

Specification of Thermoelectric Module

TEC5-127-71-31-17-8-04

Description

The TEC5-127-71-31-17-8-04 is a multistage module designed for greater temperature differential cooling, good for cooling and heating up to 100 °C applications. It 127-71-31-17-8 couples module in size of 10mm×10mm (top)/40mm ×40mm (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

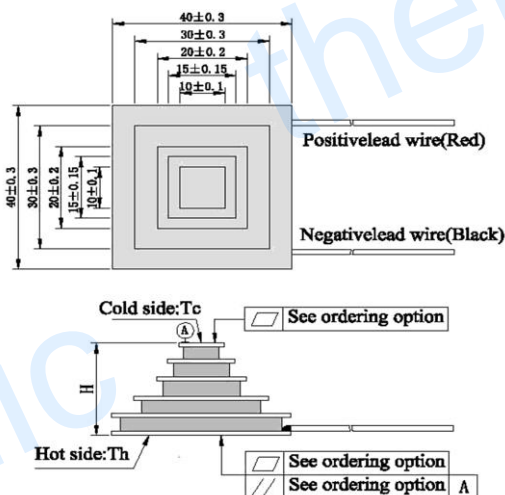
- Infrared (IR) Sensors
- CCD Sensor
- Gas Analyzers
- Calibration Equipment
- CPU cooler and scientific instrument
- Photonic and medical systems
- Guidance Systems

Performance Specification Sheet

| | | | |
|----------------------------|------|------|---|
| Th (°C) | 27 | 50 | Hot side temperature at environment: dry air, N ₂ |
| DT _{max} (°C) | 128 | 143 | Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side |
| U _{max} (Voltage) | 13.7 | 14.9 | Voltage applied to the module at DT _{max} |
| I _{max} (Amps) | 4.4 | 4.4 | DC current through the modules at DT _{max} |
| Q _{Cmax} (Watts) | 6.62 | 7.06 | Cooling capacity at cold side of the module under DT=0 °C |
| AC resistance (Ohms) | 2.47 | 2.66 | 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=138 °C)
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

C. Ceramics:

1. Alumina (Al₂O₃, white 96%)
2. Aluminum Nitride (AlN)

D. Ceramics Surface Options:

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

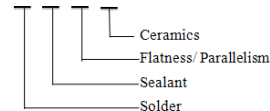
Ordering Option

| Suffix | Thickness (mm) | Flatness/ Parallelism (mm) | Lead wire length(mm) Standard/Optional length |
|--------|----------------|----------------------------|---|
| TF | 0:13.7±0.3 | 0:0.15/0.18 | 50±5/Specify |
| TF | 1:13.7±0.15 | 1:0.1/0.13 | 50±5/Specify |

Eg. TF01: Thickness 13.7 ±0.3 (mm) and Flatness 0.1 / 0.13 (mm)

Naming for the Module

TEC5-127-71-31-17-8-04-X -X - X - X



TEC5-127-71-31-17-8-04- T100 - NS - TF00 - AlO

T100: Solder, BiSn (Melting Point=138 °C)

NS: No sealing

AlO: Alumina white 96%

TF00: Thickness ±0.3(mm) and Flatness/Parallelism 0.1/0.1mm

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

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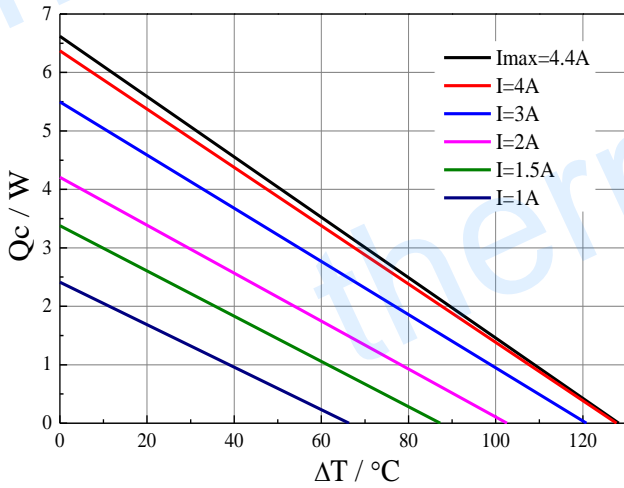
Email: sales@thermonamic.com.cn

Web Site: www.thermonamic.com.cn

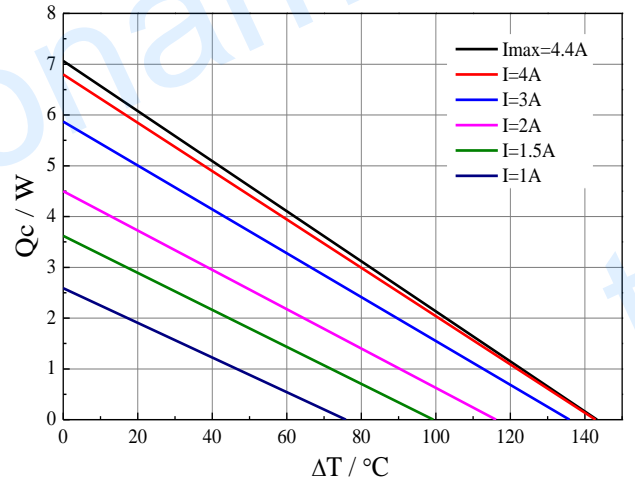
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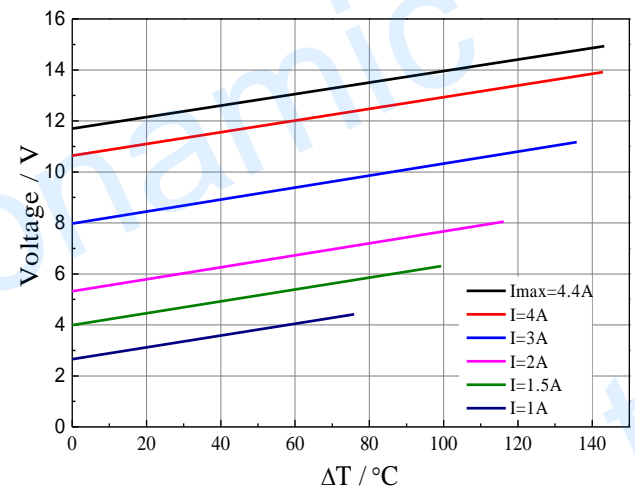
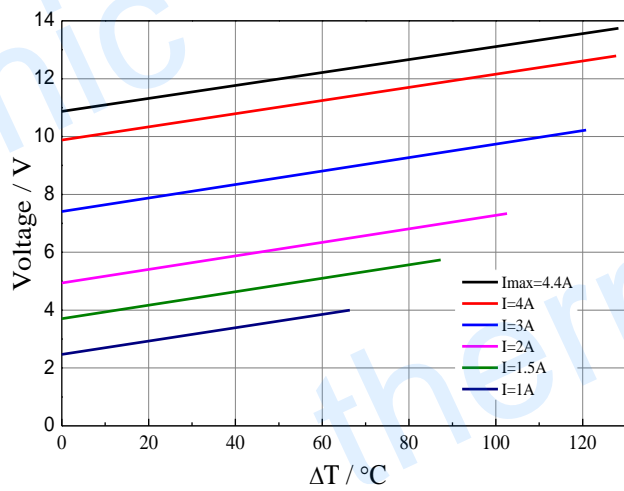
Performance Curves at Th=27 °C



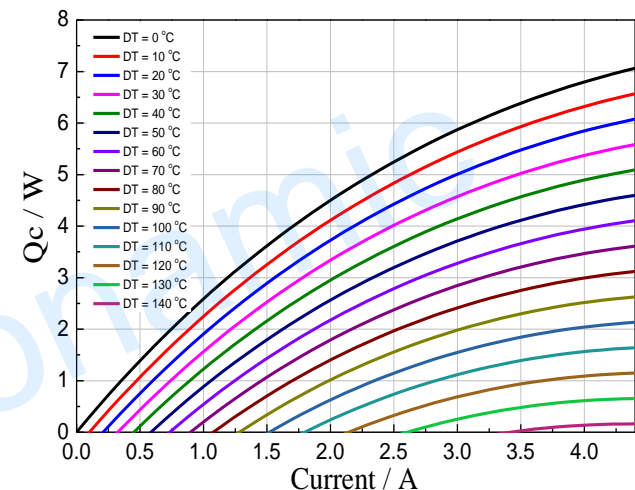
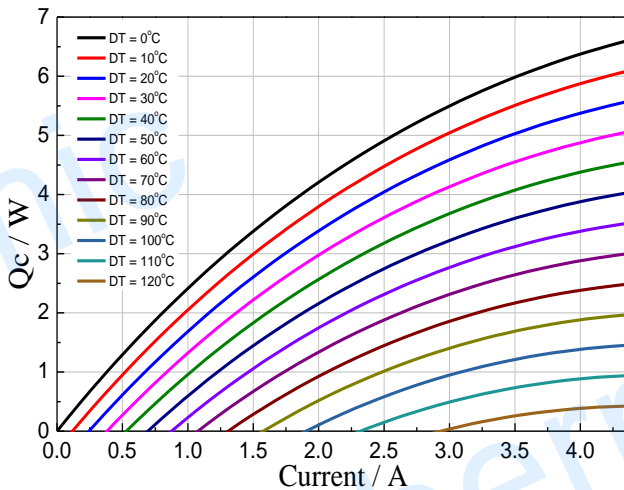
Performance Curves at Th=50 °C



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



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

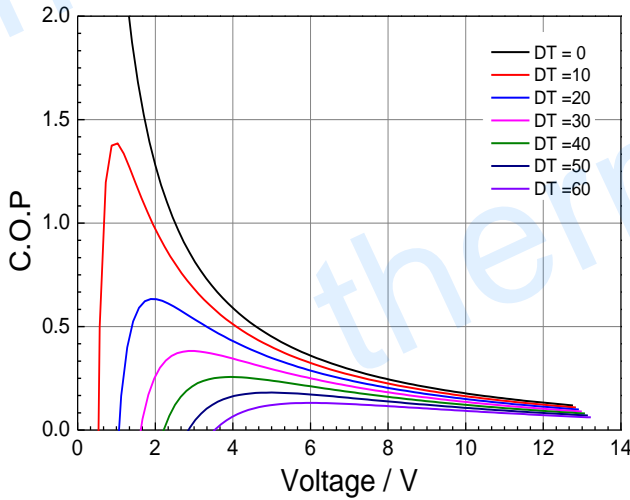


Standard Performance Graph $Q_c = f(V)$

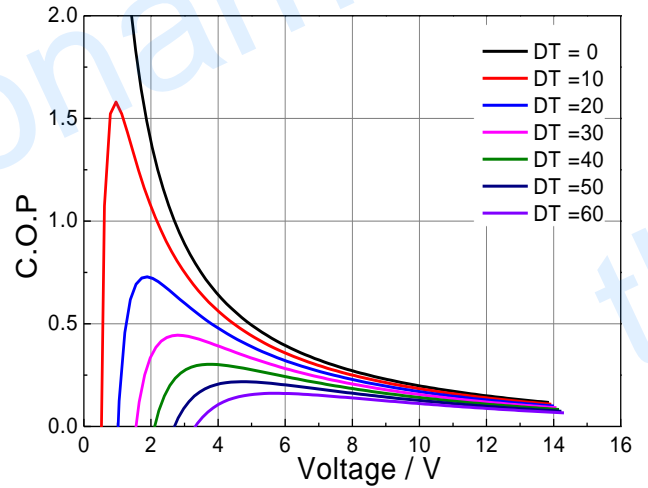
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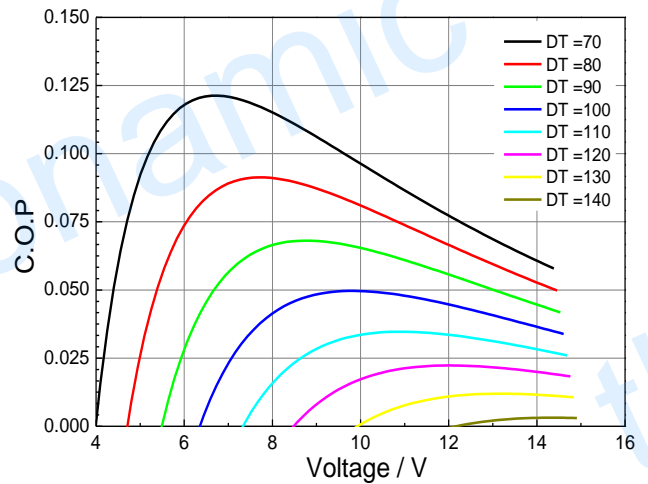
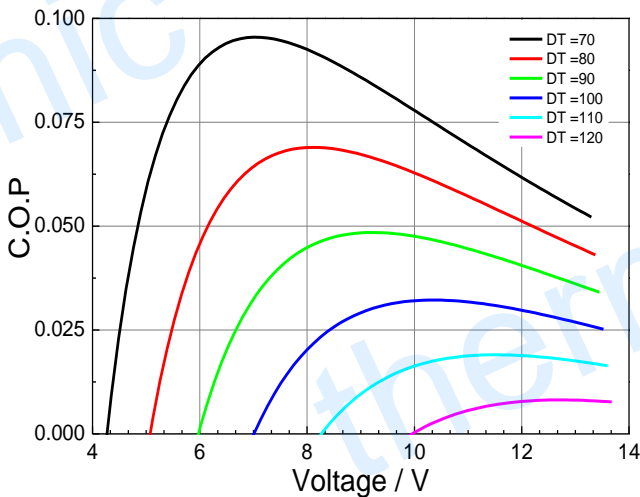
Performance Curves at Th=27 °C



Performance Curves at Th=50 °C



Standard Performance Graph COP = f(V) of ΔT ranged from 0 to 60 °C



Standard Performance Graph COP = f(V) of ΔT ranged from 70 to 120/140 °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 stucked 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