Specification of Thermoelectric Module

TEC2-199-199-10

Description

The TEC2-199-199-10 is a multistage module designed for greater temperature differential cooling, good for cooling and heating up to 100 °C applications. It is a 199-199 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

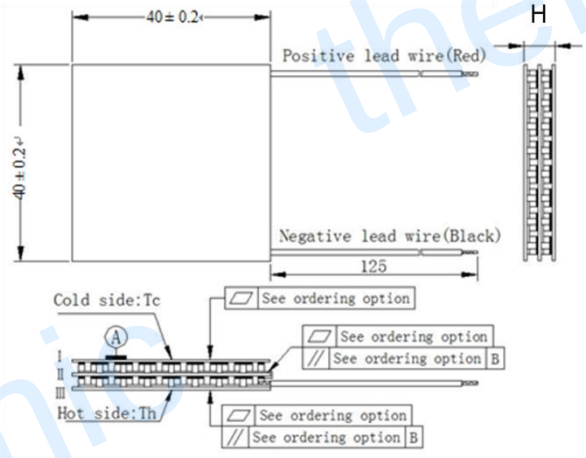
Application

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

Performance Specification Sheet

Th (°C)	27	50	Hot side temperature at environment: dry air, N_2
DT_{max} (°C)	93	104	Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side
U_{max} (Voltage)	24.5	26.6	Voltage applied to the module at DT_{max}
I_{max} (amps)	10.2	10.2	DC current through the modules at DT_{max}
Q_{Cmax} (Watts)	98.6	108.3	Cooling capacity at cold side of the module under DT=0 °C
AC resistance (ohms)	2.3	2.6	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=138ºC)
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 (Al_2O_3, 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	0:6.3 ± 0.3	0: Face II 0.10/0.10, Face III 0.15/0.15	125 ± 3/ Specify
TF	1:6.3± 0.2	1: Face II 0.08/0.08, Face III 0.10/0.10	125 ± 3 / Specify
TF	2: 6.3 ± 0.1	2: Face II 0.05/0.05, Face III 0.08/0.08	125 ± 3 / Specify
Eg. TF01: Thickness6.3 ± 0.3(mm) and Flatness Face II 0.08/0.08, Face III 0.10/0.10			

Naming for the Module

TEC2-199-199-10-X -X - X - X

- Ceramics
- Flatness/ Parallelism
- Sealant
- Solder

TEC2-199-199-10-T100 - NS - TF01 - AlO

T100: Solder, BiSn (Melting Point=138 ℃)

NS: No sealing AlO: Alumina white 96%

TF01: Thickness ±0.3(mm) and Flatness/Parallelism 0.10/0.10mm)

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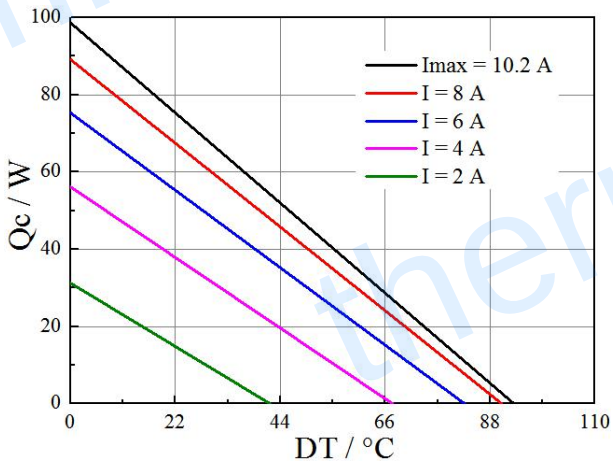
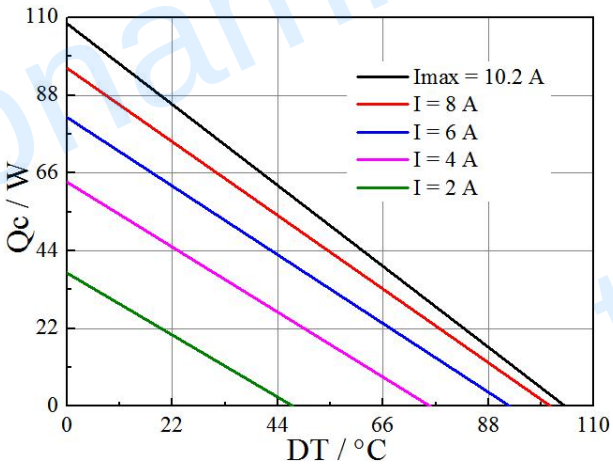
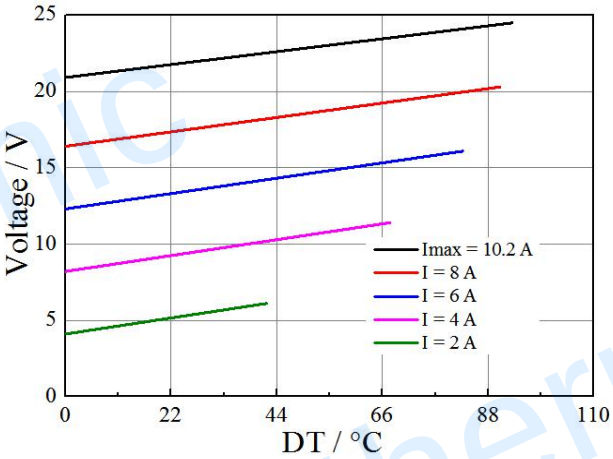
Performance Curves at Th=27 ºC

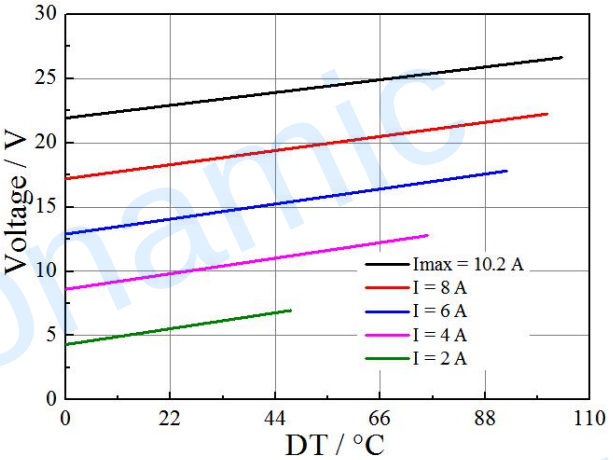


Performance Curves at Th=50 ºC

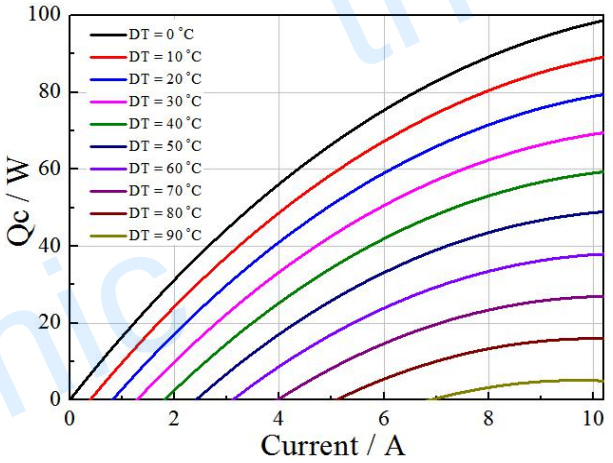


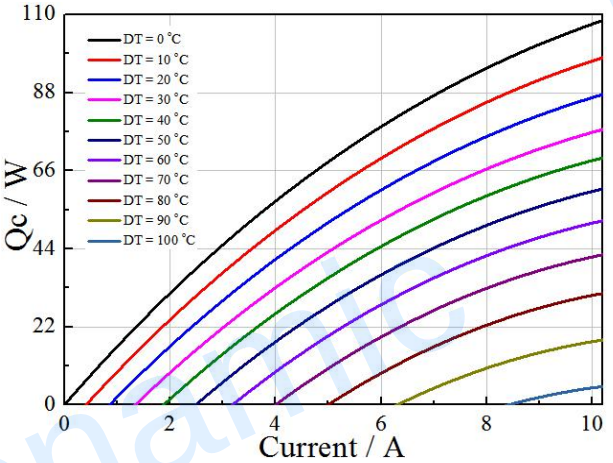
Standard Performance Graph Qc= f(DT)





Standard Performance Graph V= f(ΔT)





Standard Performance Graph Qc= f(V)

Operation Cautions

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