Specification of Thermoelectric Module

TEC3-69-29-11-05

Description

The TEC3-69-29-11-05 is a multistage module designed for greater temperature differential cooling, good for cooling and heating up to 100 ℃ applications. It is a 69-29-11 couples module in size of 13mm×8.6mm (top)/28.3mm ×21.7mm (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

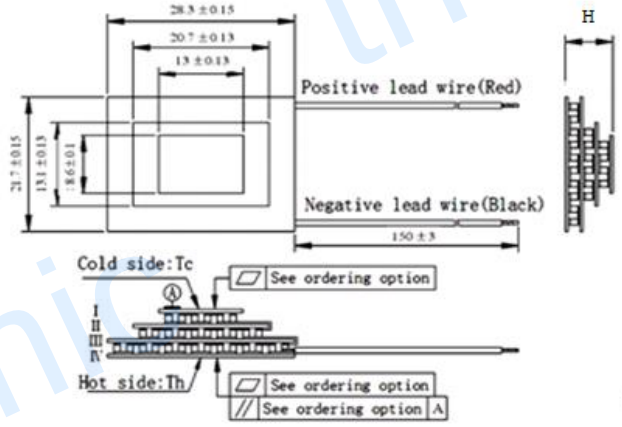
Application

- 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}(℃)	109	123	Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side
U_{max}(Voltage)	8.3	8.9	Voltage applied to the module at DT_{max}
I_{max} (Amps)	5.5	5.5	DC current through the modules at DT_{max}
Q_{Cmax}(Watts)	9.2	10.0	Cooling capacity at cold side of the module under DT=0 ℃
AC resistance(Ohms)	1.55	1.7	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)

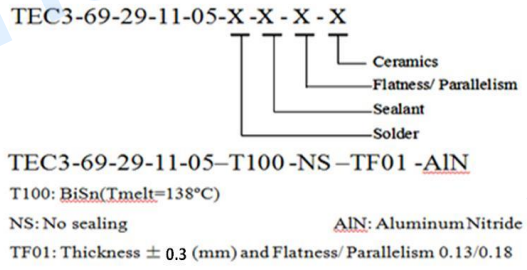
D. Ceramics Surface Options:

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: 9.3 ±0.3	0: 0.15/0.2	150±3/Specify
TF	1: 9.3 ±0.15	1: 0.13/0.18	150±3/Specify
Eg. TF01: Thickness 9.3±0.3 (mm) and Flatness/ Parallelism 0.13/0.18			

Naming for the Module



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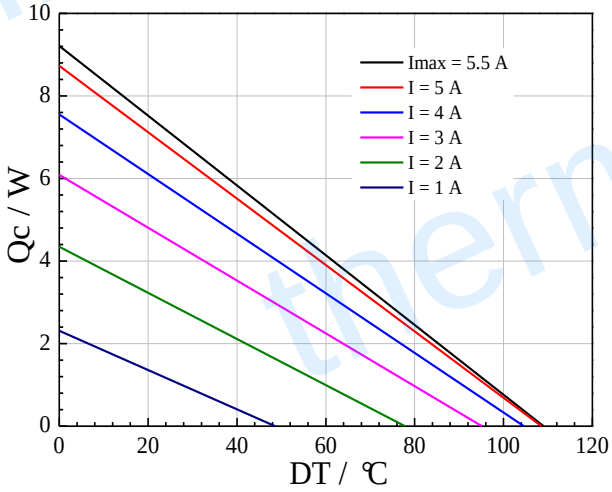
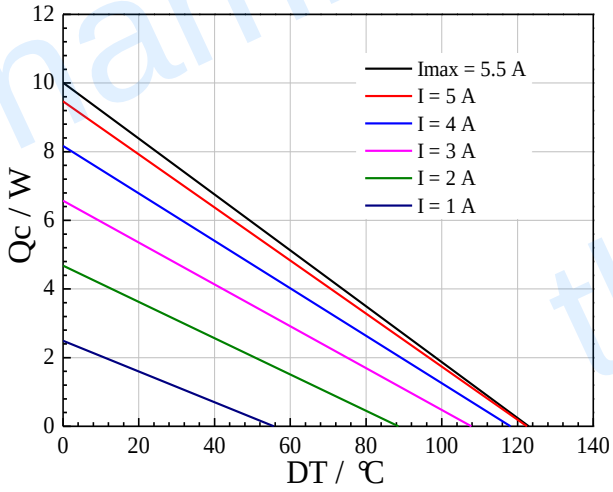
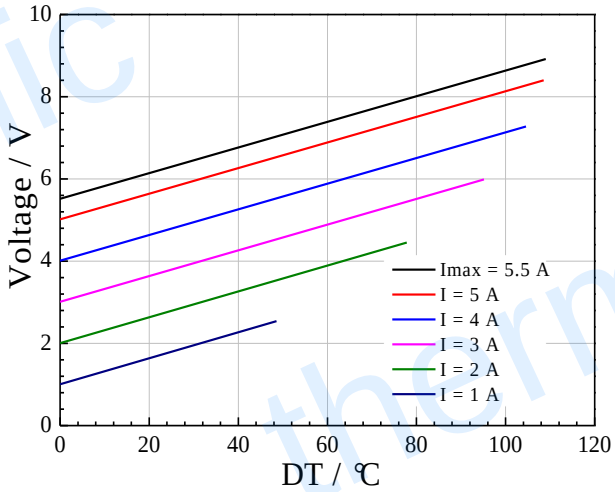
Performance Curves at Th=27 ℃

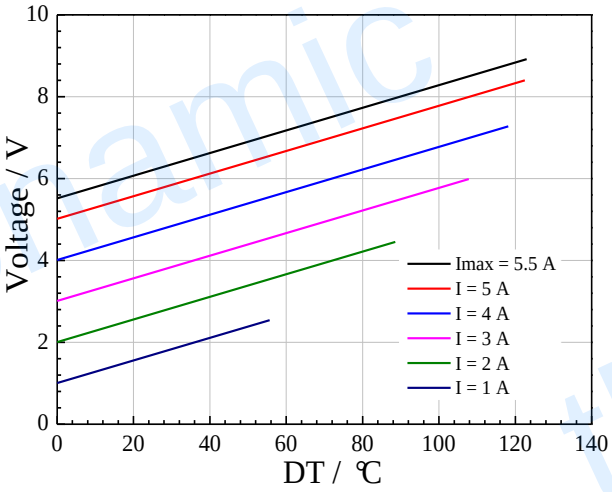


Performance Curves at Th=50 ℃

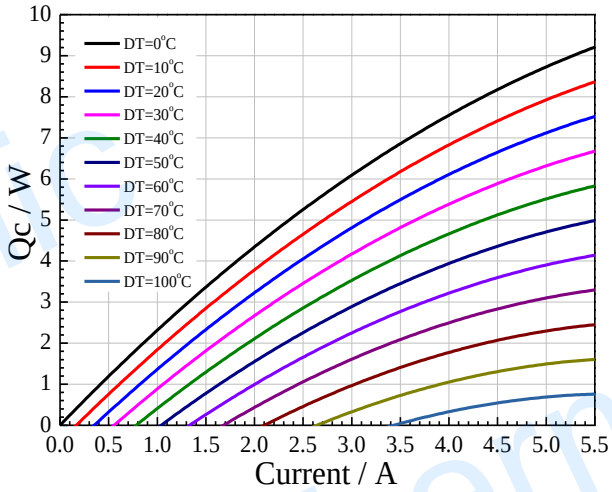


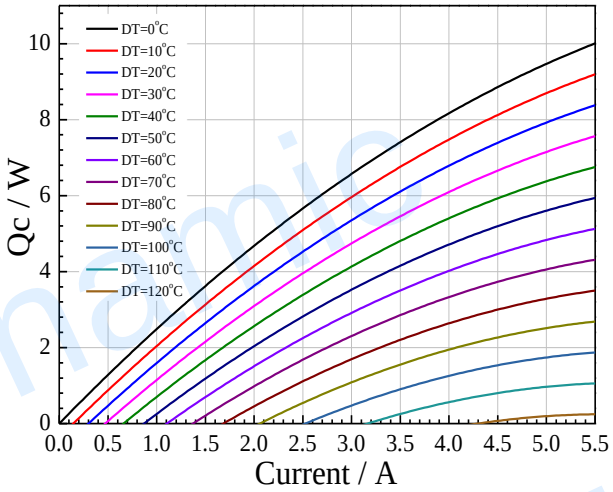
Standard Performance Graph Qc= f(DT)





Standard Performance Graph V= f(DT)





Standard Performance Graph Qc= f(I)

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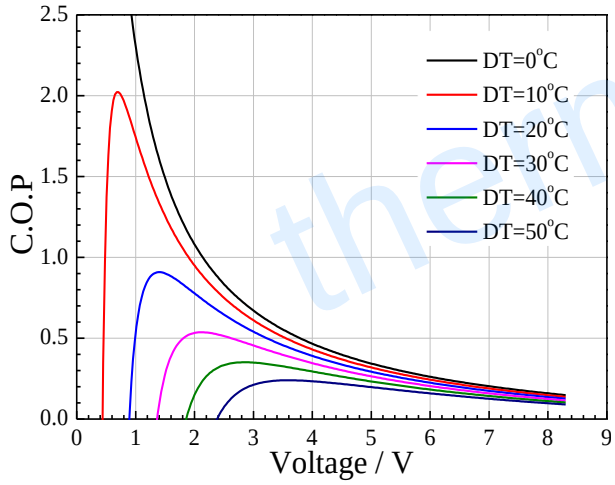
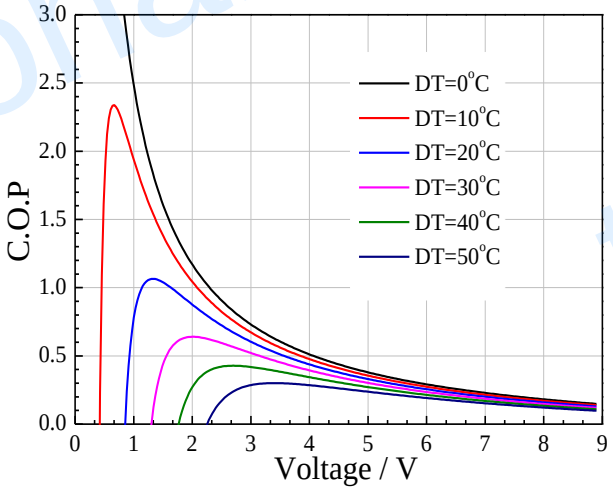
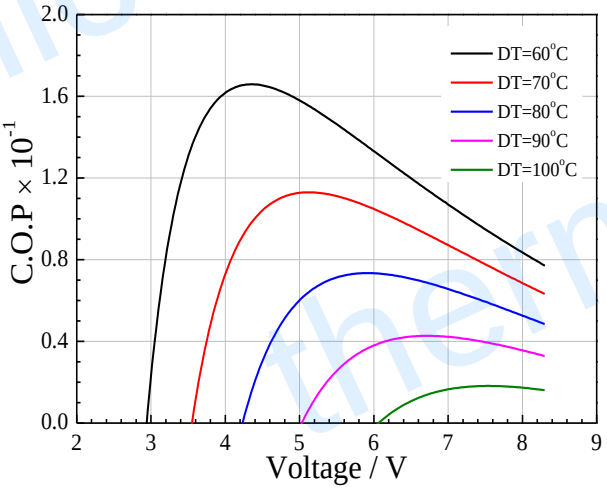
Performance Curves at Th=27 ℃

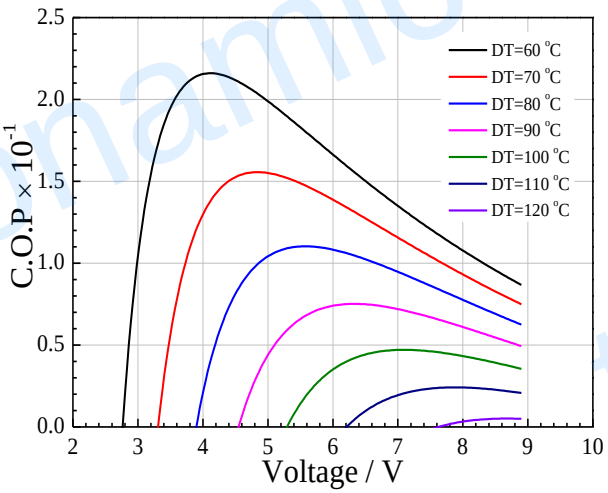


Performance Curves at Th=50 ℃



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 100/120 ˚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.

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