

Specification of Thermoelectric Module

TES2-95-95-40-T100-NS-TF01-AIN

Description

The TES2-95-95-40 is a multistage module designed for greater temperature differential cooling, good for cooling and heating up to 100 °C applications. It is a 95-95 couples module in size of 30 mm × 30 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

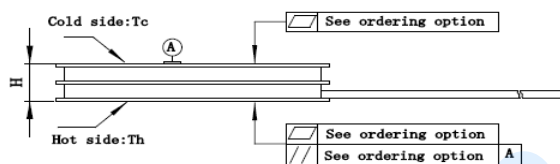
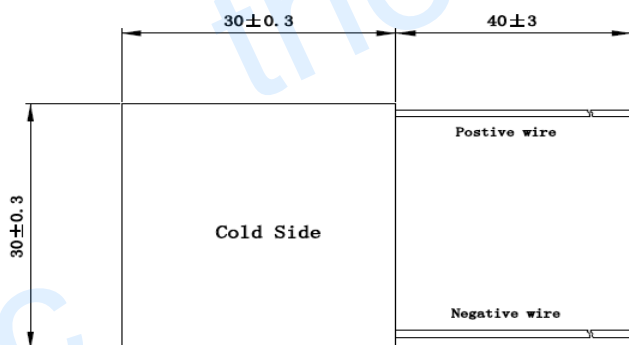
Application

- 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)	89.2	100.4	Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side
U _{max} (Voltage)	12.2	13.3	Voltage applied to the module at DT _{max}
I _{max} (Amps)	4.3	4.3	DC current through the modules at DT _{max}
Q _{Cmax} (Watts)	21.8	23.4	Cooling capacity at cold side of the module under DT=0 °C
AC resistance (Ohms)	2.40	2.58	The module resistance is tested under AC
Tolerance (%)	± 10		For thermal and electricity parameters

Geometric Characteristics Dimensions in millimeters



Manufacturing Options

A. Solder:

T100: BiSn (T_{melt}=138°C)

B. Sealant:

NS: No sealing

C. Ceramics:

AIN: Aluminum Nitride

D. Ceramics Surface Options:

Cold side: Blank ceramics (not metalized)

Hot side: Metalized (Ni coating)

Ordering Option

Suffix	Thickness (mm)	Flatness/ Parallelism (mm)	Lead wire length(mm) Standard/Optional length
TF	0:6.5±0.15	1: 0.07/0.08	130±3/Specify

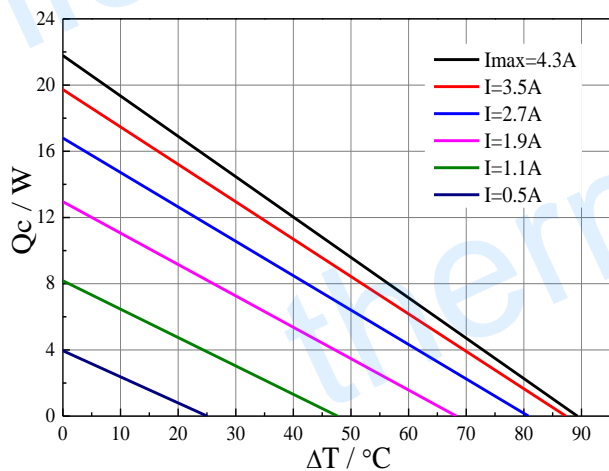
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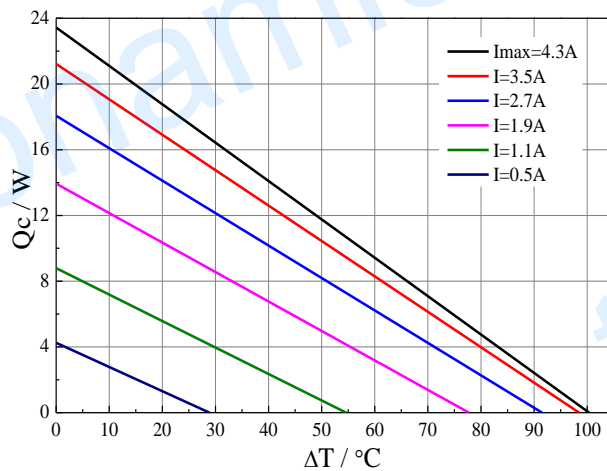
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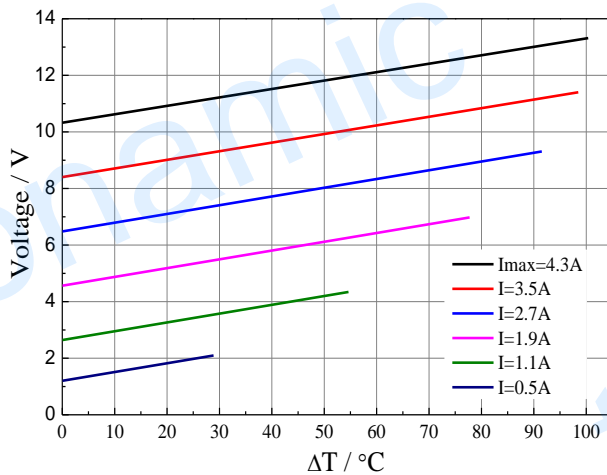
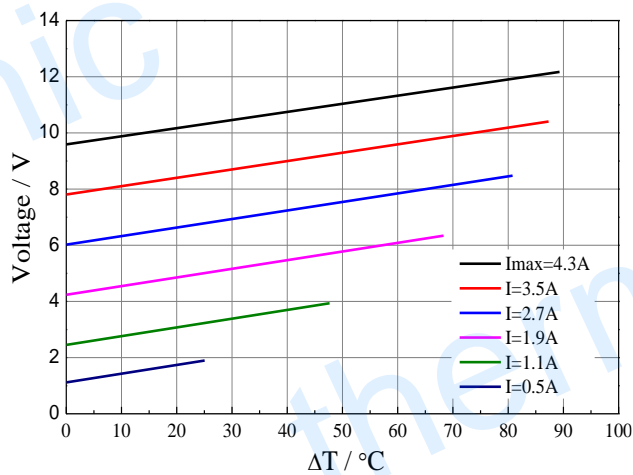
Performance Curves at $T_h=27\text{ }^\circ\text{C}$



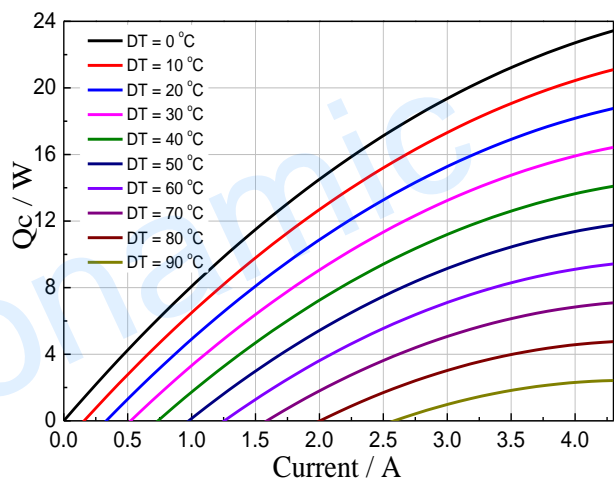
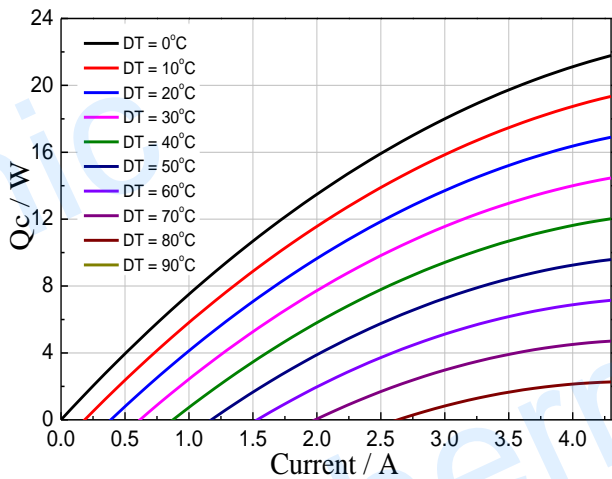
Performance Curves at $T_h=50\text{ }^\circ\text{C}$



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



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

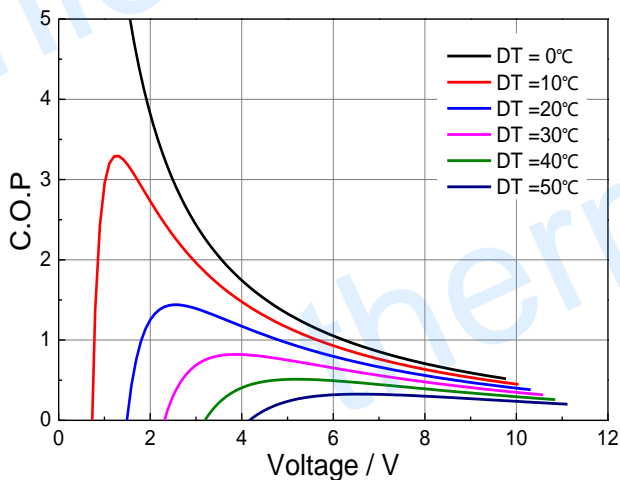


Standard Performance Graph $Q_c = f(I)$

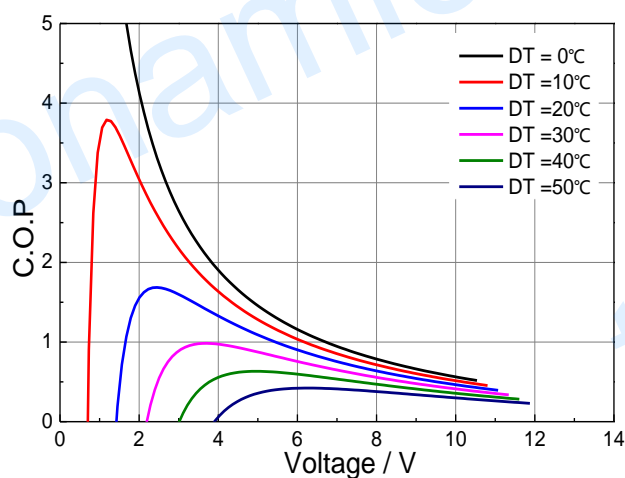
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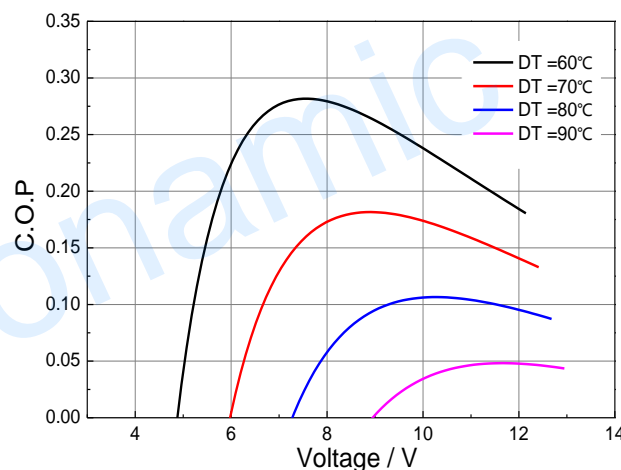
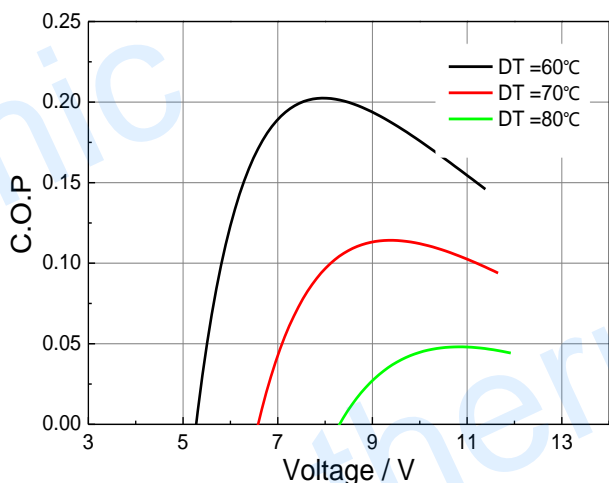
Performance Curves at Th=27 °C



Performance Curves at Th=50 °C



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



Standard Performance Graph COP = f(V) of DT ranged from 50 to 80/90 °C

Remark: The coefficient of performance (COP) is the cooling power Q_c /Input power ($V \times I$).

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