Specification of Thermoelectric Module

TEC2-127-127-05

Description

The TEC2-127-127-05 is a multistage module designed for greater temperature differential cooling, good for cooling and heating up to 100 ℃ applications. It is a 127-127 couples module in size of 40 mm × 40 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

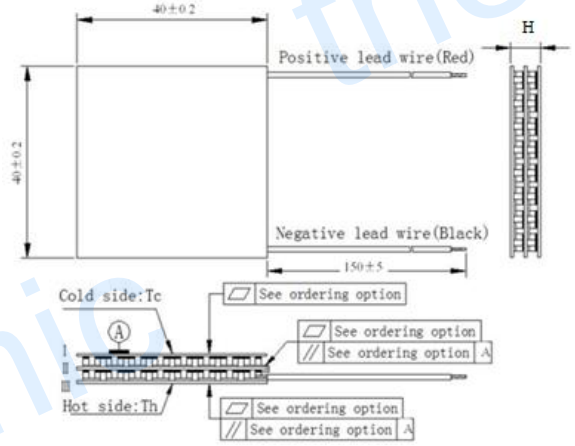
Application

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

Performance Specification Sheet

Th (℃)	27	50	Hot side temperature at environment: dry air, N_2
DT_{max} (℃)	93	104	Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side
U_{max} (Voltage)	14.5	16.7	Voltage applied to the module at DT_{max}
I_{max} (Amps)	5.5	5.5	DC current through the modules at DT_{max}
Q_{Cmax} (Watts)	39.5	42.2	Cooling capacity at cold side of the module under DT=0 ℃
AC resistance (Ohms)	2.5	2.75	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 (Melting Point=138 ℃)
2. T200: CuSn (Melting Point= 227 ℃)

B. Sealant:

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

C. Ceramics:

1. Alumina (Al_2O_3, white 96%)(AlO)
2. Aluminum Nitride (AlN)

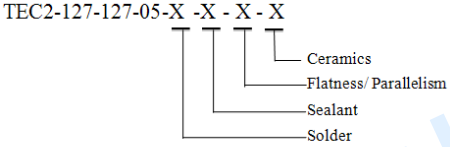
D. Ceramics Surface Options:

1. Blank ceramics (not metalized)
2. Metalized (Copper-Nickel plating)

Ordering Option

Suffix	Thickness (mm)	Flatness/ Parallelism (mm)	Lead wire length(mm) Standard/Optional length
TF	0: 7.8±0.3	0: Face II 0.13/0.13 Face III 0.15/0.15	125 ±5 / Specify
TF	1: 7.8 ±0.2	1: Face II 0.1/0.1, Face III 0.13/0.13	125 ±5 / Specify
TF	2: 7.8 ±0.1	2: Face II 0.08/0.08, Face III 0.1/0.1	125 ±5 / Specify
Eg. TF01: Thickness ±0.3(mm) and Flatness Face II 0.1/0.1, Face III 0.13/0.13			

Naming for the Module



TEC2-127-127-05-T100 - NS - TF00 - AlO
T100: Solder, BiSn (Melting Point=138 ℃)
NS: No sealing AlO: Alumina white 96%
TF01: Thickness ±0.3(mm) and Flatness/Parallelism 0.13/0.13mm)

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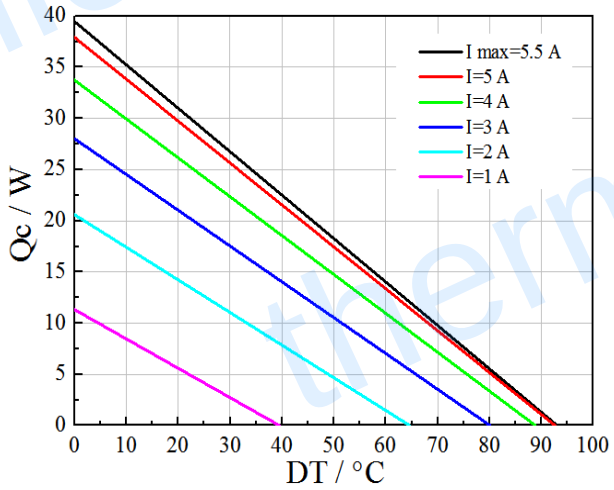
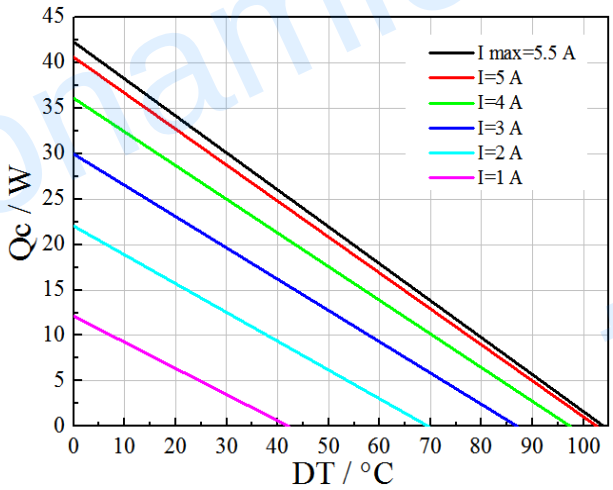
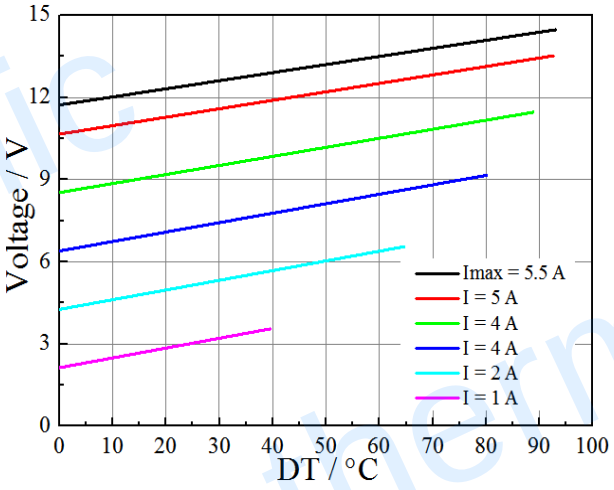
Performance Curves at Th=27 ℃

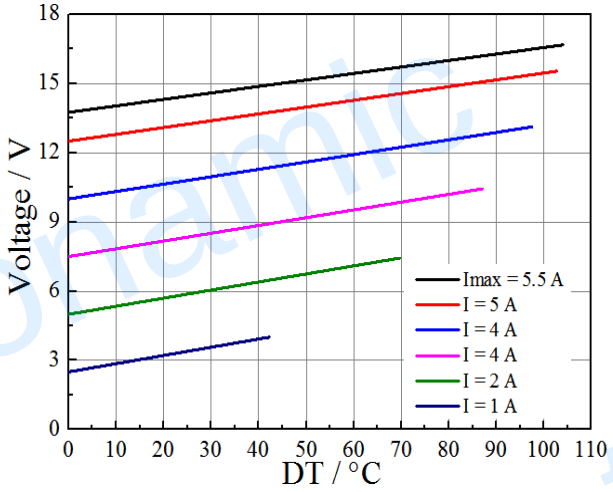


Performance Curves at Th=50 ℃

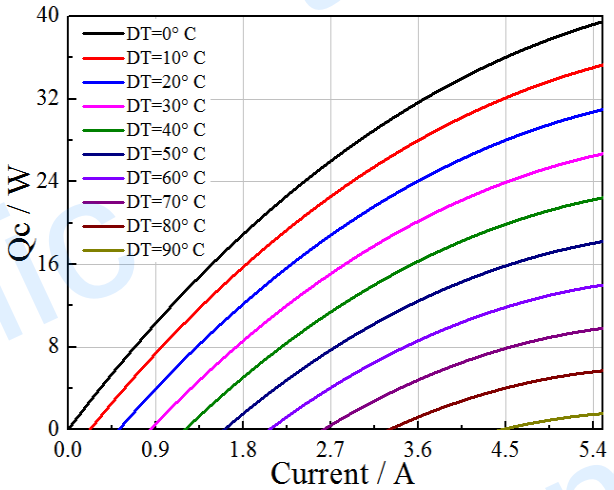


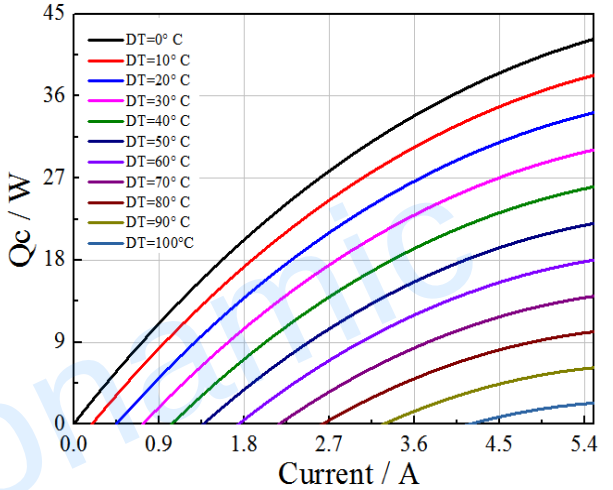
Standard Performance Graph Qc= f(DT)





Standard Performance Graph V= f(DT)





Standard Performance Graph Qc= f(I)

Operation Cautions

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