

Specification of Thermoelectric Module

TEC3-127-127-127-05T100-SS-TF11-AIO

Description

The TEC3-127-127-127-05 is a multistage module designed for greater temperature differential cooling, good for the need of cooling down and heating up to 90°C applications. It is a 127-127-127 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

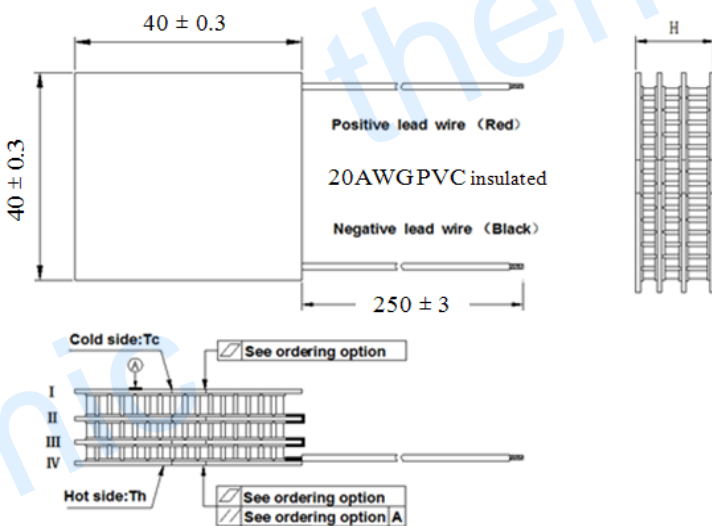
Application

- 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) | 105 | 117 | Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side |
| U _{max} (Voltage) | 14.6 | 16.1 | Voltage applied to the module at DT _{max} |
| I _{max} (Amps) | 5.2 | 5.2 | DC current through the modules at DT _{max} |
| Q _{Cmax} (Watts) | 19.9 | 23.0 | Cooling capacity at cold side of the module under DT=0 °C |
| AC resistance (Ohms) | 2.80 | 3.01 | The module resistance is tested under AC |
| Tolerance | 10% | | For thermal and electricity parameters |

Geometric Characteristics Dimensions in millimeters



Manufacturing Options

A. Solder:

T100: BiSn (T_{melt}=138°C)

B. Sealant:

SS: Silicone sealing

C. Ceramics:

AIO: Alumina (Al₂O₃, white 96%)

D. Ceramics Surface Options:

Blank ceramics

Ordering Option

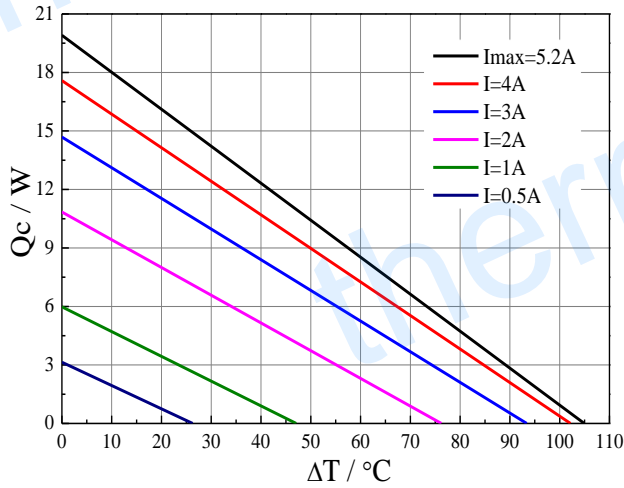
| Suffix | Thickness (mm) | Flatness/ Parallelism (mm) | Lead wire length(mm) Standard/Optional length |
|--------|----------------|----------------------------|---|
| TF | 1: 11.7± 0.2 | 1: 0.08/0.08 | 150±3/Specify |

Note: The minimum and the maximum Processing Temperature of TEC : 0°C ~ 90°C

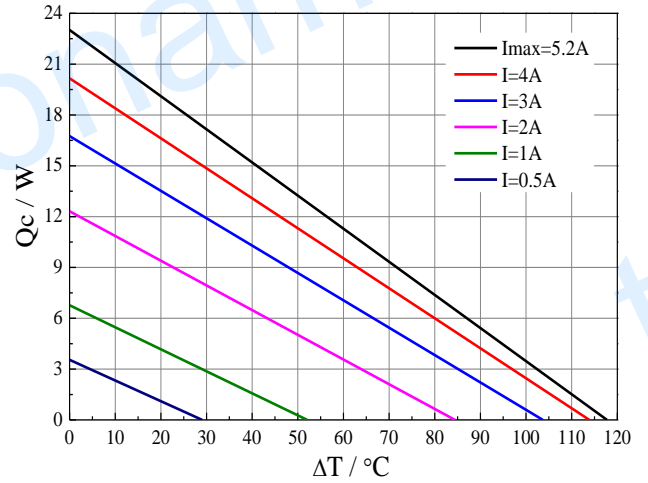
Specification of Thermoelectric Module

TEC3-127-127-127-05T100-SS-TF11-A10

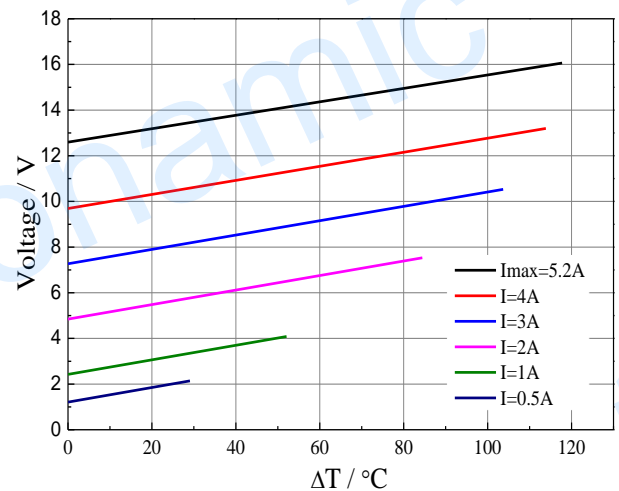
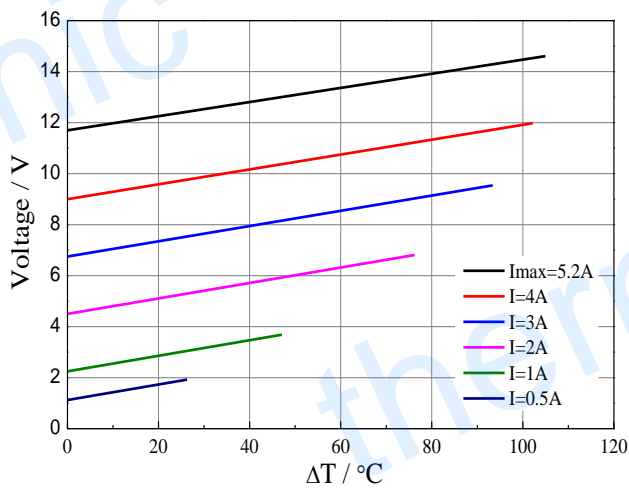
Performance Curves at $T_h=27^\circ\text{C}$



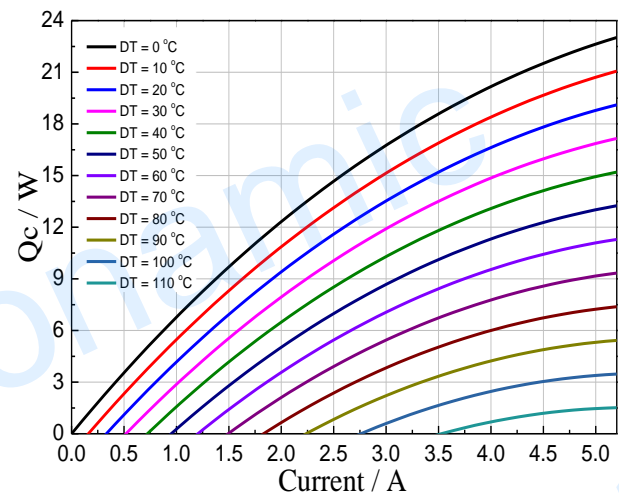
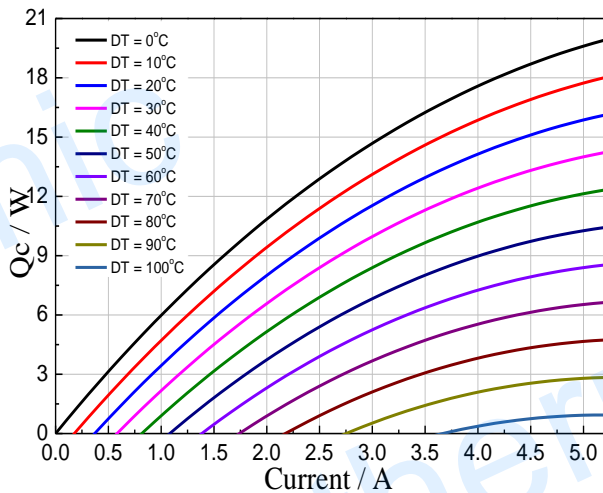
Performance Curves at $T_h=50^\circ\text{C}$



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



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

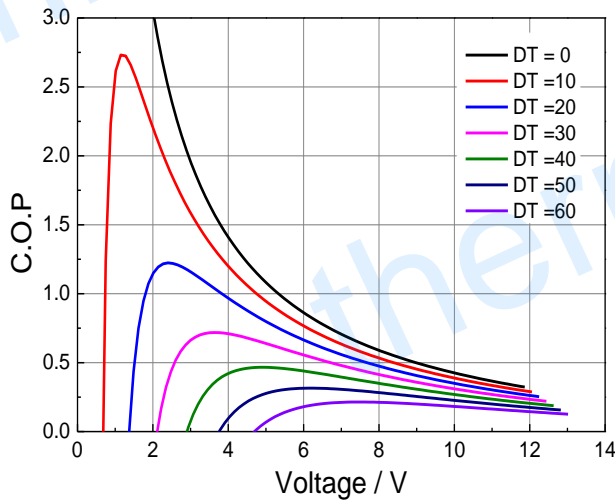


Standard Performance Graph $Q_c = f(I)$

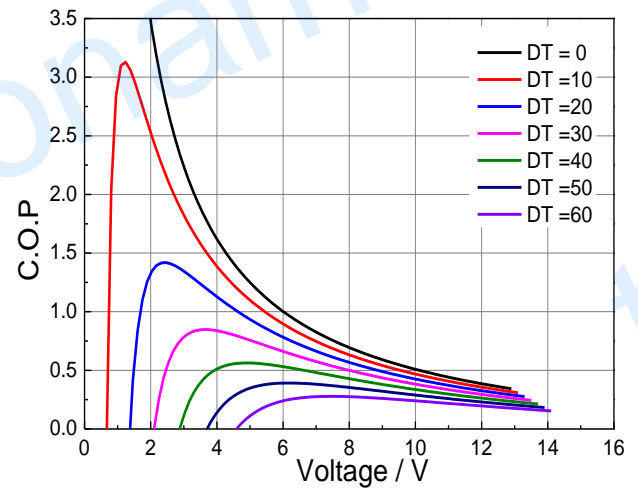
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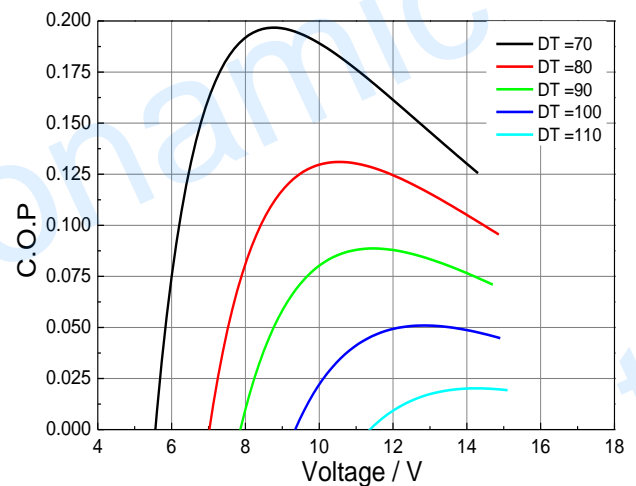
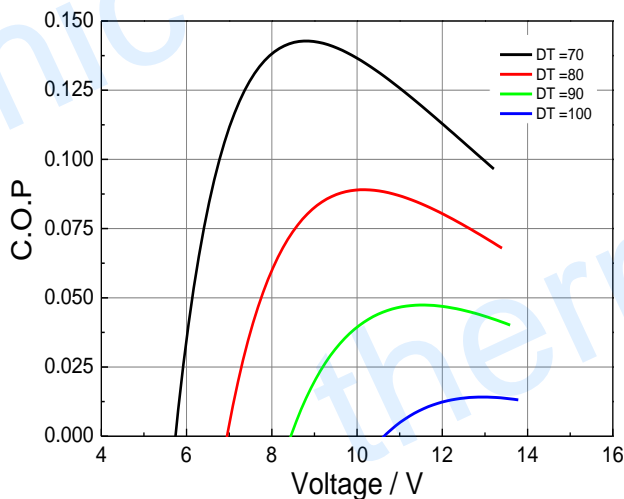
Performance Curves at Th=27 °C



Performance Curves at Th=50 °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

- 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

Note: All specifications subject to change without notice.