

Specification of Thermoelectric Module

TEC1-01705

Description

The 17 couple, 15mm × 15mm size single module is made of high performance ingots that achieve superior cooling performance and 70°C or larger delta Tmax. Designed for superior cooling and heating applications. Our modules are also design with solder that can work up to 190°C. Custom made module designed to your requirements.

Features

- No moving parts, no noise, and solid-state
- Compact structure, small size, light weight
- Environmental friendly
- RoHS compliant
- Precise temperature control
- Exceptionally reliable in quality, high performance

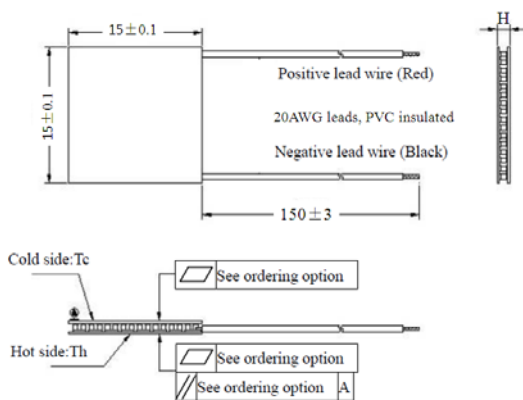
Application

- Food and beverage service refrigerator
- Portable cooler box for cars
- Liquid cooling
- Temperature stabilizer
- CPU cooler and scientific instrument
- Photonic and medical systems

Performance Specification Sheet

Th (°C)	27	50	Hot side temperature at environment: dry air, N ₂
DT _{max} (°C)	68	76	Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side
U _{max} (Voltage)	2.1	2.3	Voltage applied to the module at DT _{max}
I _{max} (Amps)	5.4	5.4	DC current through the modules at DT _{max}
Q _{Cmax} (Watts)	7.0	7.6	Cooling capacity at cold side of the module under DT=0 °C
AC resistance (Ohms)	0.25~0.35	0.27~0.38	Module resistance is tested under AC

Geometric Characteristics Dimensions in millimeters



Manufacturing Options

A. Solder:

1. T100: BiSn (Melting Point=138°C)
2. T200: CuSn (Melting Point= 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 (Al₂O₃, white 96%)(AlO)
2. Aluminum Nitride (AlN)

D. Ceramics Surface Options:

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

Flatness/ Parallelism Option

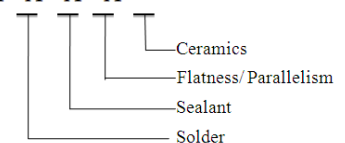
Suffix	Thickness H / (mm)	Flatness/ Parallelism (mm)	Lead wire length (mm) Standard/Optional length
TF	0:3.9±0.1	0:0.05/0.05	150±3/Specify
TF	1:3.9±0.05	1:0.025/0.025	150±3/Specify
TF	2:3.9±0.03	2:0.015/0.015	150±3/Specify

Eg. TF01: Thickness 3.9±0.1 (mm) and Flatness 0.025/0.025(mm)

If you need higher tolerance on thickness and flatness, please specify .

Naming for the Module

TEC1-01705-X-X-X-X



TEC1-01705-T100-NS-TF02-AIO

T100: Solder, BiSn (Melting Point=138 °C)

NS: No sealing

AIO: Alumina white 96%

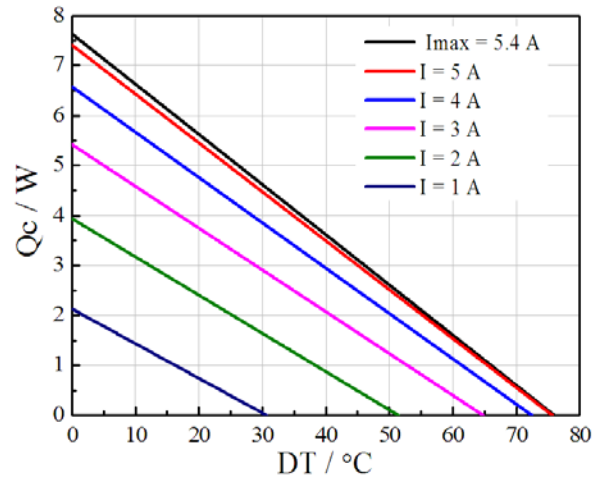
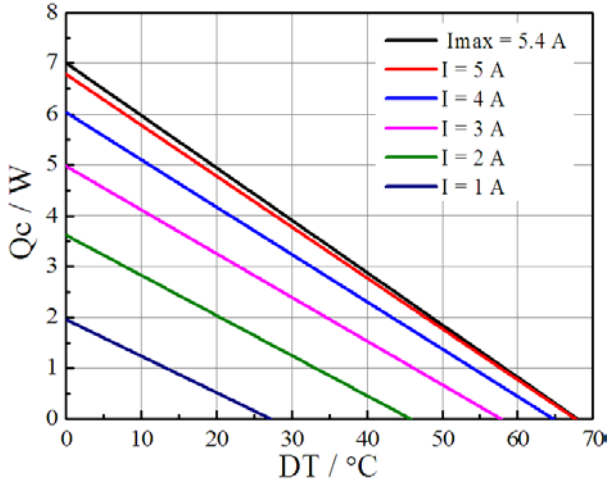
TF02: Thickness ±0.10(mm) and Flatness/Parallelism 0.015/0.015(mm)

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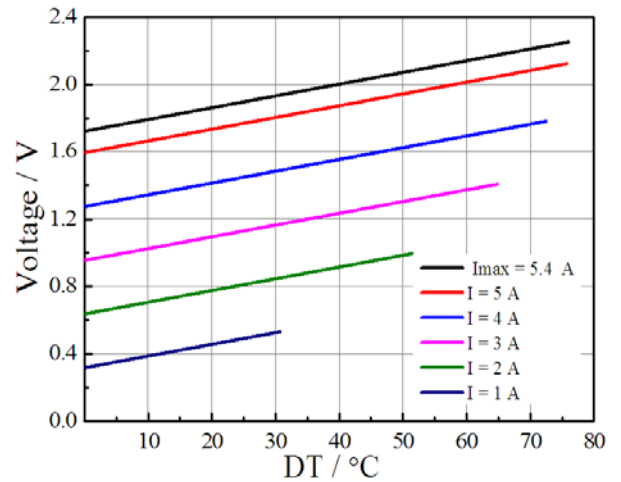
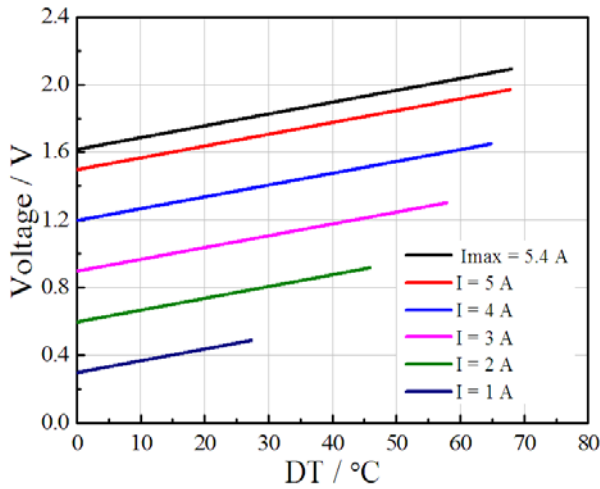
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Performance Curves at Th=27 °C

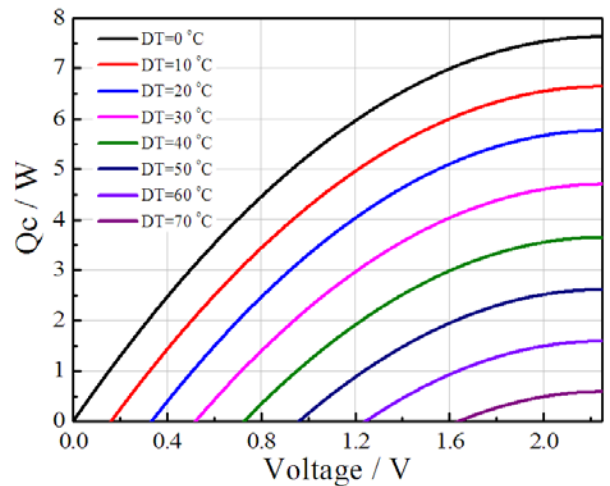
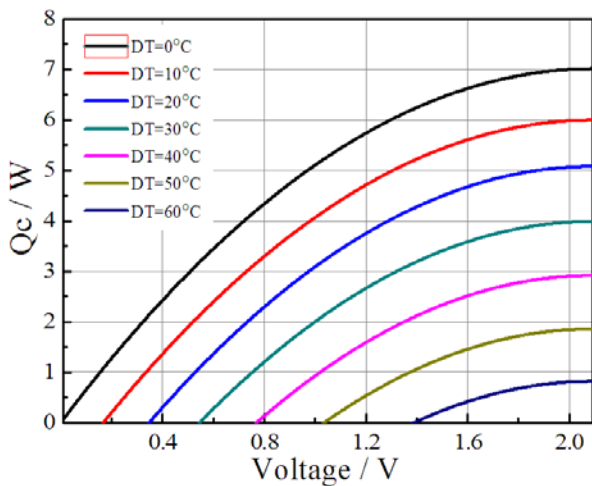
Performance Curves at Th=50 °C



Standard Performance Graph $Q_c = f(DT)$



Standard Performance Graph $V = f(DT)$

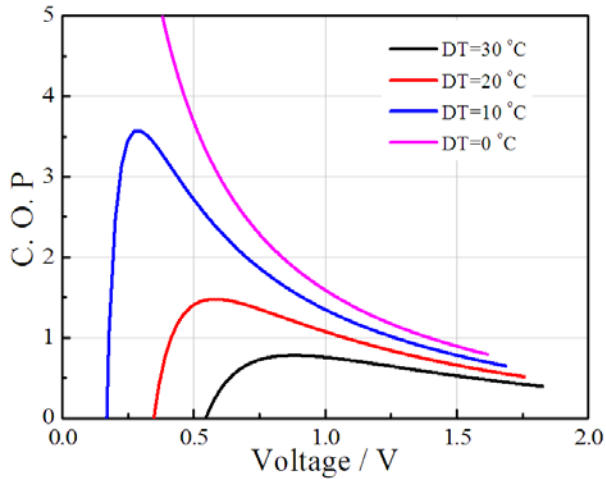


Standard Performance Graph $Q_c = f(V)$

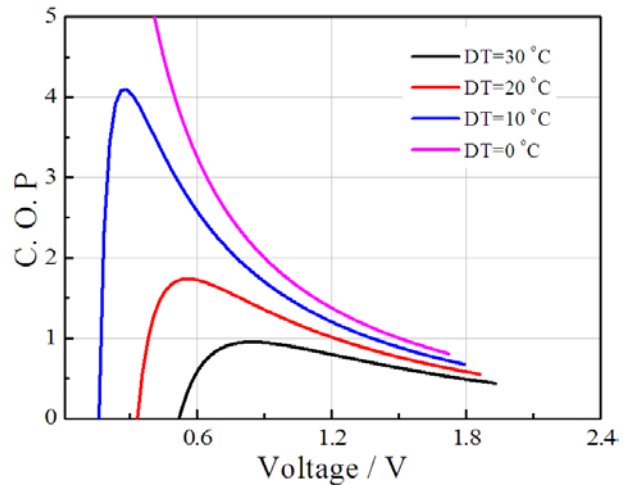
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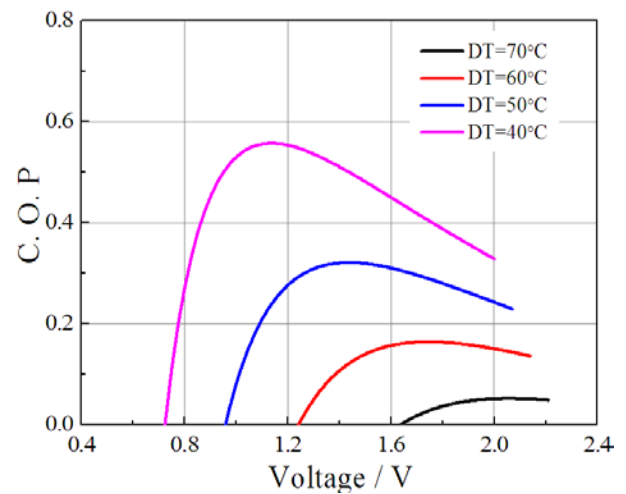
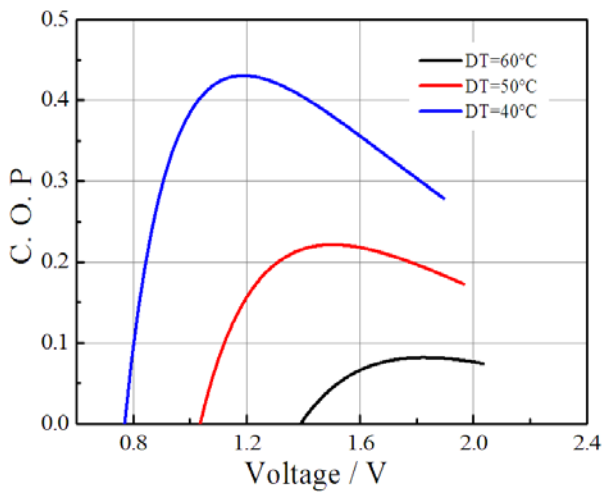
Performance Curves at Th=27 °C



Performance Curves at Th=50 °C



Standard Performance Graph COP = f(V) of DT ranged from 0 to 30 °C



Standard Performance Graph COP = f(V) of DT ranged from 40 to 60/70 °C

Remark: The coefficient of performance (COP) is the cooling power Q_c /Input power ($V \times I$).

Operating Conditions

- Cold side of the module applied on cold side
- Hot side of the module mounted on a heat sink
- Operation below I_{max} or V_{max}
- Operated under DC voltage