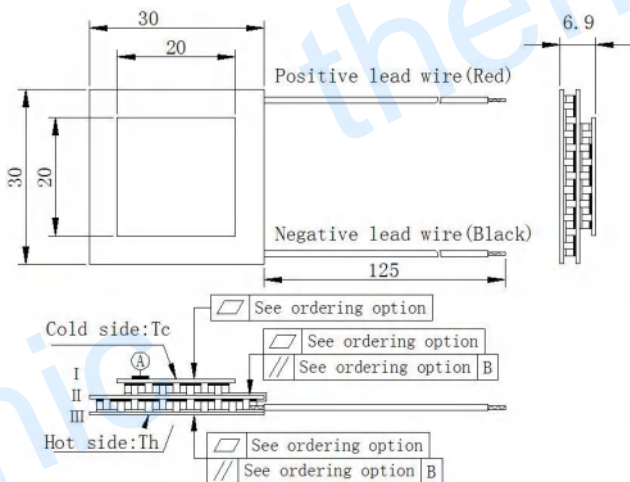
- Infrared (IR) Sensors
- CCD Sensor
- Gas Analyzers
- Calibration Equipment
- CPU cooler and scientific instrument
- Photonic and medical systems
- Guidance Systems

Performance Specification Sheet

Th (°C)	27	50	Hot side temperature at environment: dry air, N ₂
DT _{max} (°C)	92	103	Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side
U _{max} (Voltage)	8.2	9.2	Voltage applied to the module at DT _{max}
I _{max} (Amps)	4.6	4.6	DC current through the modules at DT _{max}
Q _{Cmax} (Watts)	13.6	14.9	Cooling capacity at cold side of the module under DT=0 °C
AC resistance (Ohms)	1.67	1.88	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 (T_{melt}=138°C)
2. T200: CuAgSn (T_{melt} = 217°C)
3. T240: SbSn (T_{melt} = 240°C)

B. Sealant:

1. NS: No sealing (Standard)
2. SS: Silicone sealant
3. EPS: Epoxy sealant

C. Ceramics:

1. Alumina (Al₂O₃, white 96%)
2. Aluminum Nitride (AlN)

D. Ceramics Surface Options:

1. Blank ceramics (not metalized)
2. Metalized

Ordering Option

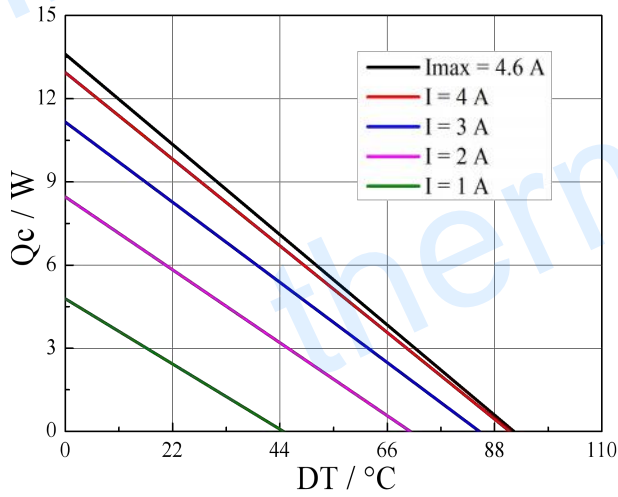
Suffix	Thickness (mm)	Flatness/Parallelism (mm)	Lead wire length(mm) Standard/Optional length
TF	0: 6.9±0.20	0: Face II 0.05/0.05, Face III 0.07/0.07	125±3/Specify
TF	1: 6.9±0.10	1: Face II 0.02/0.02, Face III 0.025/0.025	125±3/Specify

Eg. TF01: Thickness: 6.9±0.20(mm) and Flatness : Face II 0.02/0.02, Face III 0.025/0.025

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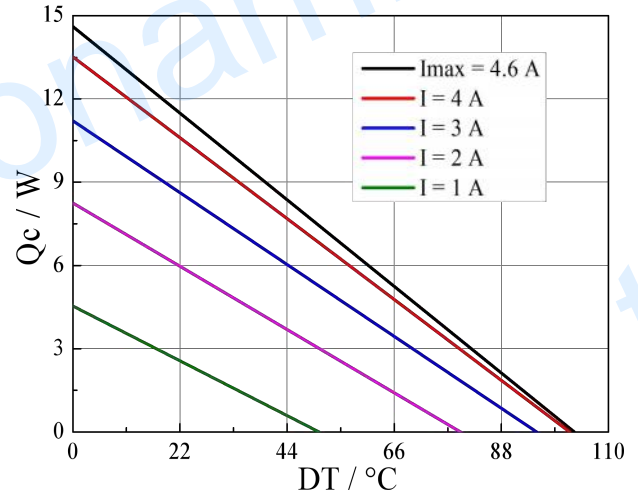
TEC2-71-31-04

Performance Curves at Th=27 °C

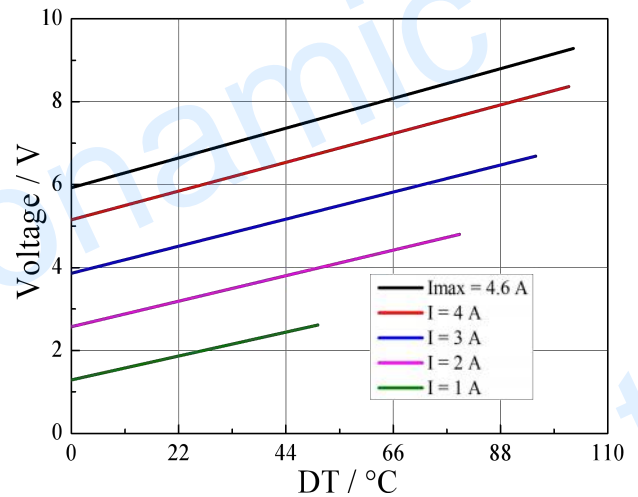
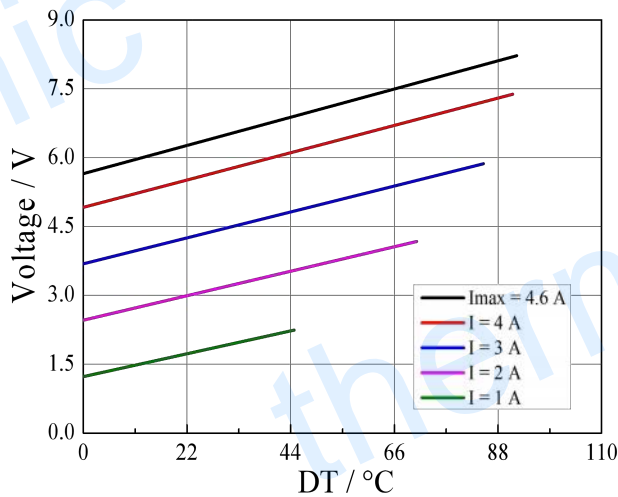


Standard Performance Graph $Q_c = f(DT)$

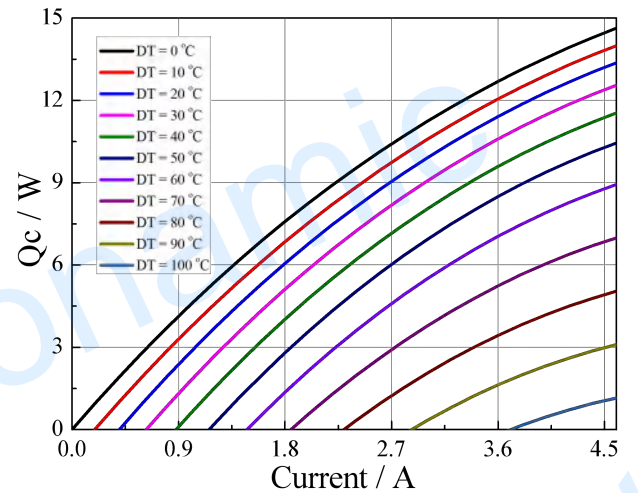
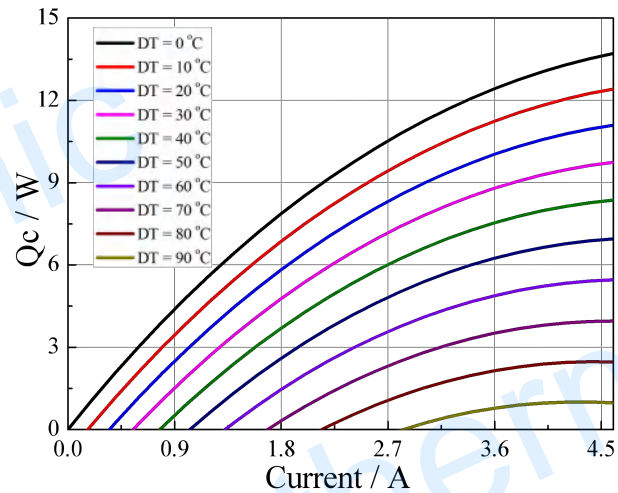
Performance Curves at Th=50 °C



Standard Performance Graph $V = f(\Delta T)$



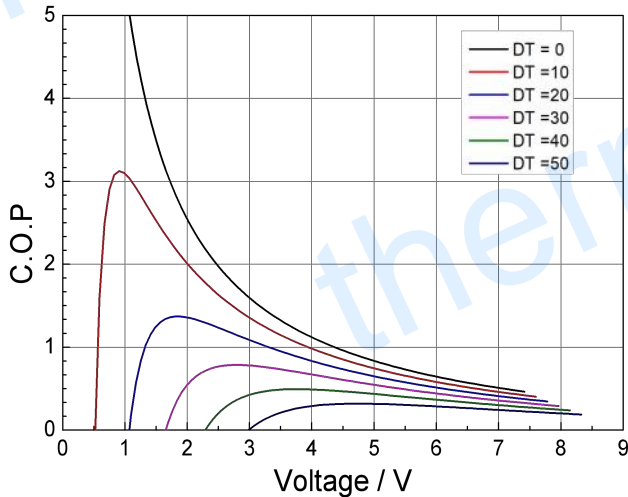
Standard Performance Graph $Q_c = f(V)$



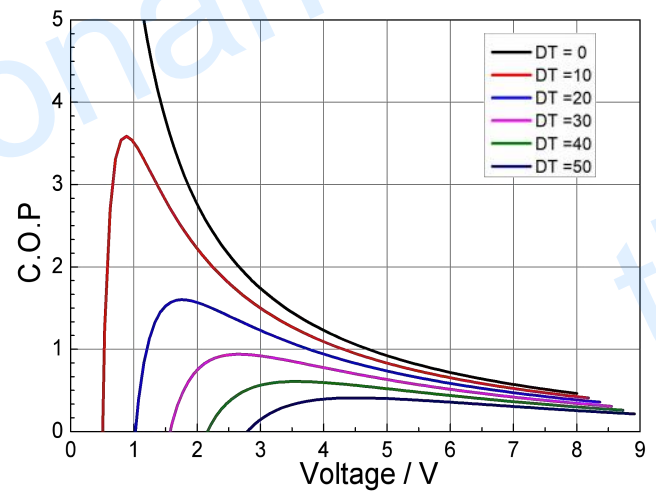
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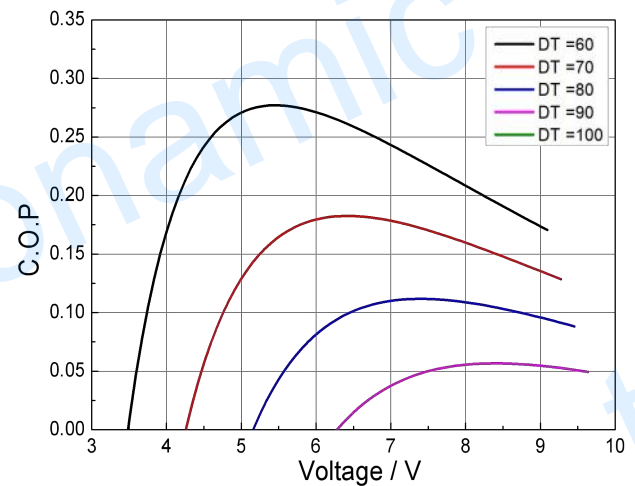
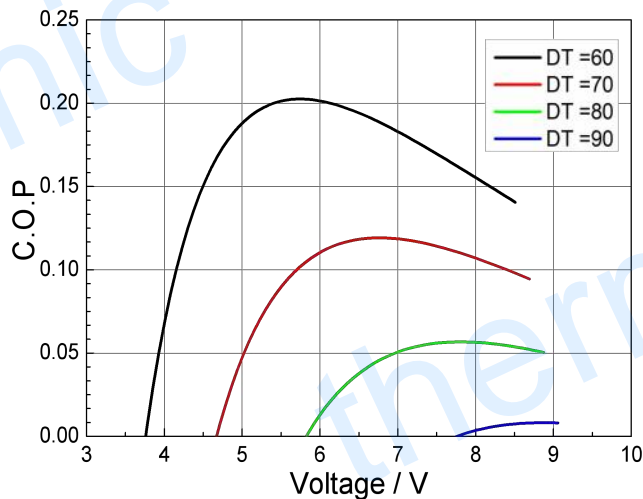
Performance Curves at $T_h=27\text{ }^\circ\text{C}$



Performance Curves at $T_h=50\text{ }^\circ\text{C}$



Standard Performance Graph COP = f(V) of ΔT ranged from 0 to $50\text{ }^\circ\text{C}$



Standard Performance Graph COP = f(V) of ΔT ranged from 60 to 90/100 $^\circ\text{C}$

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
- Operation or storage module below $100\text{ }^\circ\text{C}$
- Operation below I_{\max} or V_{\max}
- Work under DC