Specification of Thermoelectric Module

TES1-03850OD24ID9.8

Description

The 38 couples round shape with center hole, 24 mm (OD) × 9.8 (ID) mm size single module which is made of selected high performance ingot to achieve superior cooling performance and greater delta T up to 70 ºC, designed for superior cooling and heating up to 100 ºC/200 ºC applications. If higher operation or processing temperature is required, please specify, we can design and manufacture the custom made module according to your special requirements.

Features

- 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

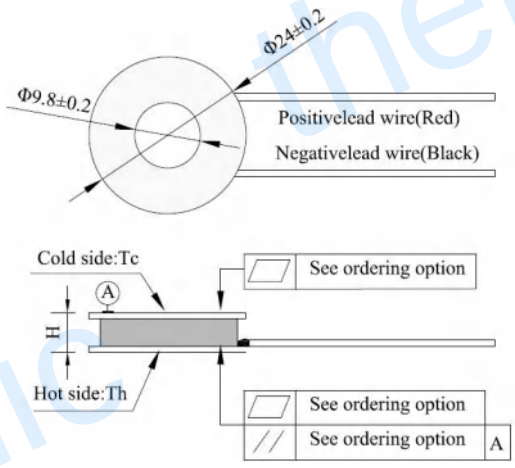
Application

- Food and beverage service refrigerator
- Portable cooler box for cars
- Liquid cooling
- Temperature stabilizer
- CPU cooler and scientific instrument
- Photonic and medical systems

Performance Specification Sheet

Th(ºC)	27	50	Hot side temperature at environment: dry air, N_2
DT_{max}(ºC)	70	79	Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side
U_{max}(Voltage)	4.7	5.2	Voltage applied to the module at DT_{max}
I_{max}(amps)	5.8	5.8	DC current through the modules at DT_{max}
Q_{Cmax}(Watts)	17.1	19.2	Cooling capacity at cold side of the module under DT=0 ºC
AC resistance(ohms)	0.63	0.68	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 other than above

C. Ceramics:

1. Alumina (Al_2O_3,white 96%)
2. Aluminum Nitrde (AlN)

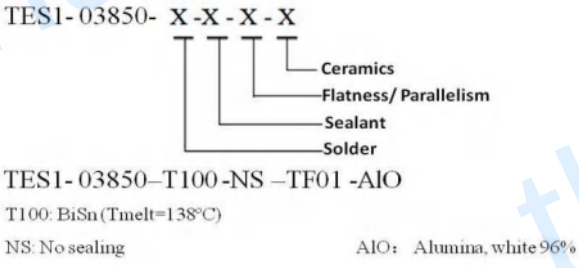
D. Ceramics Surface Options:

1. Blank ceramics (not metallized)
2. Metallized (Au plating)

Ordering Option

Suffix	Thickness H (mm)	Flatness/ Parallelism (mm)	Lead wire length(mm) Standard/Optional length
TF	0:3.1 ± 0.1	0:0.07/0.07	50±1/Specify
TF	1:3.1 ± 0.03	1:0.025/0.025	50±1/Specify
Eg. TF01: Thickness 3.1 ± 0.1 (mm) and Flatness 0.025/0.25 (mm)			

Naming for the Module



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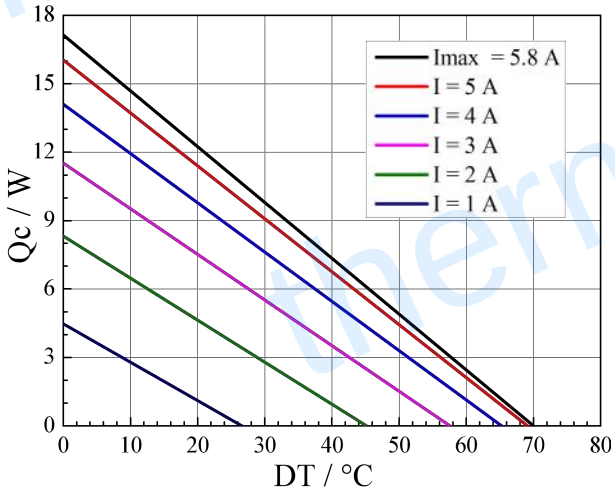
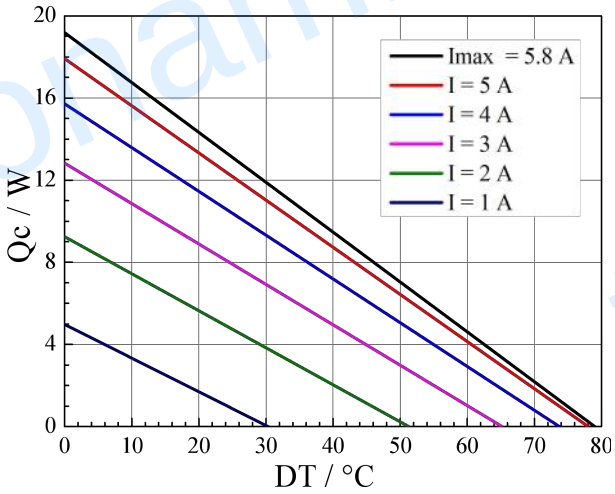
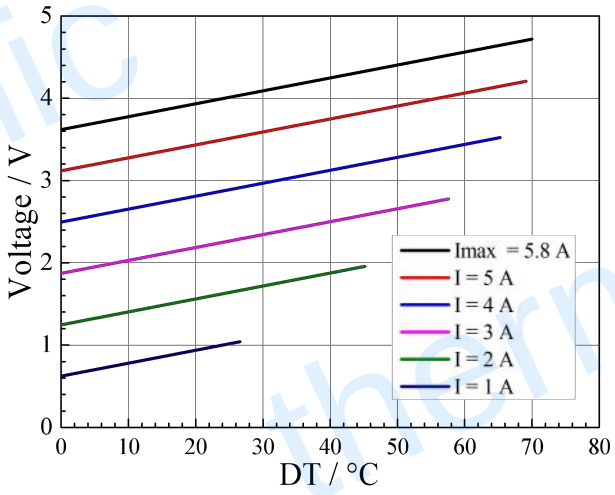
Performance Curves at Th=27 ºC

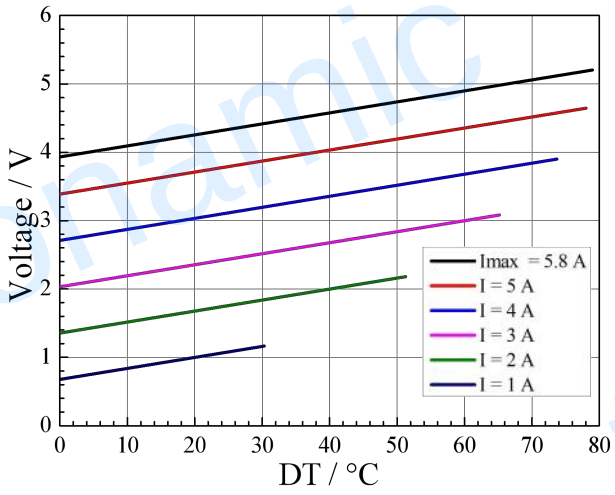


Performance Curves at Th=50 ºC

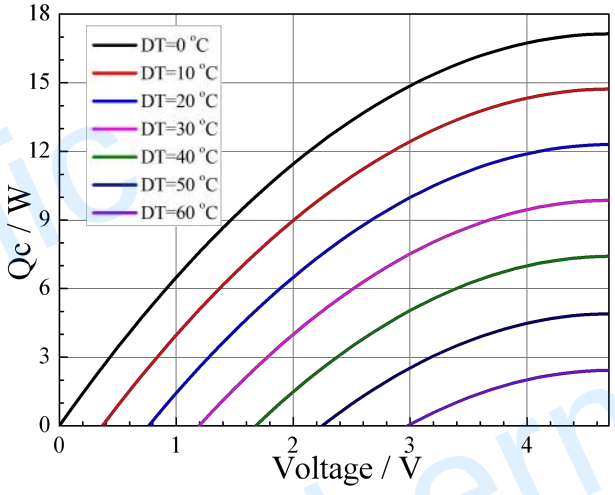


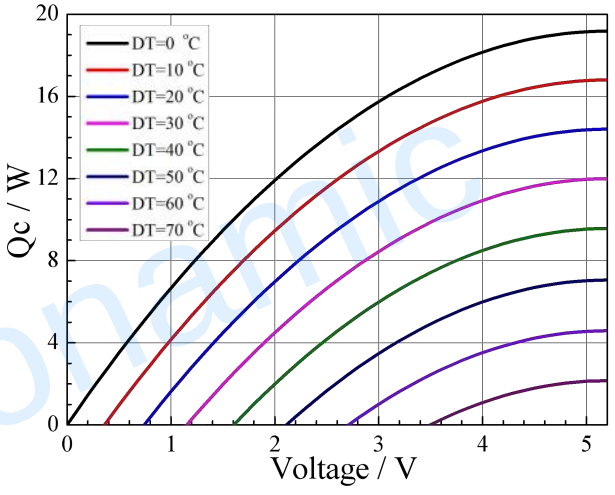
Standard Performance Graph Qc= f(DT)





Standard Performance Graph V= f(DT)





Standard Performance Graph Qc= f(V)

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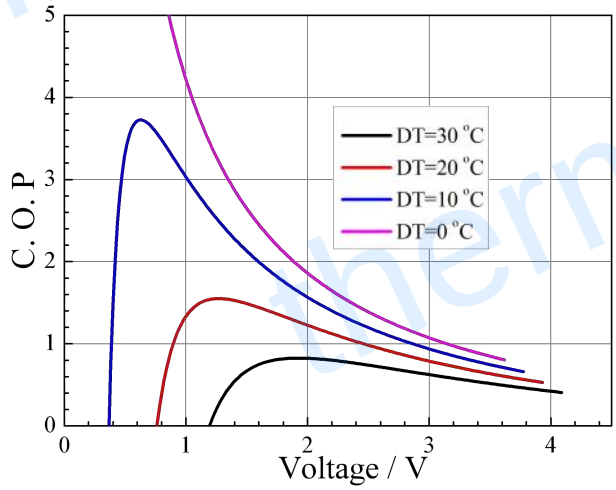
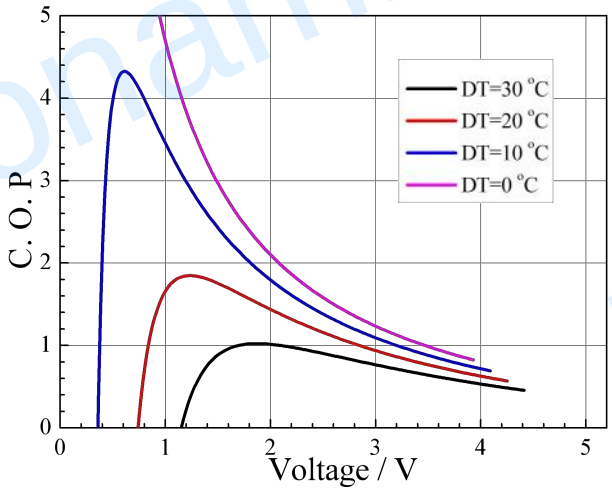
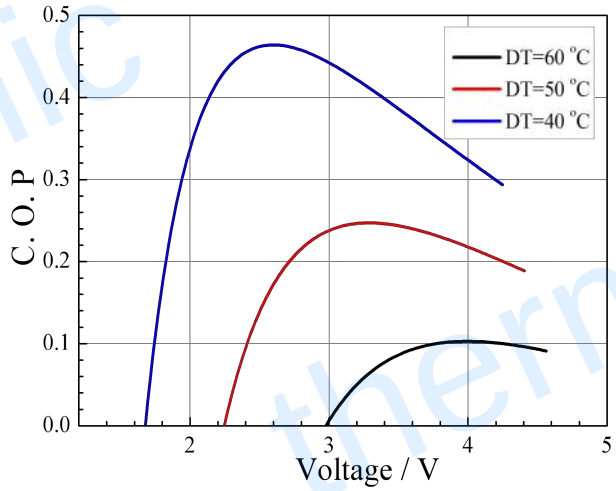
Performance Curves at Th=27 ºC

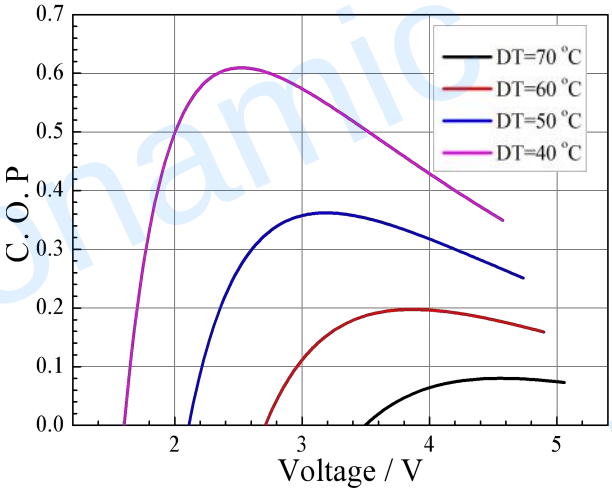


Performance Curves at Th=50 ºC



Standard Performance Graph COP = f(V) of DT ranged from 0 to 30 ˚C





Standard Performance Graph COP = f(V) of DT ranged from 40 to 60/70 ˚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.