

Specification of Thermoelectric Module

TES1-03180T200-TF22

Description

The 31 couples, 15mm x 15 mm size module is a single stage module which is made of our high performance ingot to achieve superior cooling performance and 70°C or larger delta Tmax, is designed for superior cooling and heating applications. Beyond the standard below, we can design and manufacture the custom made module according to your special requirements.

Features

- 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

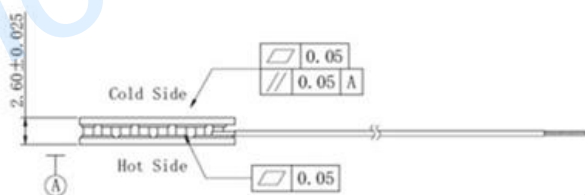
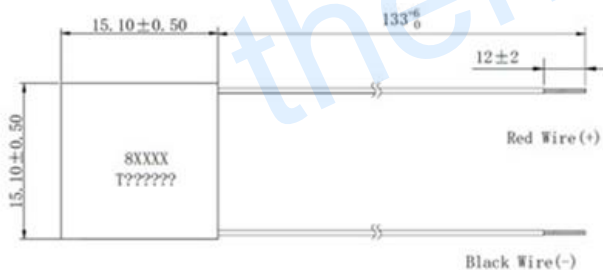
Application

- 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)	70	79	Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side
U _{max} (Voltage)	3.84	4.15	Voltage applied to the module at DT _{max}
I _{max} (Amps)	8.0	8.0	DC current through the modules at DT _{max}
Q _{Cmax} (Watts)	19.85	21.37	Cooling capacity at cold side of the module under DT=0 °C
AC resistance (Ohms)	0.37	0.39	The module resistance is tested under AC
Tolerance (%)	± 10		For thermal and electricity parameters

Geometric Characteristics Dimensions in millimeters



Manufacturing Options

A. Solder:

T200: CuAgSn (T_{mel}=217°C)

B. Sealant:

NS: No sealing

C. Ceramics:

AlO: Alumina (Al₂O₃, white 96%)

D. Ceramics Surface Options:

Blank ceramics (not metallized)

Ordering Option

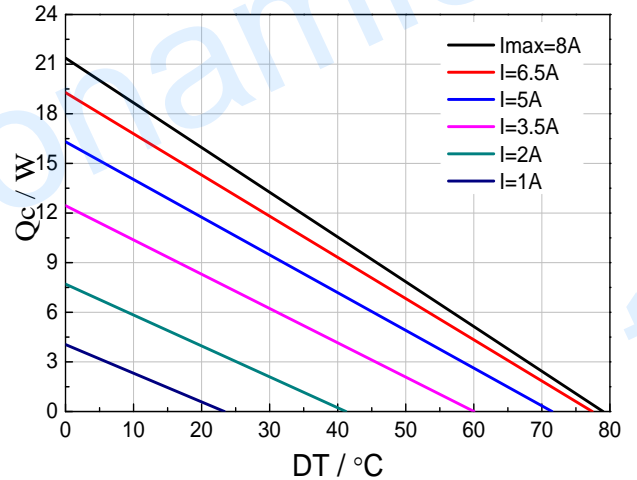
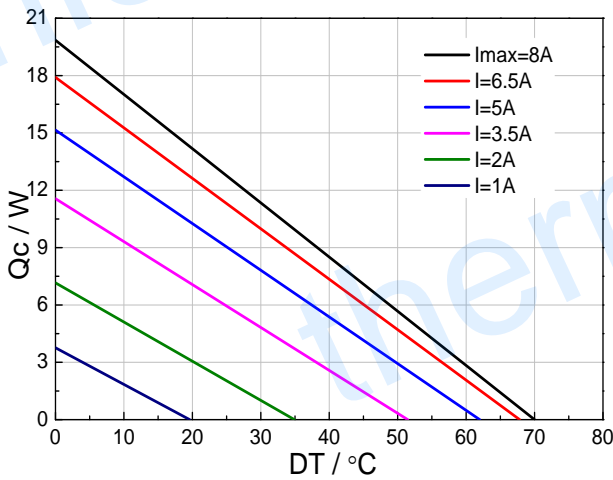
Suffix	Thickness H (mm)	Flatness/ Parallelism (mm)	Lead wire length(mm) Standard/Optional length
TF	2:2.6± 0.025	2: 0.05/0.05	136± 3 /Specify

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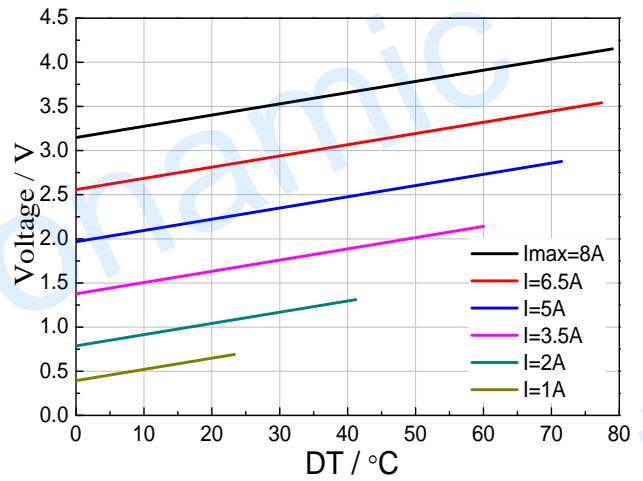
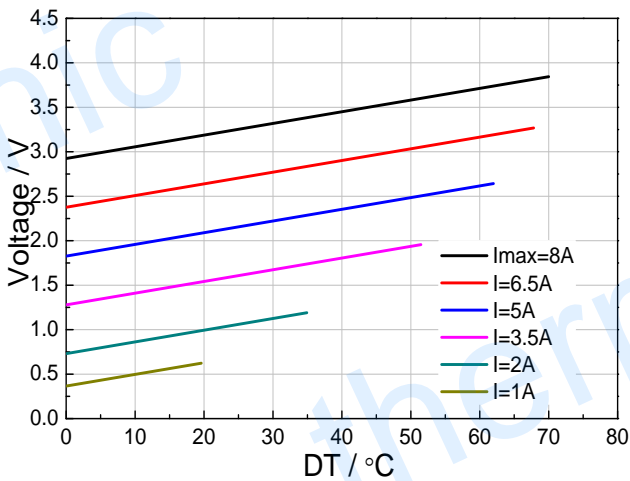
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Performance Curves at $T_h=27\text{ }^\circ\text{C}$

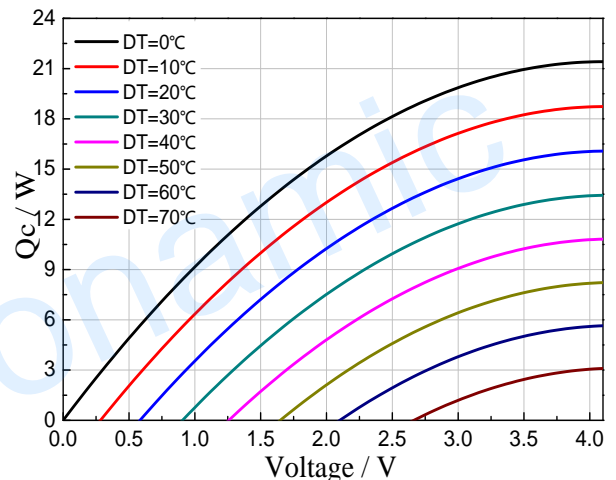
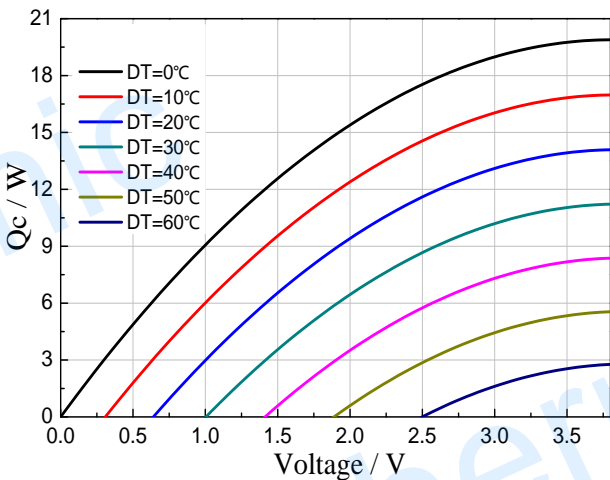
Performance Curves at $T_h=50\text{ }^\circ\text{C}$



Standard Performance Graph $Q_c = f(DT)$



Standard Performance Graph $V = f(DT)$

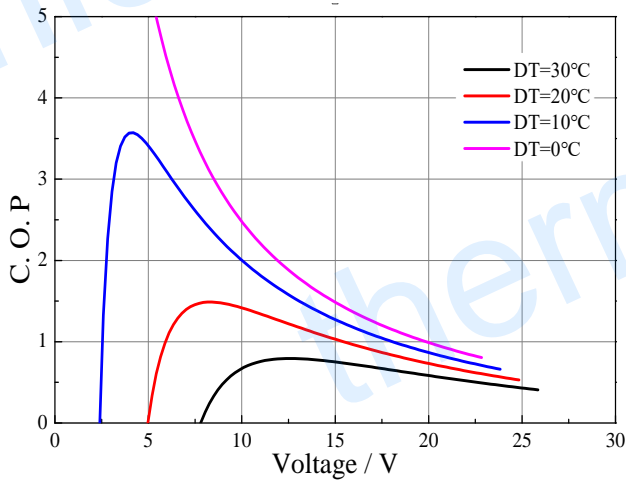


Standard Performance Graph $Q_c = f(V)$

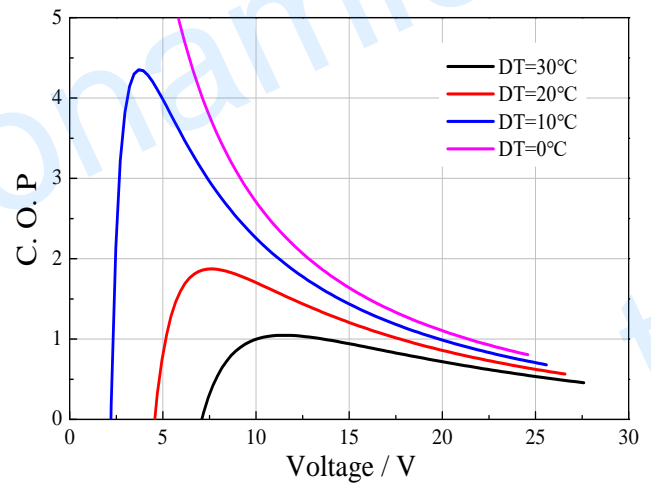
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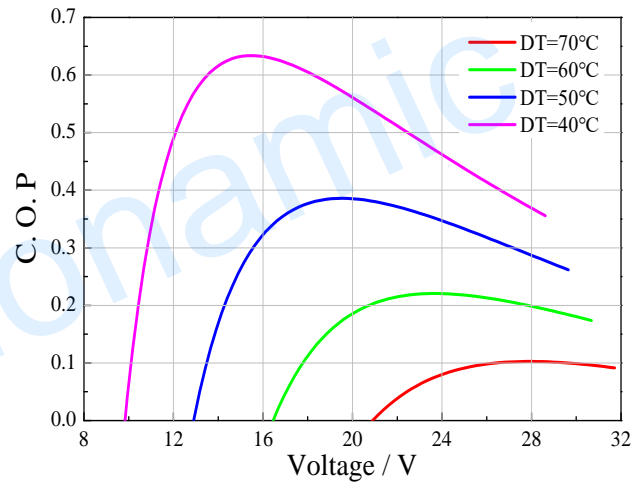
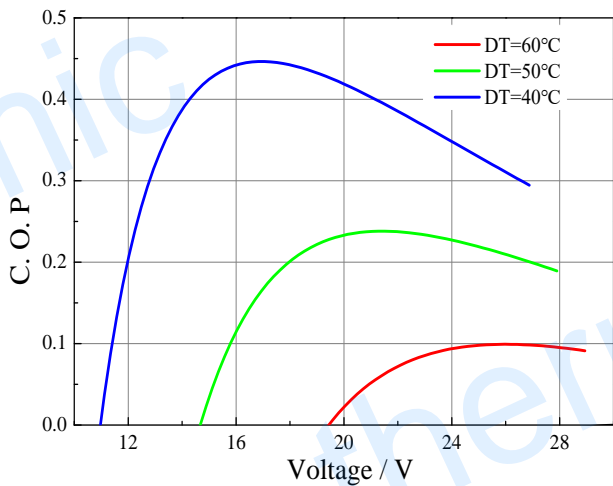
Performance Curves at Th=27 °C



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 ($V \times I$).

Operation Caution

- 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

Note: All specifications subject to change without notice.