

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 °C 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

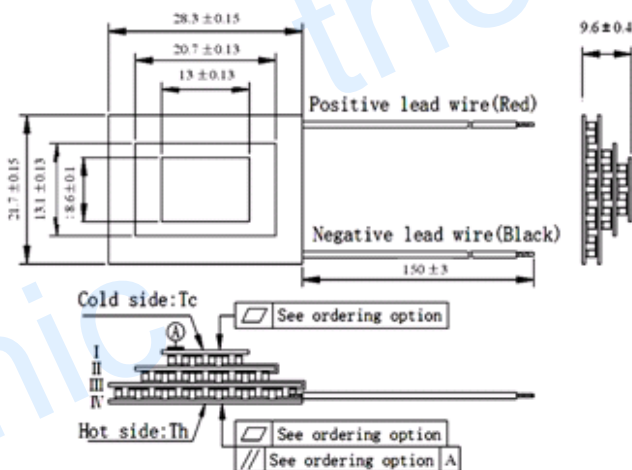
Application

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

Performance Specification Sheet

Th(°C)	27	50	Hot side temperature at environment: dry air, N ₂
DT _{max} (°C)	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 °C
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°C)
2. T200: CuSn (Melting Point= 227 °C)

B. Sealant:

1. NS: No sealing (Standard)
2. SS: Silicone sealant
3. EPS: Epoxy sealant
4. Customer specify sealing

C. Ceramics:

1. Alumina (Al₂O₃, white 96%)(AlO)
2. Beryllia (BeO)

D. Ceramics Surface Options:

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

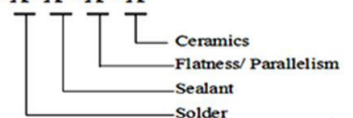
Ordering Option

Suffix	Thickness (mm)	Flatness/ Parallellism (mm)	Lead wire length(mm) Standard/Optional length
TF	0: 9.2 ± 0.3	0: 0.15/0.2	150±3/Specify
TF	1: 9.2 ± 0.15	1: 0.13/0.18	150±3/Specify

Eg. TF01: Thickness 9.2±0.3 (mm) and Flatness/ Parallellism 0.13/0.18

Naming for the Module

TEC3-69-29-11-05-X-X-X-X



TEC3-69-29-11-05-T100-NS-TF01-AIN

T100: BiSn(Tmelt=138°C)

NS: No sealing

AIN: Aluminum Nitride

TF01: Thickness ± 0.3 (mm) and Flatness/ Parallellism 0.13/0.18

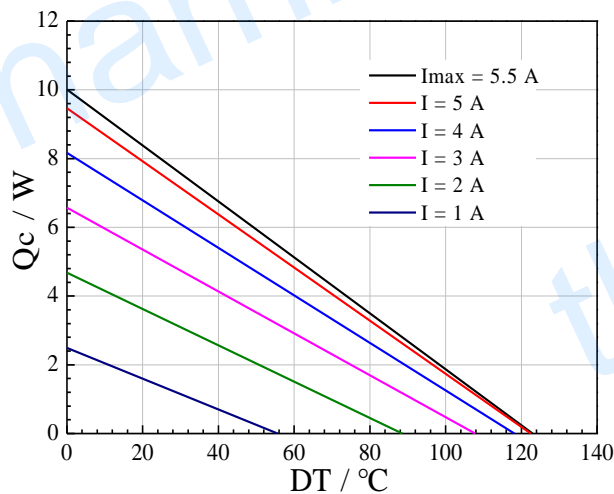
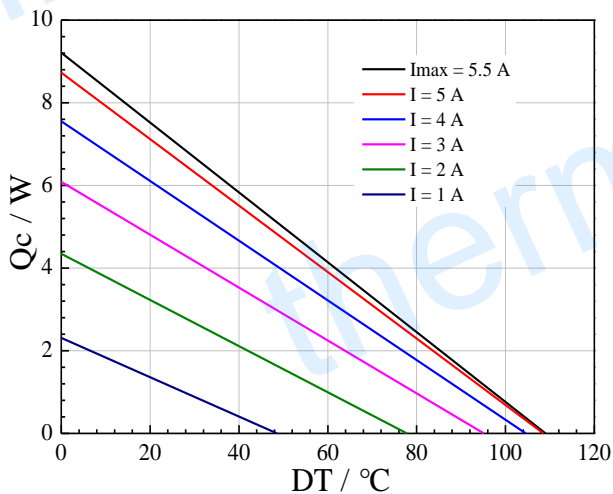
Creative technology with fine manufacturing processes provides you the reliable and quality products.

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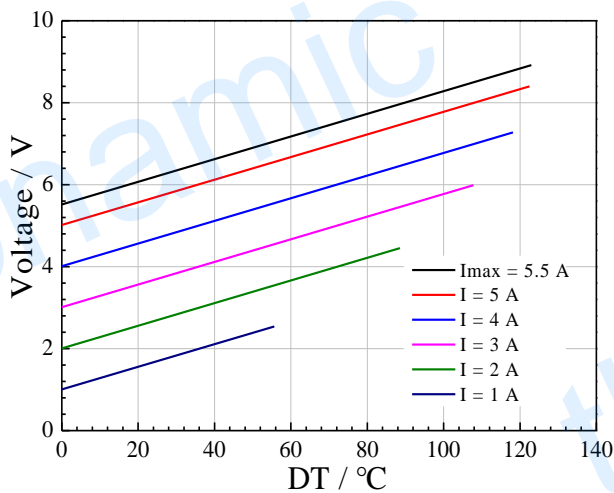
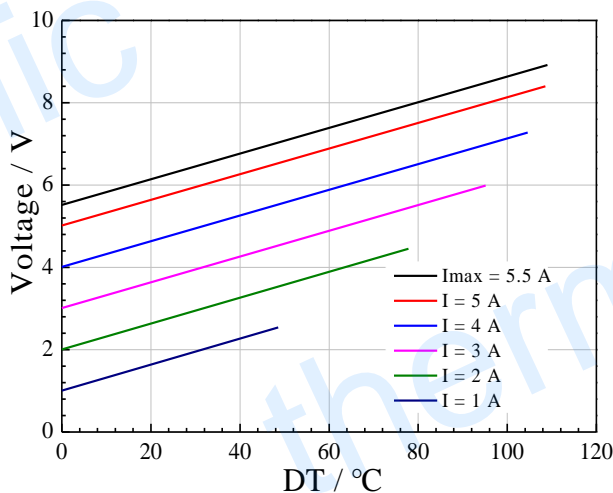
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Performance Curves at Th=27 °C

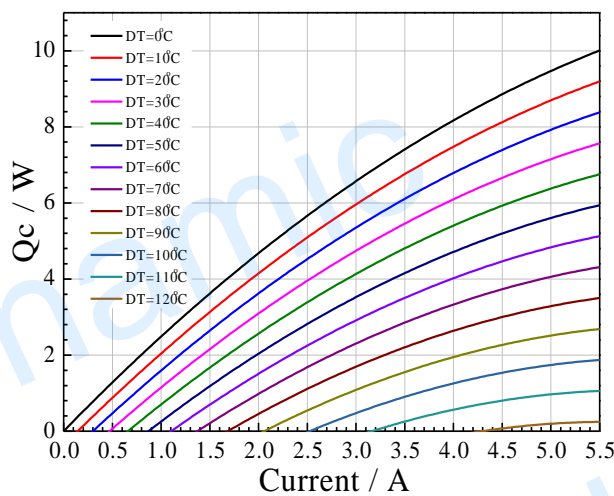
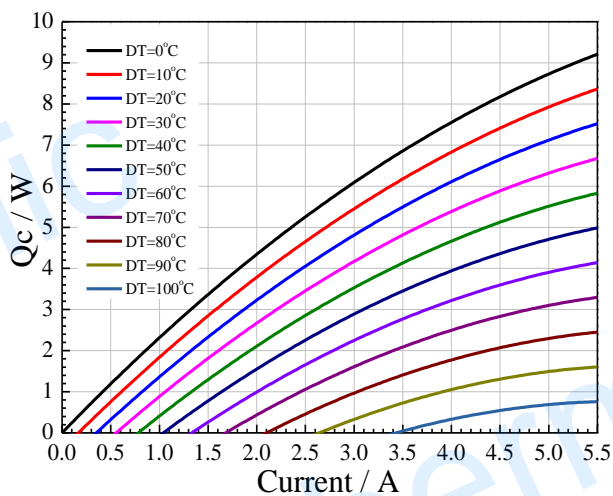
Performance Curves at Th=50 °C



Standard Performance Graph $Q_c = f(DT)$



Standard Performance Graph $V = f(DT)$

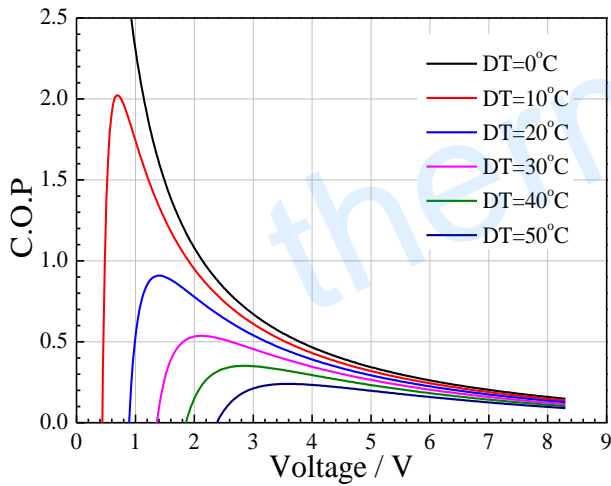


Standard Performance Graph $Q_c = f(I)$

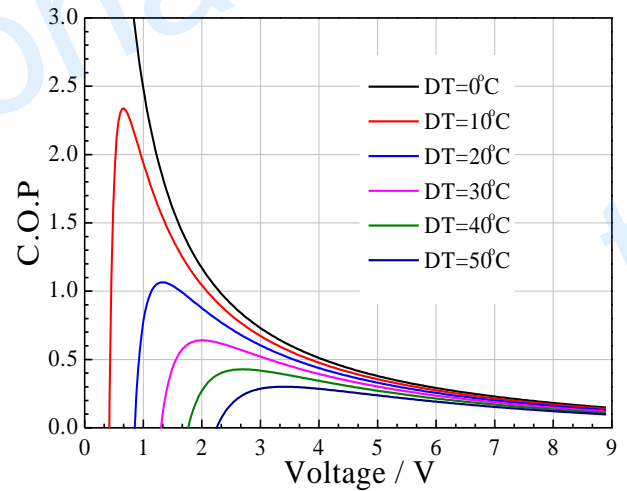
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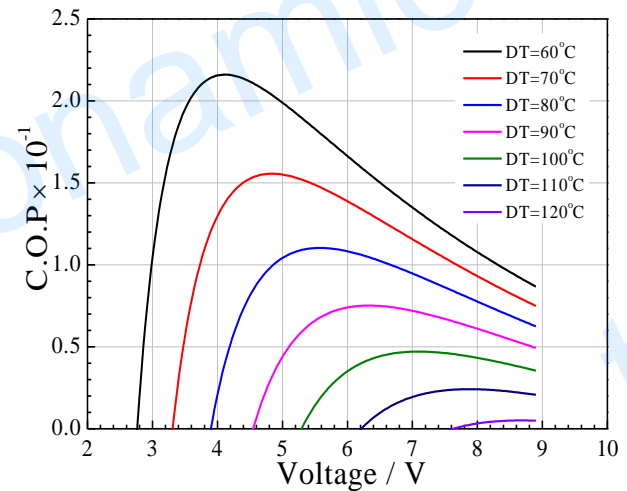
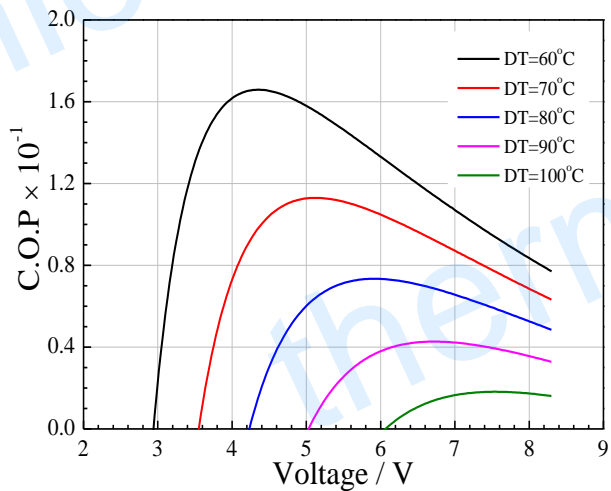
Performance Curves at Th=27 °C



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 60 to 100/120 °C

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

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

Note: All specifications subject to change without notice.