Specification of Thermoelectric Module

TEC3-71-31-17-03

Description

The TEC3-71-31-17-03 is a multistage module designed for greater temperature differential cooling, good for cooling and heating up to 100 ℃ applications. It is a 71-31-17-03 couples module in size of 15mm×15mm (top) / 30mm ×30mm (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

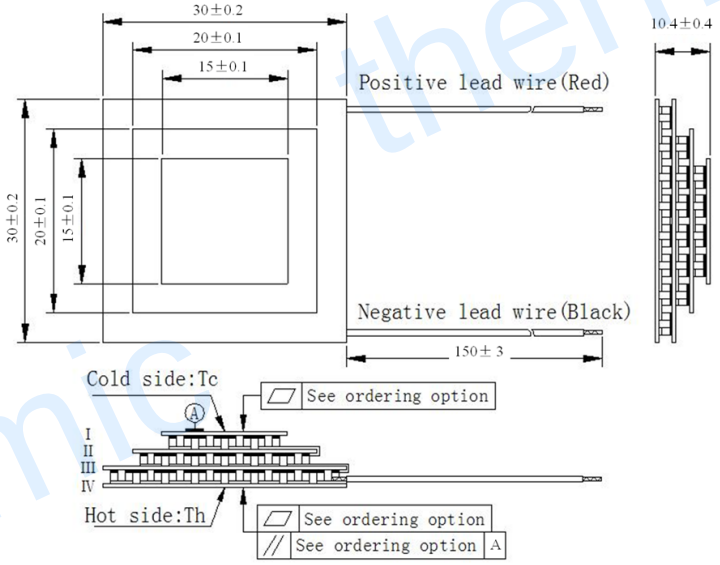
Application

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

Performance Specification Sheet

Th (℃)	27	50	Hot side temperature at environment: dry air, N_2
DT_{max} (℃)	102	114	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)	3.5	3.5	DC current through the modules at DT_{max}
Q_{Cmax} (Watts)	7.0	7.7	Cooling capacity at cold side of the module under DT=0 ℃
AC resistance (Ohms)	2.1	2.3	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 (Melting Point=138℃)
2. T200: CuSn (Melting Point= 227 ℃)

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%)(AlO)
2. Beryllia (BeO)

D. Ceramics Surface Options:

1. Blank ceramics (not metalized)
2. Metalized (Copper-Nickel plating)

Ordering Option

Suffix	Thickness (mm)	Flatness/ Parallelism (mm)	Lead wire length(mm) Standard/Optional length
TF	0: 10.4 ± 0.40	0: 0.15/0.2	150 ±3/Specify
TF	1: 10.4 ± 0.20	1: 0.13/0.18	150 ±3/Specify
Eg. TF01: Thickness 10.4 ± 0.40 (mm) and Flatness0.13/0.18			

Naming for the Module

TEC3-71-31-17-03-X -X - X - X

- Ceramics
- Flatness/ Parallelism
- Sealant
- Solder

TEC3-71-31-17-03–T100 -NS –TF01 -AlO

T100: BiSn(Tmelt=138°C)

NS: No sealing

AlO: Alumina white 96%

TF01: Thickness ±0.4 (mm) and Flatness/ Parallelism 0.13/0.18

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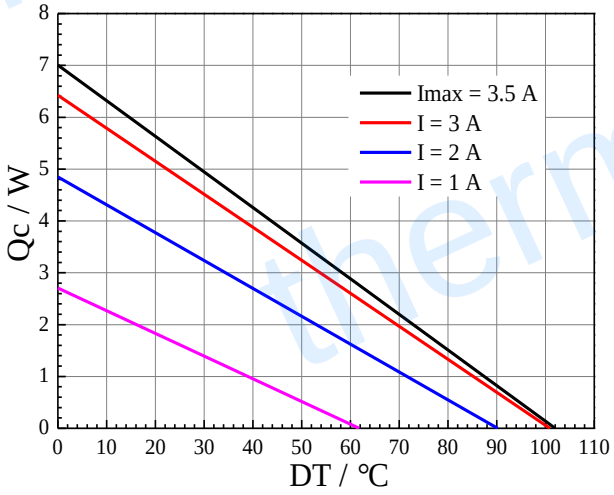
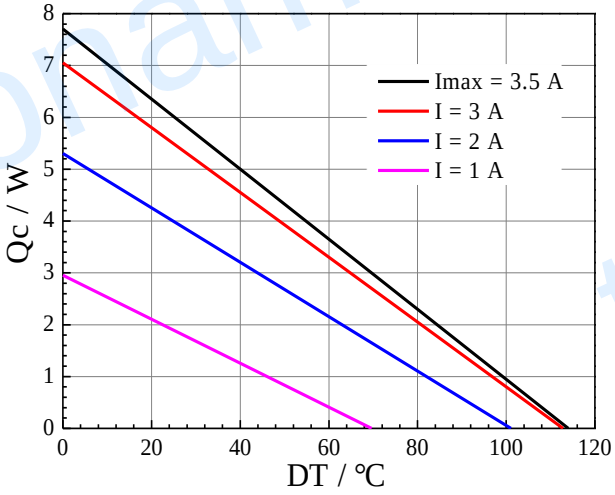
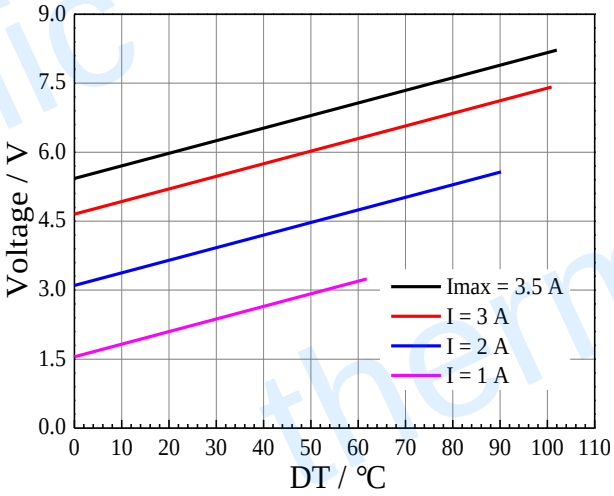
Performance Curves at Th=27 ℃

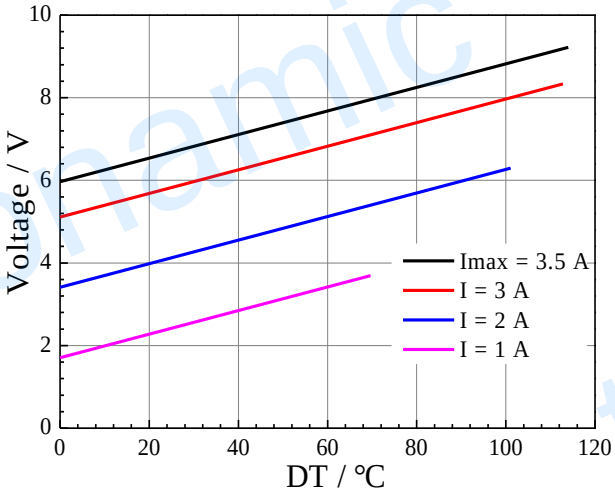


Performance Curves at Th=50 ℃

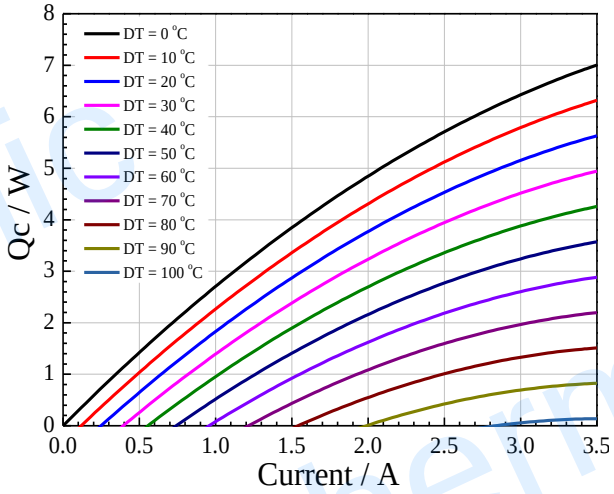


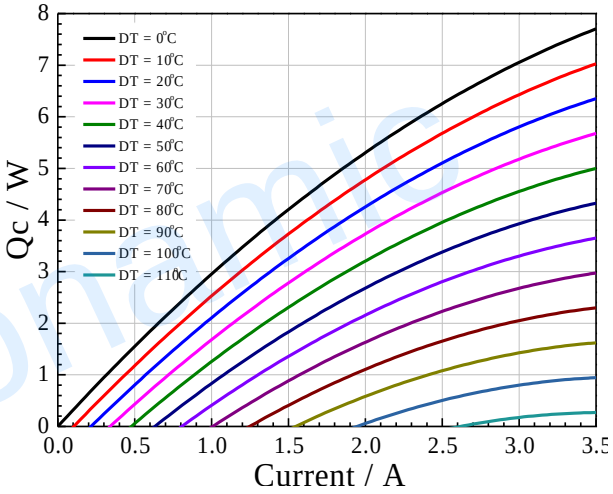
Standard Performance Graph Qc= f(DT)





Standard Performance Graph V= f(DT)



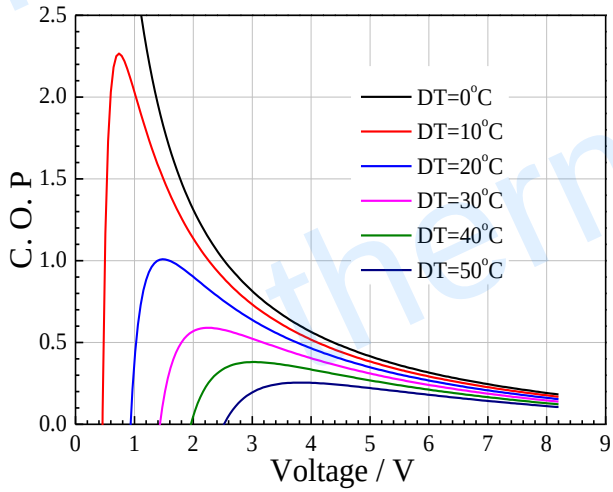


Standard Performance Graph Qc= f(I)

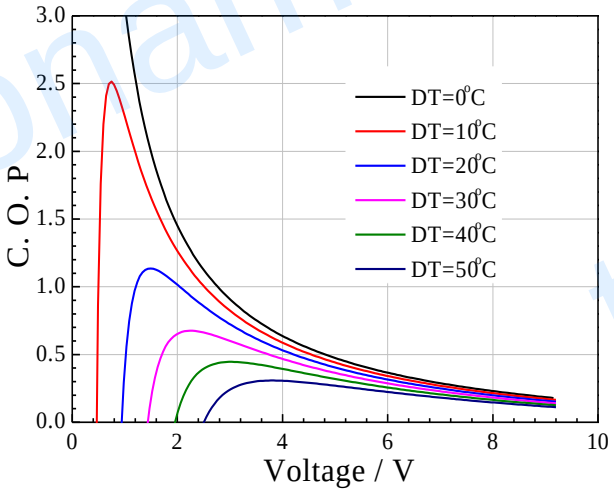
Specification of Thermoelectric Module

TEC3-71-31-17-03

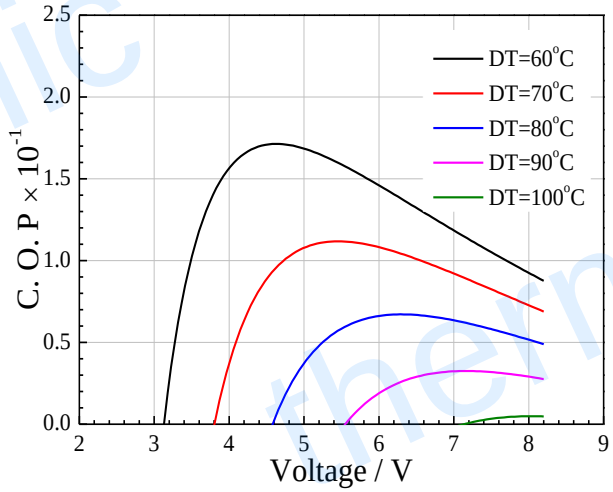
Performance Curves at Th=27 ℃

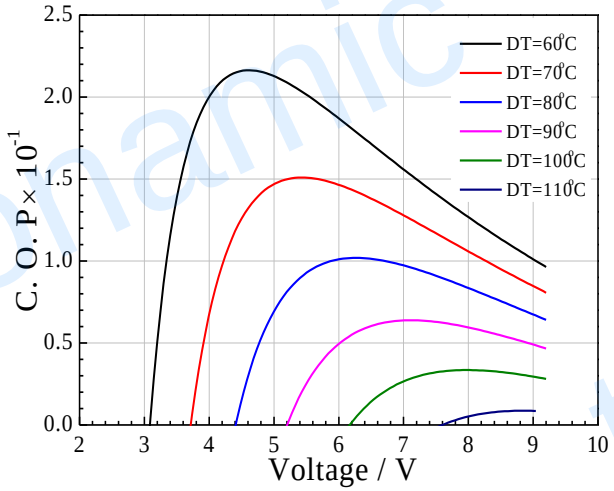


Performance Curves at Th=50 ℃



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 100/110 ˚C

Remark: The coefficient of performance (COP) is the cooling power Qc/Input power (V × I).

Operation Cautions

- Cold side of the module stuck on the object being cooled
- Hot side of the module mounted on a heat radiator
- Operation or storage module below 100 ℃
- Operation below I_{max} or V_{max}
- Work under DC

Note: All specifications subject to change without notice.