

Specification of Thermoelectric Module

TEC2-127-71-042

Description

The TEC2-127-71-042 is a multistage module designed for greater temperature differential cooling, good for cooling and heating up to 100 °C applications. It is a 127-71 couples module in size of 30 mm × 30 mm (top) / 40 mm × 40 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

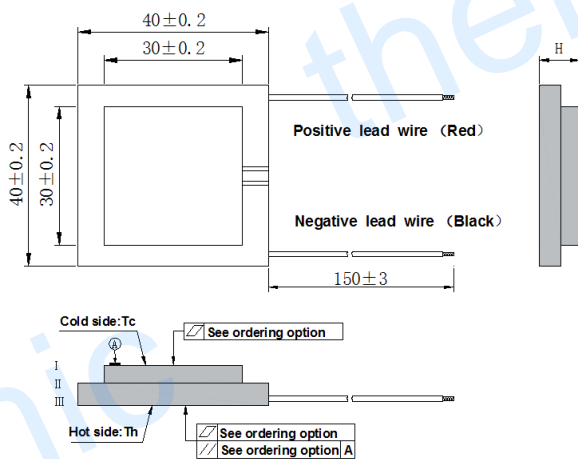
- Infrared (IR) Sensors
- CCD Sensor
- Gas Analyzers
- Calibration Equipment
- CPU cooler and scientific instrument
- Photonic and medical systems
- Guidance Systems

Performance Specification Sheet

Th (°C)	27	50	Hot side temperature at environment: dry air, N ₂
DT _{max} (°C)	88	98	Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side
U _{max} (Voltage)	15.4	16.8	Voltage applied to the module at DT _{max}
I _{max} (amps)	4.2	4.2	DC current through the modules at DT _{max}
Q _{Cmax} (Watts)	28.2	30.3	Cooling capacity at cold side of the module under DT=0 °C
AC resistance (ohms)	3.04	3.27	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: CuSn (T_{melt} = 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%)
2. Aluminum Nitride (AlN)

D. Ceramics Surface Options:

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

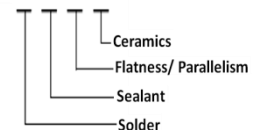
Ordering Option

Suffix	Thickness (mm)	Flatness/ Parallelism (mm)	Lead wire length(mm) Standard/Optional length
TF	0: 6.7 ± 0.3	0: Face II 0.02/0.02, Face III 0.025/0.025	150 ± 3 / Specify
TF	1: 6.7 ± 0.2	1: Face II 0.015/0.015, Face III 0.02/0.02	150 ± 3 / Specify
TF	2: 6.7 ± 0.1	2: Face II 0.01/0.01, Face III 0.015/0.015	150 ± 3 / Specify

Eg. TF01: Thickness 6.7 ± 0.3(mm) and Flatness Face II 0.015/0.015, Face III 0.02/0.02

Naming for the Module

TEC2-127-71-042- X - X - X - X



TEC2-127-71-042-T100-SS-TF01-AIO

T100: BiSn (T_{melt}=138°C)

SS: Silicone sealant

AIO: Alumina (Al₂O₃, white 96%)

TF01: Thickness ± 0.3(mm) and Face II 0.015/0.015, Face III 0.02/0.02 (mm)

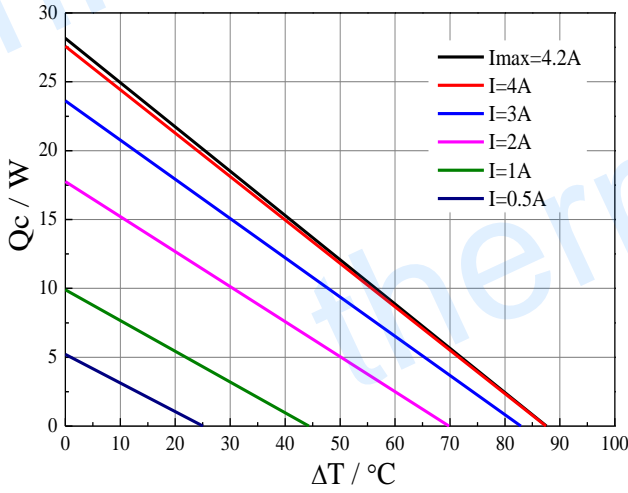
Creative technology with fine manufacturing processes provides you the reliable and quality products

Tel: +86-791-88198288 Fax: +86-791-88198308 Email: sales@thermonamic.com.cn Web Site: www.thermonamic.com.cn

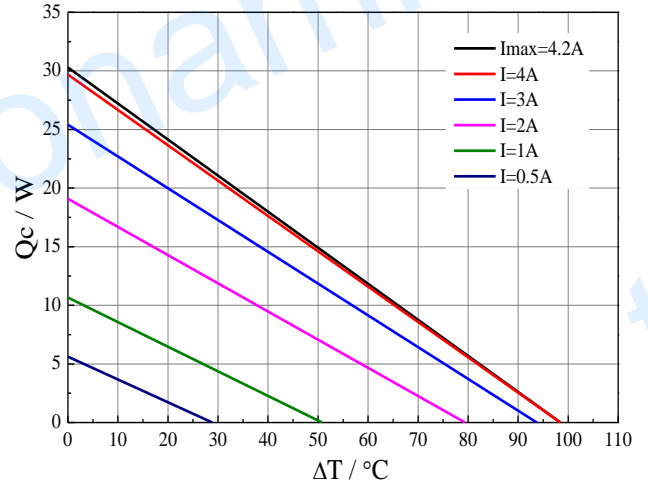
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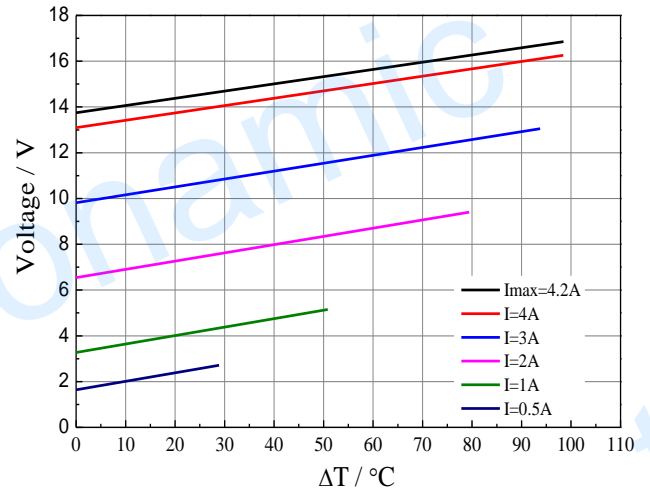
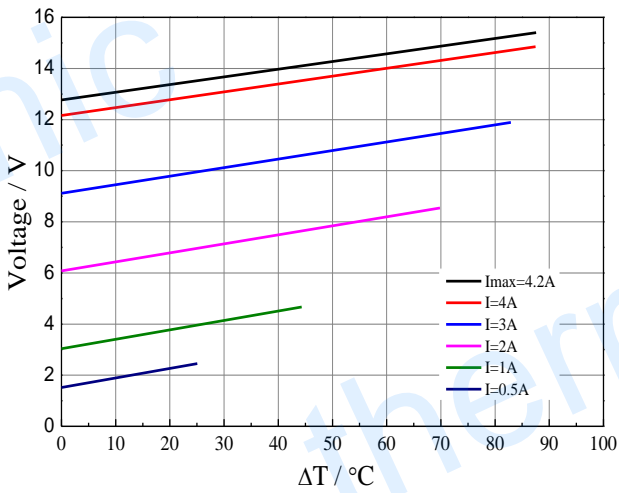
Performance Curves at Th=27 °C



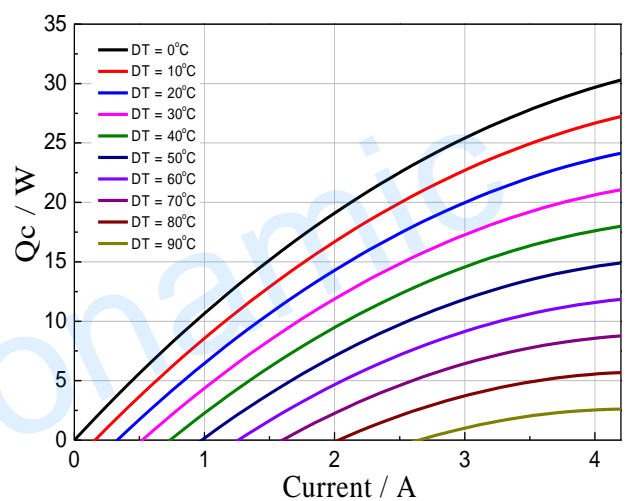
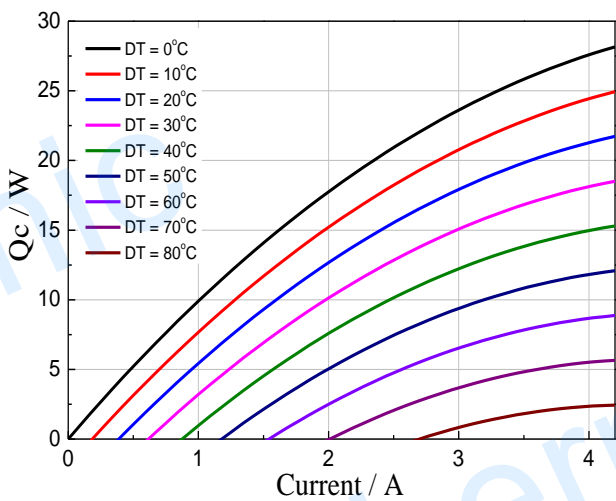
Performance Curves at Th=50 °C



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



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



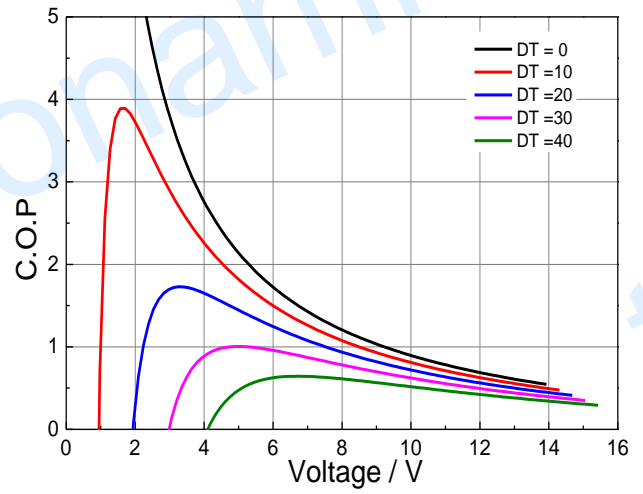
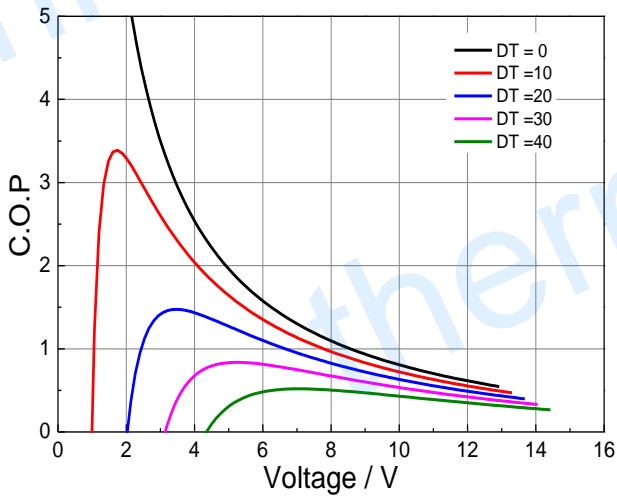
Standard Performance Graph $Q_c = f(V)$

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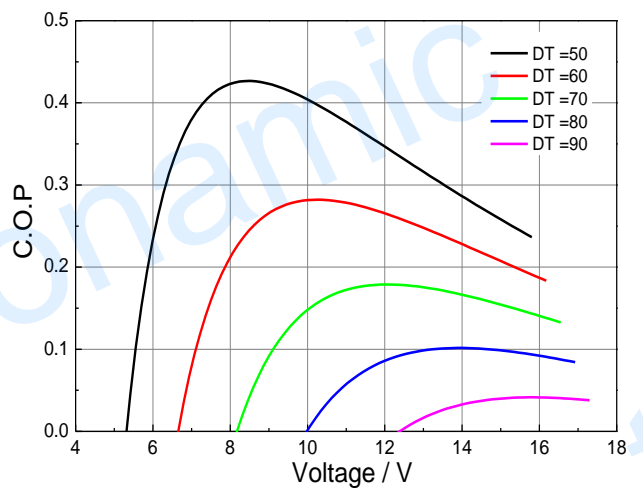
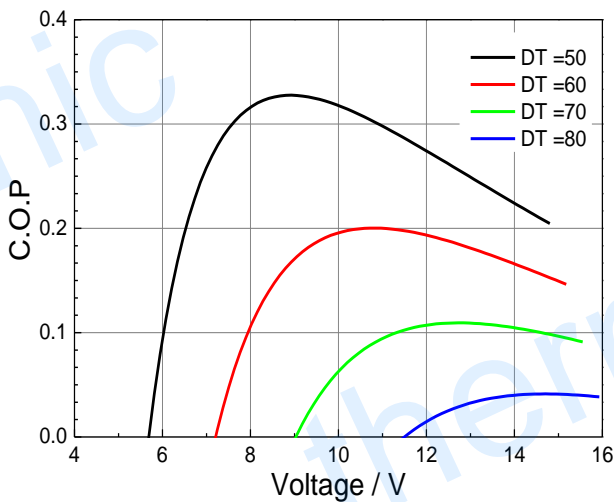
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Performance Curves at Th=27 °C

Performance Curves at Th=50 °C



Standard Performance Graph COP = f(V) of DT ranged from 0 to 40 °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

- Cold side of the module stuck on the object being cooled
- Hot side of the module mounted on a heat radiator
- Storage module below 100 °C
- Operation below I_{max} or V_{max}
- Work under DC