

Specification of Thermoelectric Module

TETC3-125-125-125-09CH4.7

Description

The TETC3-125-125-125-09 is a multistage module designed for greater temperature differential cooling, good for cooling and heating up to 100 °C applications. It is a 125-125-125 couples module in size of 40mm ×40mm (top/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

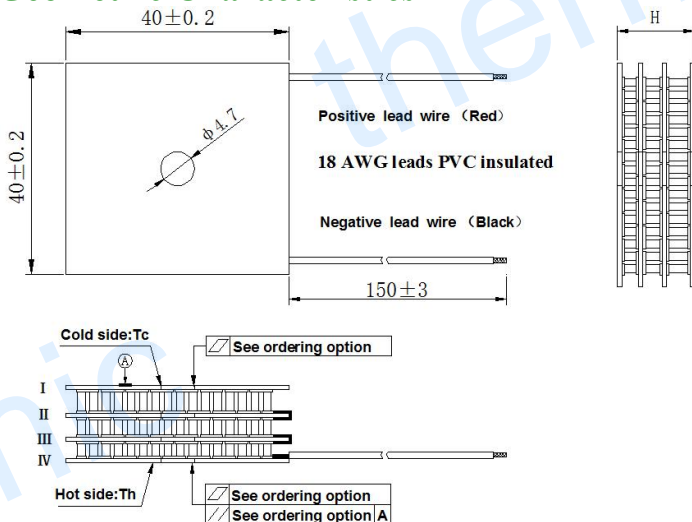
Application

- 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) | 104 | 117 | Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side |
| U _{max} (Voltage) | 14.3 | 15.5 | Voltage applied to the module at DT _{max} |
| I _{max} (Amps) | 8.7 | 8.7 | DC current through the modules at DT _{max} |
| Q _{Cmax} (Watts) | 34.5 | 37 | Cooling capacity at cold side of the module under DT=0 °C |
| AC resistance (Ohms) | 1.40 | 1.49 | 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

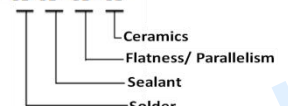
Ordering Option

| Suffix | Thickness (mm) | Flatness/ Parallelism (mm) | Lead wire length(mm) Standard/Optional length |
|--------|----------------|----------------------------|---|
| TF | 0: 10.3± 0.4 | 0: 0.1/0.1 | 150±3/Specify |
| TF | 1: 10.3± 0.2 | 1: 0.05/0.05 | 150±3/Specify |

Eg. TF11: Thickness 10.3±0.2 (mm) and Flatness/ Parallelism 0.05/0.05 (mm)

Naming for the Module

TETC3-125-125-125-09CH4.7- X-X-X-X



TETC3-125-125-125-09CH4.7-T200-EPS-TF11-AIO

CH4.7: Center hole diameter 4.7mm T200: CuSn (T_{melt}=227°C)

EPS: Epoxy sealant

AIO: Alumina (Al₂O₃, white 96%)

TF11: Thickness ±0.2(mm) and Flatness/ Parallelism 0.05/0.05 (mm)

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

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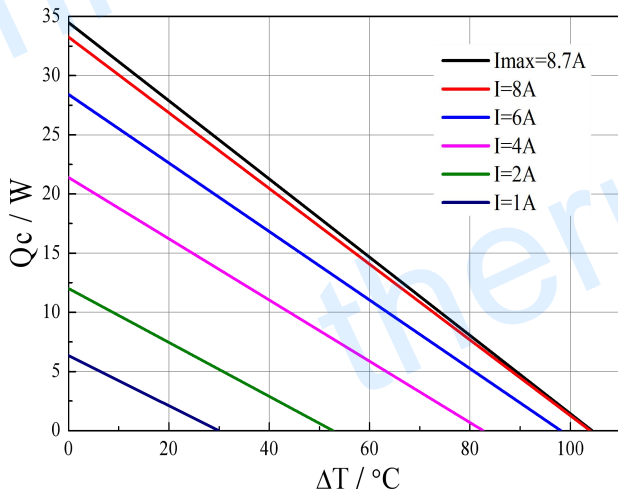
Email: sales@thermonamic.com.cn

Web Site: www.thermonamic.com.cn

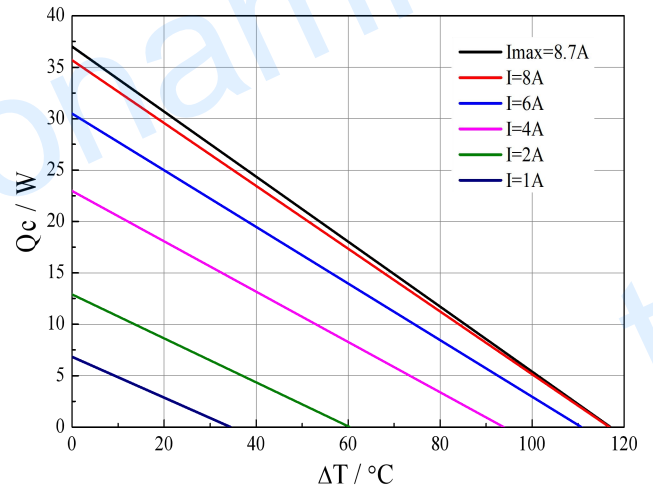
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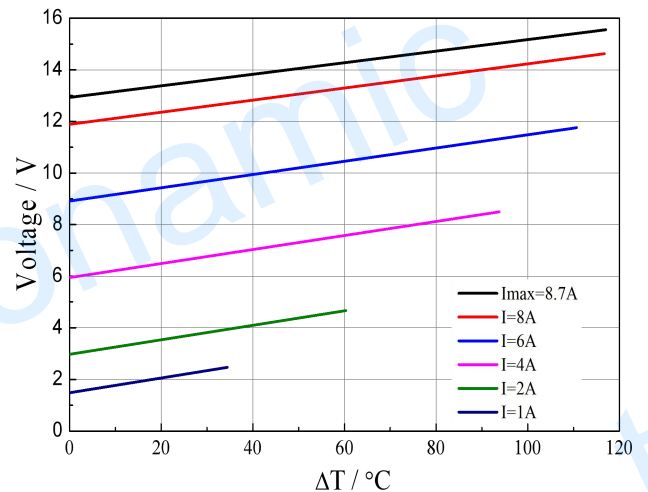
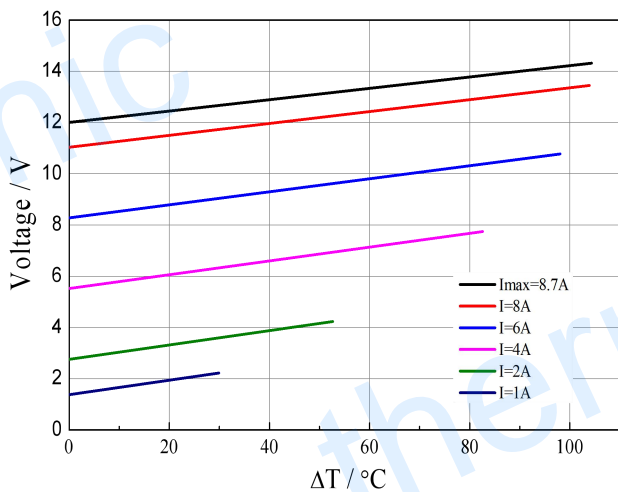
Performance Curves at Th=27 °C



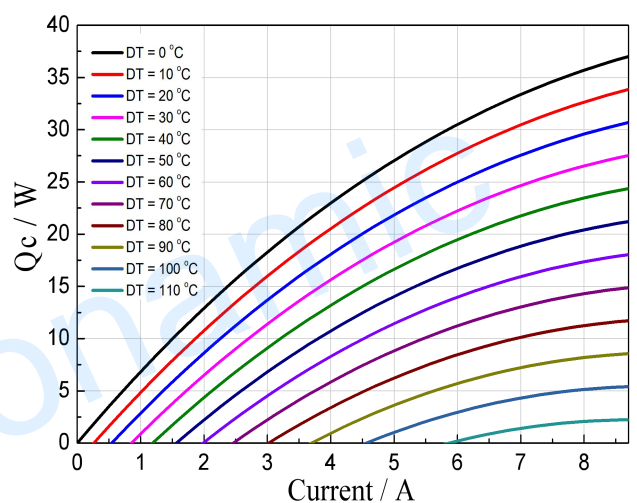
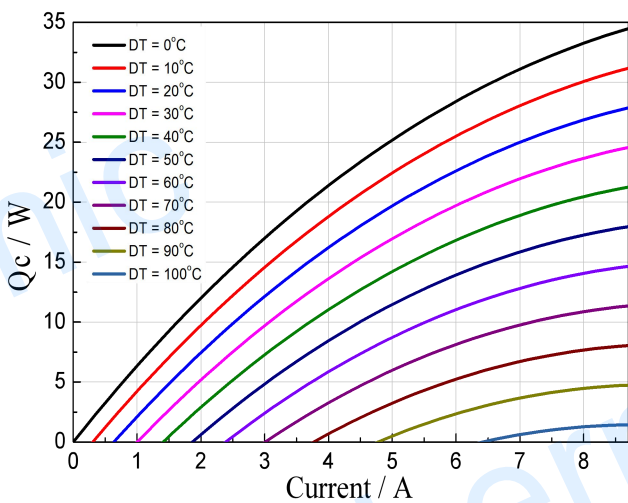
Performance Curves at Th=50 °C



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



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

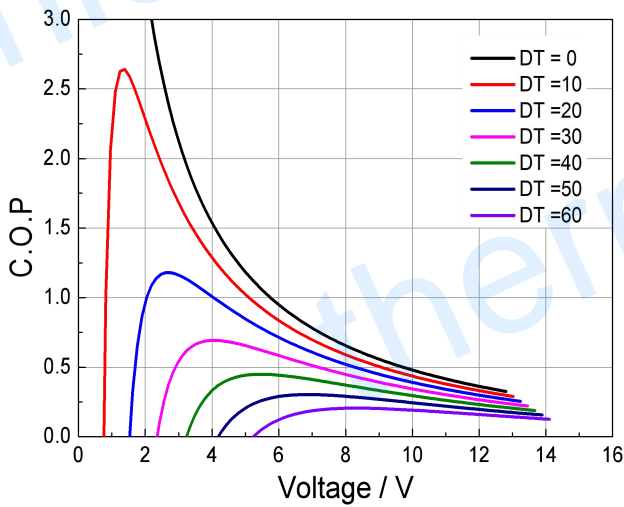


Standard Performance Graph $Q_c = f(I)$

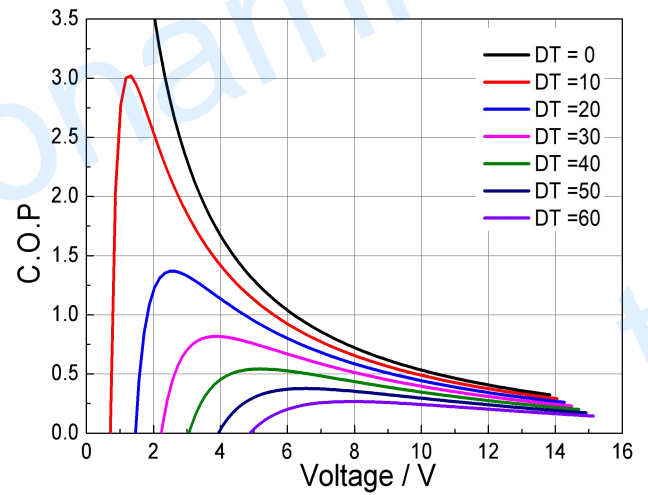
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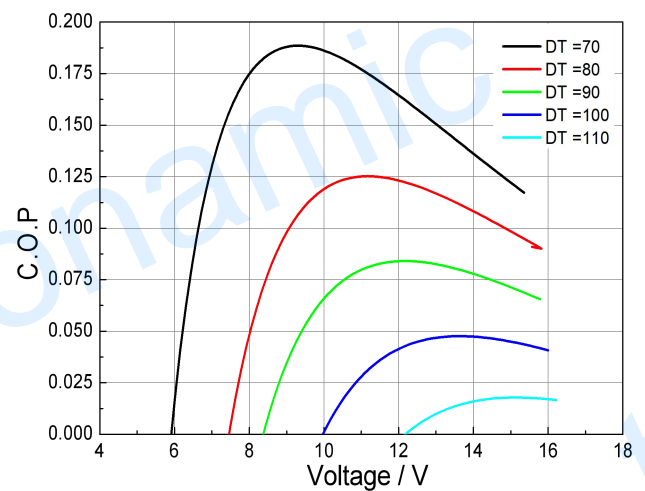
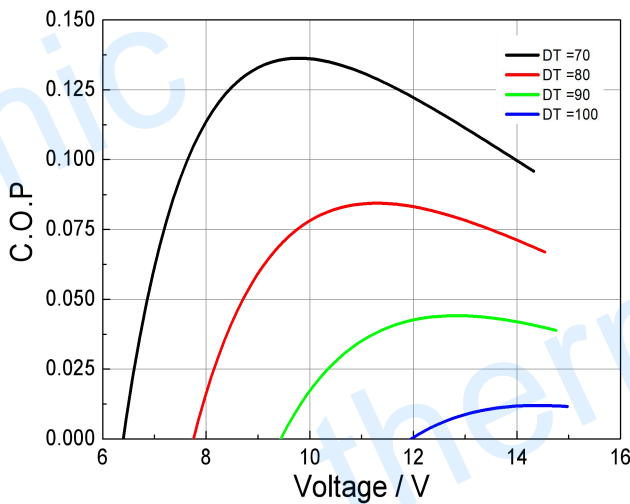
Performance Curves at $T_h=27\text{ }^\circ\text{C}$



Performance Curves at $T_h=50\text{ }^\circ\text{C}$



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



Standard Performance Graph COP = f(V) of DT ranged from 70 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
- Storage module below 100 °C
- Operation below I_{max} or V_{max}
- Work under DC

Note: All specifications subject to change without notice.