

Specification of Thermoelectric Module

TEFC3-47-22-8-05CH6.4TPT200-TO8

Description

The TEFC3-47-22-8-05CH6.4TPT200 is a multistage module designed for greater temperature differential cooling, good for cooling and heating up to 200 °C applications. It is a 47-22-8 couples module in size of 8mm × 8 mm (top)/8 mm × 8 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: In vacuum
DTmax (°C)	111	129	Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side
U _{max} (Voltage)	5.67	6.16	Voltage applied to the module at DT _{max}
I _{max} (amps)	0.5	0.5	DC current through the modules at DT _{max}
Q _{Cmax} (Watts)	0.60	0.64	Cooling capacity at cold side of the module under DT=0°C
AC resistance (Ohms)	9.85	10.60	The resistance tested from the pins which are connected with the module wire on the top of the header where the module is soldered
AC resistance (ohms)	9.95	10.70	The resistance tested from the pins on the bottom side of the header
Tolerance (%)	± 10		For thermal and electricity parameters

Geometric Characteristics Dimensions in millimeters

Manufacturing Options

A. Solder:

TEC assembly solder: SbSn (T_{melt}=240°C)
Header mounting solder: AgInSn (T_{melt}=206°C)

B. Sealant:

NS: No Sealing

C. Ceramics:

AlO: Alumina (Al₂O₃, white 99.6%)

D. Ceramics Surface Options:

Cold side: Metalized(Au plating)

Hot side: Metalized(Au plating)

Ordering Option

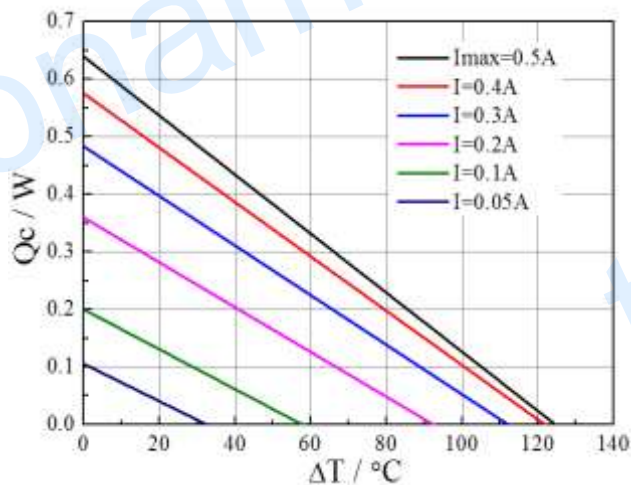
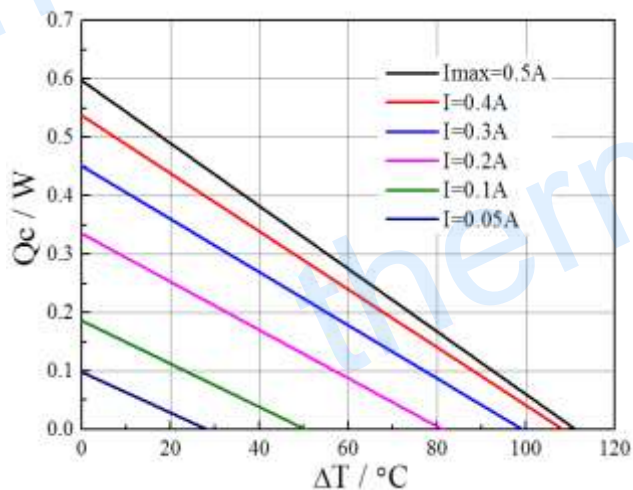
Suffix	Thickness (mm)	Flatness/ Parallelism (mm)	Lead wire length(mm) Standard/Optional length
TF	0:4.6±0.15	0.03/0.07	Connect to the pin /Specify

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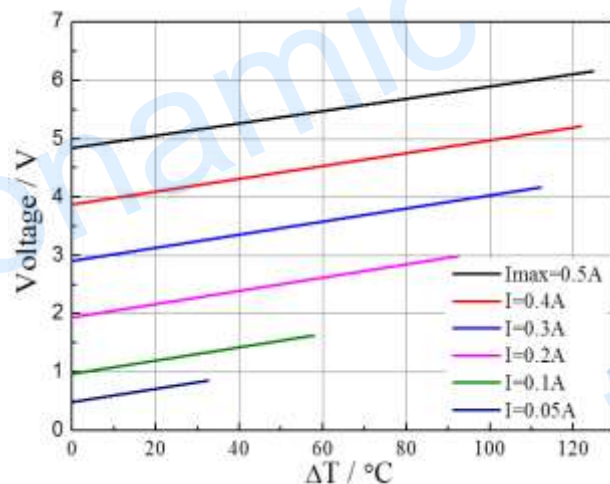
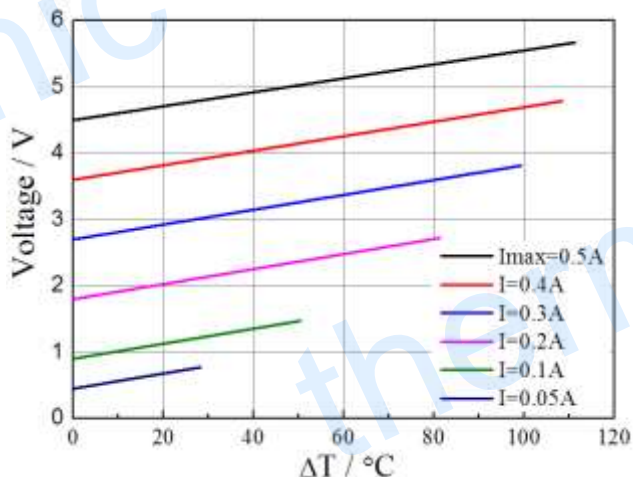
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Performance Curves at $T_h=27^\circ\text{C}$

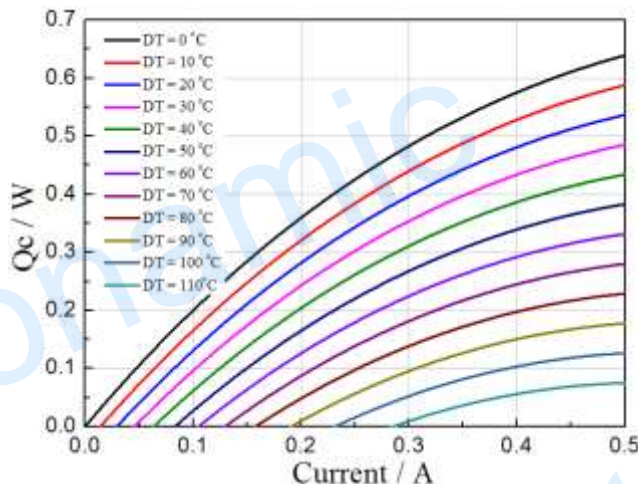
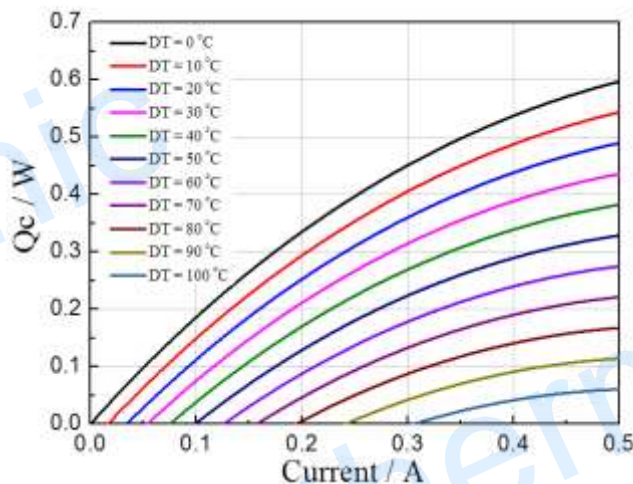
Performance Curves at $T_h=50^\circ\text{C}$



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



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

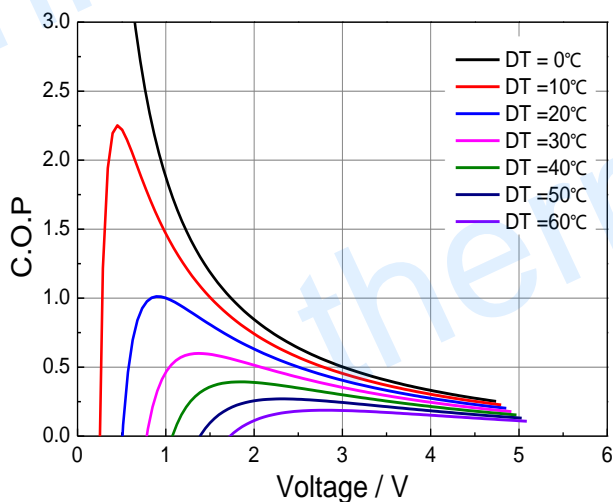


Standard Performance Graph $Q_c = f(I)$

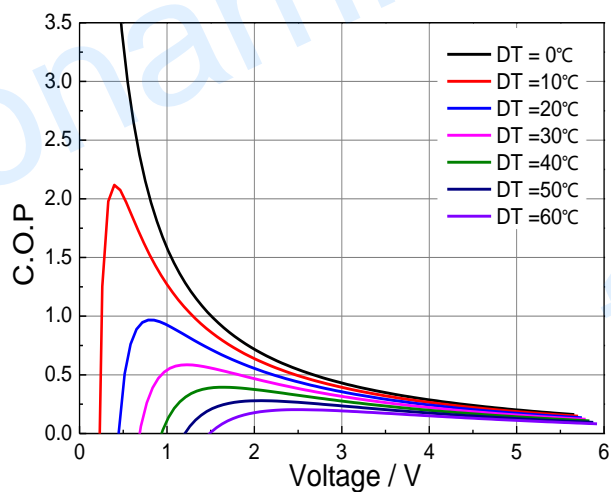
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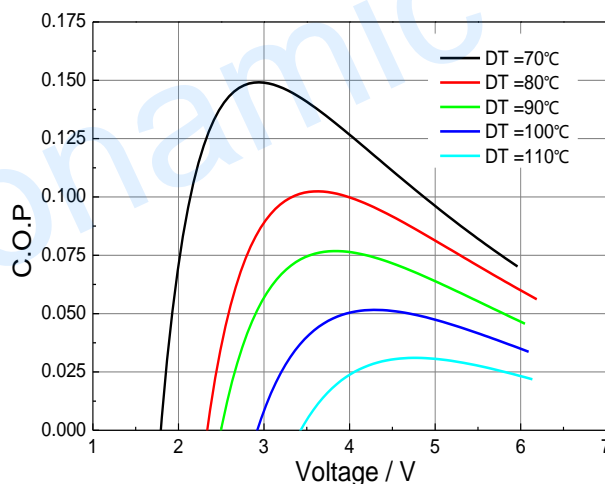
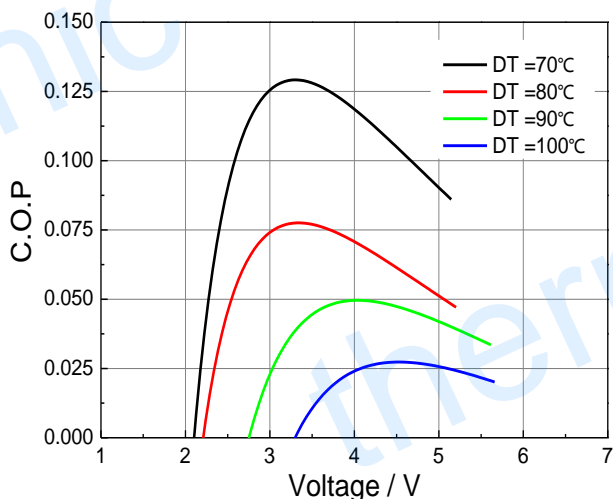
Performance Curves at Th=27 °C



Performance Curves at Th=50 °C



Standard Performance Graph COP = f(V) of DT ranged from 0 to 50 °C



Standard Performance Graph COP = f(V) of DT ranged from 60 to 90/100 °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