

Specification of Thermoelectric Module

TETC3-69-29-11-05

Description

The TETC3-69-29-11-05 is a 69-29-11 couples module in size of 13mm×8.6mm (top)/28.3mm ×21.7mm (bottom). It is made of selected high performance ingot and fabricated by our unique “soft” processes to achieve superior cooling/heating performance. All the dices and metallic parts are coated with a layer of thin film for anti-corrosion and oxidation in high temperature that ensure the module can work in high temperature for long life. It is good for the need of frequently cooling down and heating up to 180 °C applications. 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

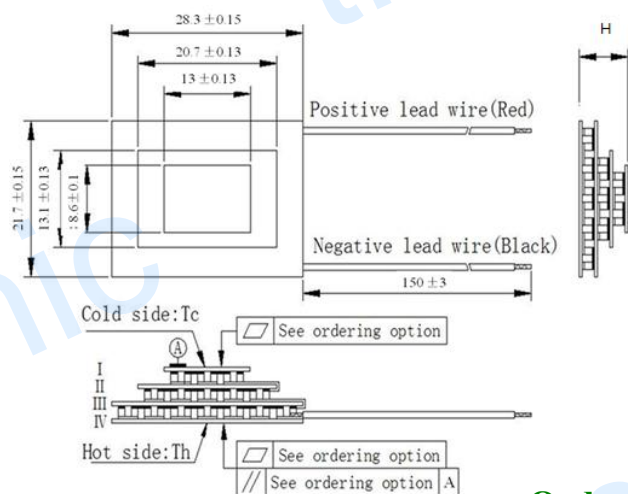
Application

- 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)	112	125	Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side
U _{max} (Voltage)	8.3	9.0	Voltage applied to the module at DT _{max}
I _{max} (Amps)	4.5	4.5	DC current through the modules at DT _{max}
Q _{Cmax} (Watts)	7.25	7.77	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 (T_{melt}=138°C)
2. T200: CuAgSn (T_{melt} = 217°C)
3. T240: SbSn (T_{melt} = 240°C)

B. Sealant:

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

C. Ceramics:

1. Alumina (Al₂O₃, 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: 9.3 ± 0.1	0: 0.08/0.08	150±3/Specify

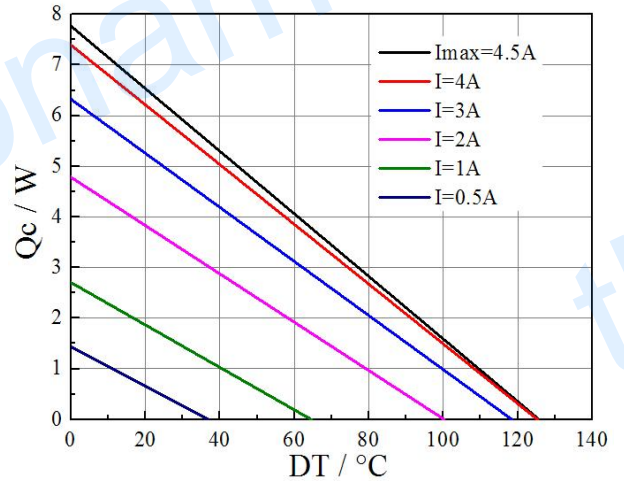
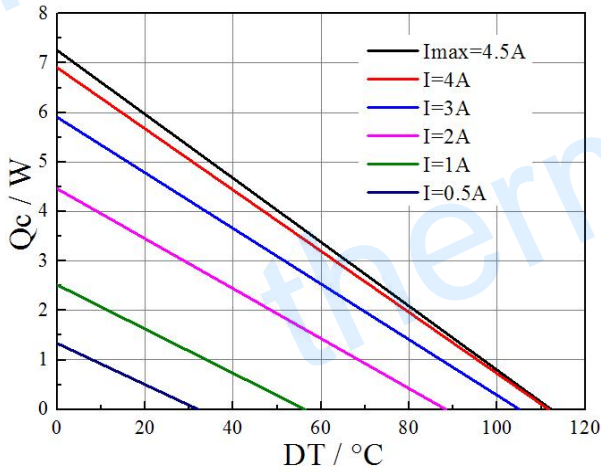
Creative technology with fine manufacturing processes provides you the reliable and quality products.

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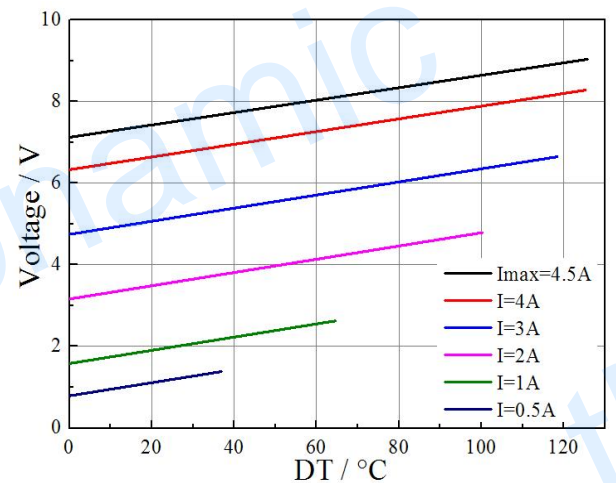
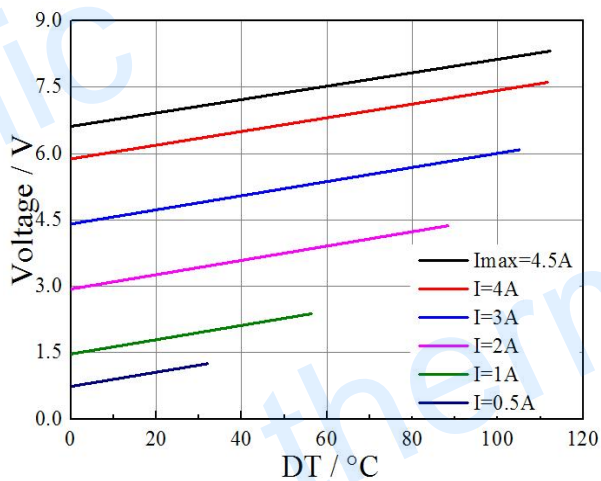
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Performance Curves at Th=27 °C

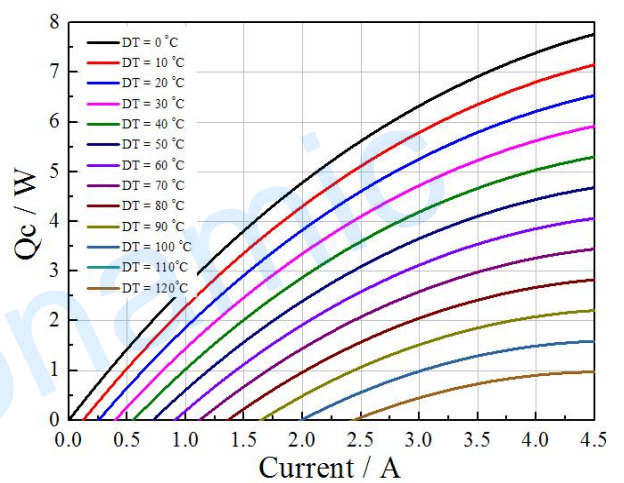
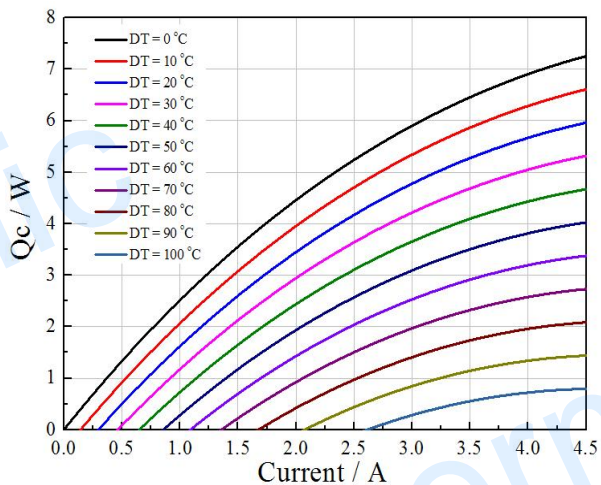
Performance Curves at Th=50 °C



Standard Performance Graph $Q_c = f(DT)$



Standard Performance Graph $V = f(DT)$

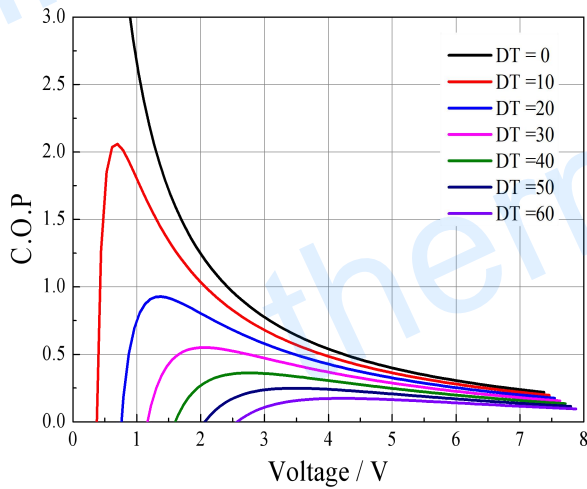


Standard Performance Graph $Q_c = f(I)$

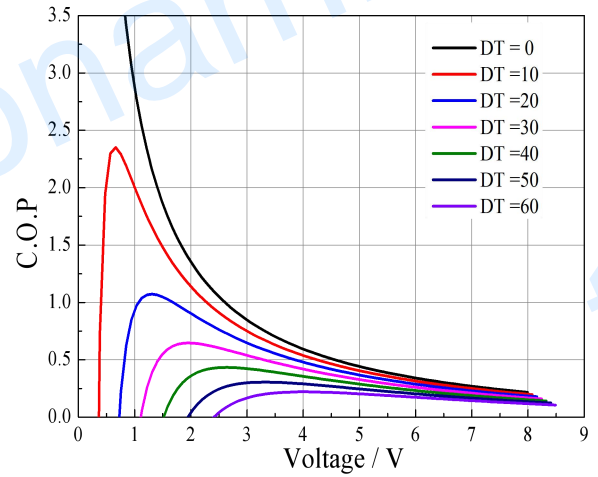
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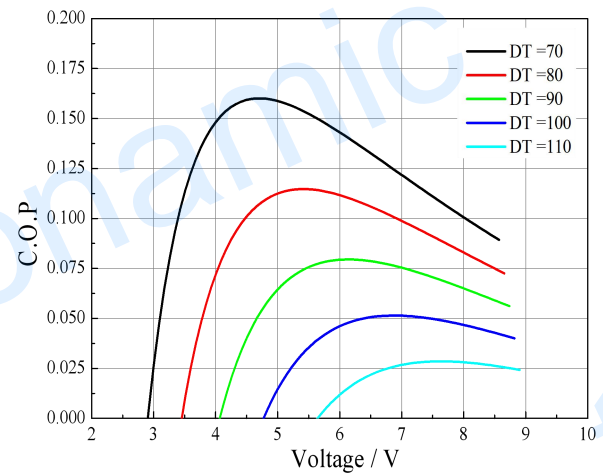
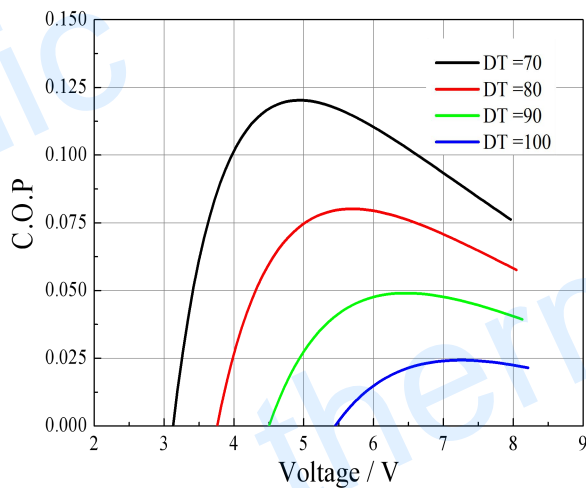
Performance Curves at Th=27 °C



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 100/110 °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
- 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.