Specification of Thermoelectric Module

TES3-143-143-143-80

Description

The TES3-143-143-143-80 is a multistage module designed for greater temperature differential cooling, good for cooling and heating up to 100 ºC applications. It is a 143-143-143 couples module in size of 25mm ×50mm (top/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

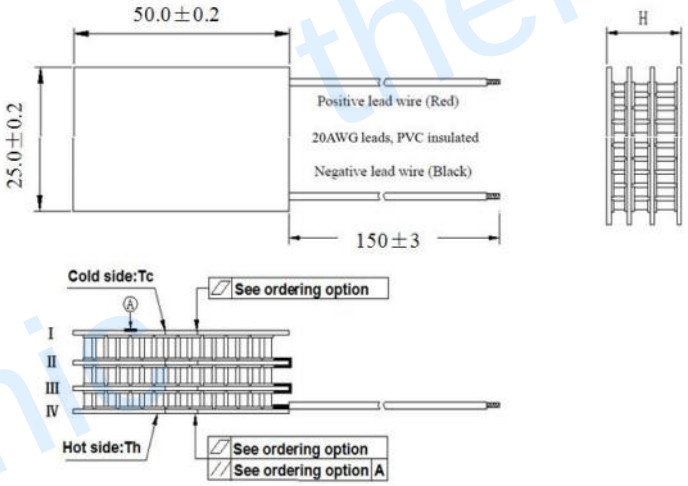
Application

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

Performance Specification Sheet

Th (ºC)	27	50	Hot side temperature at environment: dry air, N_2
DT_{max} (ºC)	104	117	Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side
U_{max} (Voltage)	16.3	17.7	Voltage applied to the module at DT_{max}
I_{max} (Amps)	7.2	7.2	DC current through the modules at DT_{max}
Q_{Cmax} (Watts)	34.0	36.4	Cooling capacity at cold side of the module under DT=0 ºC
AC resistance (Ohms)	2.10	2.25	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)

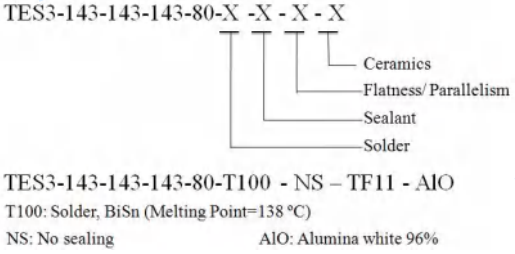
D. Ceramics Surface Options:

1. Blank ceramics (not metalized)
2. Metalized

Ordering Option

Suffix	Thickness (mm)	Flatness/ Parallelism (mm)	Lead wire length(mm) Standard/Optional length
TF	0: 9.1± 0.3	0: 0.1/0.1	150±3/Specify
TF	1: 9.1± 0.15	1: 0.05/0.05	150±3/Specify
Eg. TF11: Thickness 9.1±0.3 (mm) and Flatness/ Parallelism 0.05/0.05 (mm)			

Naming for the Module

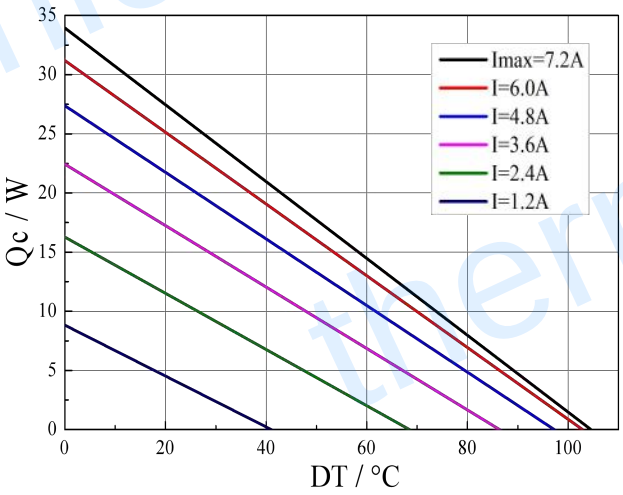


Tel: +86-791-88198288 Fax: +86-791-88198308 Email: sales@thermonamic.com.cn Web Site: www.thermonamic.com.cn

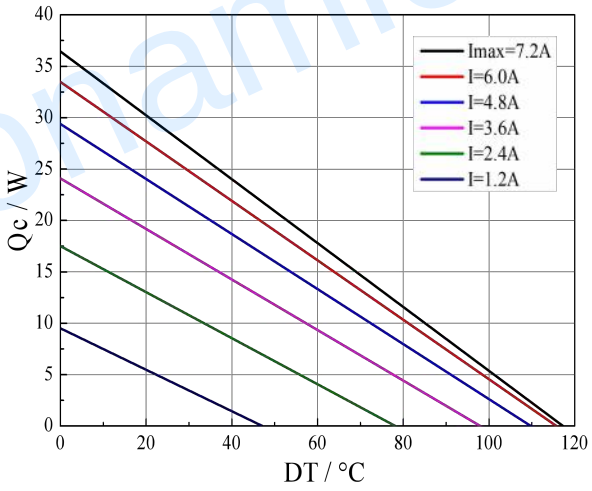
Specification of Thermoelectric Module

TES3-143-143-143-80

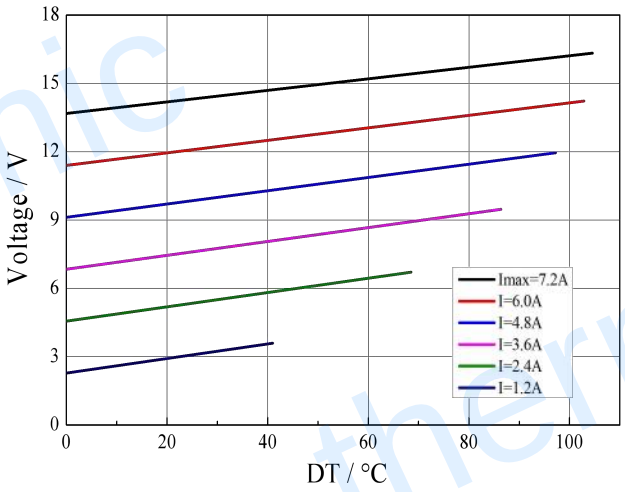
Performance Curves at Th=27 ºC

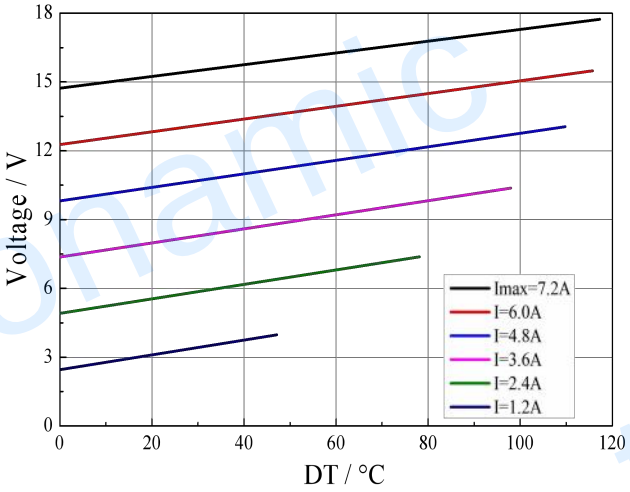


Performance Curves at Th=50 ºC

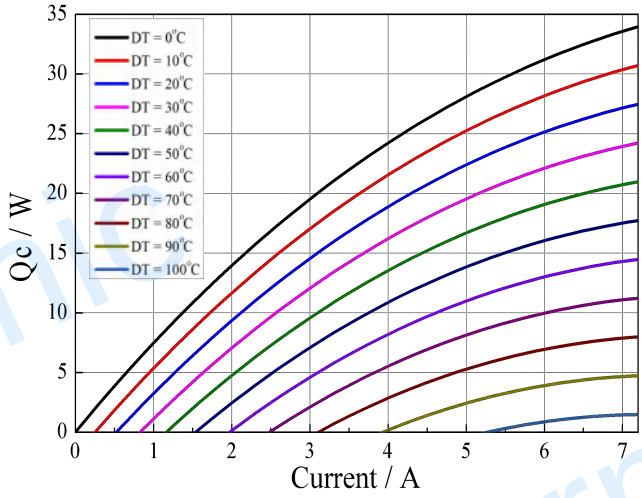


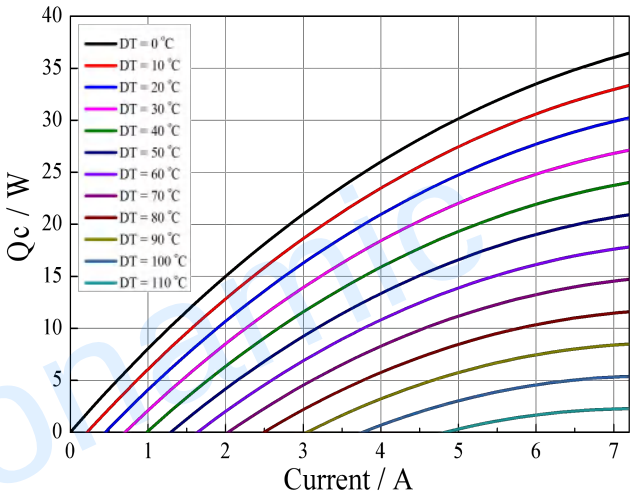
Standard Performance Graph Qc= f(DT)





Standard Performance Graph V= f(DT)



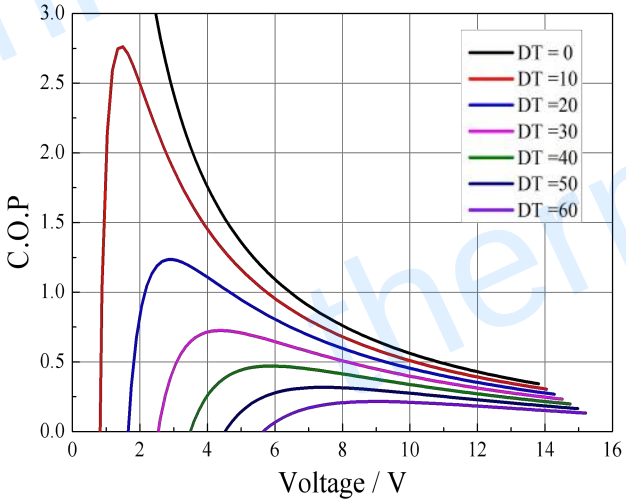


Standard Performance Graph Qc= f(I)

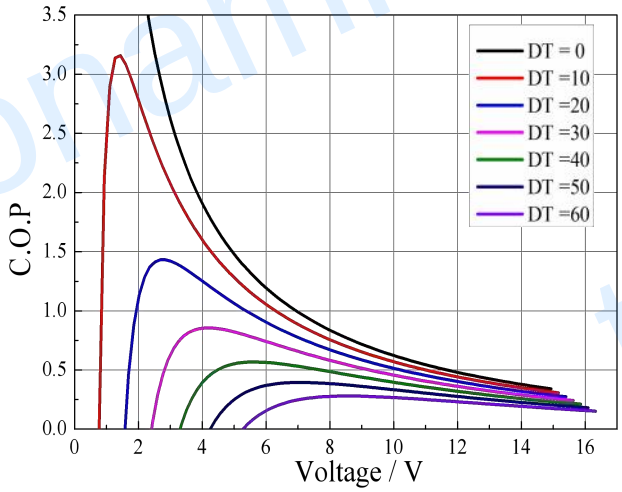
Specification of Thermoelectric Module

TES3-143-143-143-80

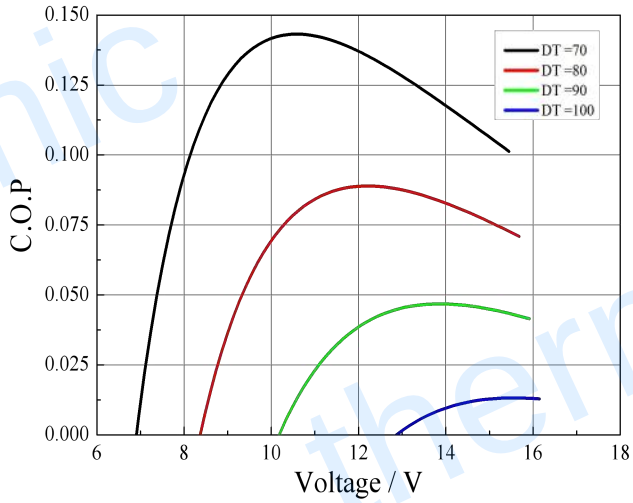
Performance Curves at Th=27 ºC

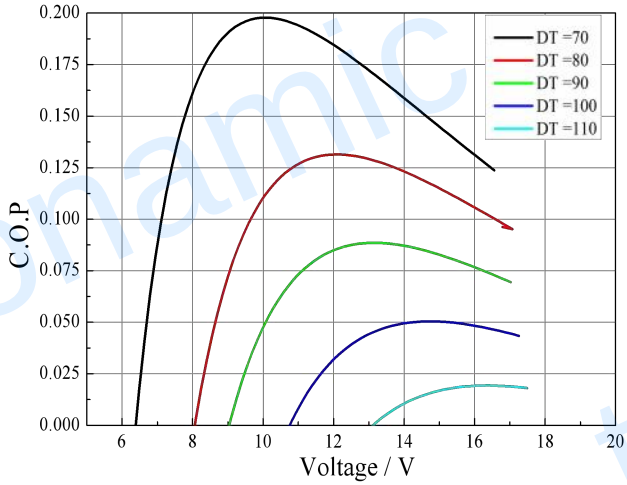


Performance Curves at Th=50 ºC



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
- Operation below I_{max} or V_{max}
- Work under DC

Note: All specifications subject to change without notice.