

Specification of Thermoelectric Module

TEC1-09703S-T100-SS-TF00-AIO

Description

The 97 couples, 40 mm × 40 mm size single module which is made of selected high performance ingot to achieve superior cooling performance and greater delta T up to 70 °C, designed for superior cooling and heating up to 100 °C applications. If higher operation or processing temperature is required, please specify, 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

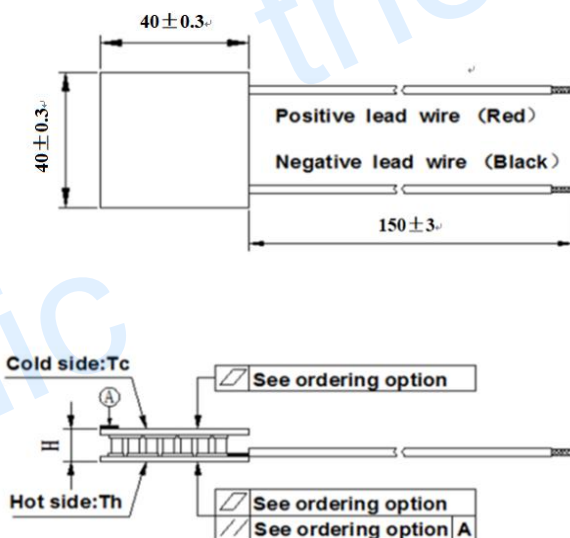
Application

- 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)	12.1	13.0	Voltage applied to the module at DT _{max}
I _{max} (amps)	3.6	3.6	DC current through the modules at DT _{max}
Q _{Cmax} (Watts)	27.9	30.0	Cooling capacity at cold side of the module under DT=0 °C
AC resistance (ohms)	2.55	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:

T100: BiSn (T melt=138°C)

B. Sealant:

SS: Silicone sealant

C. Ceramics:

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	$0:4.2 \pm 0.1$	$0:0.08/0.08$	150 ± 3 /Specify

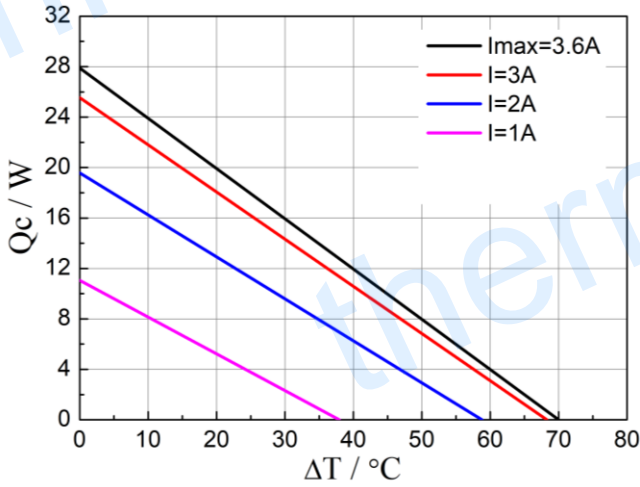
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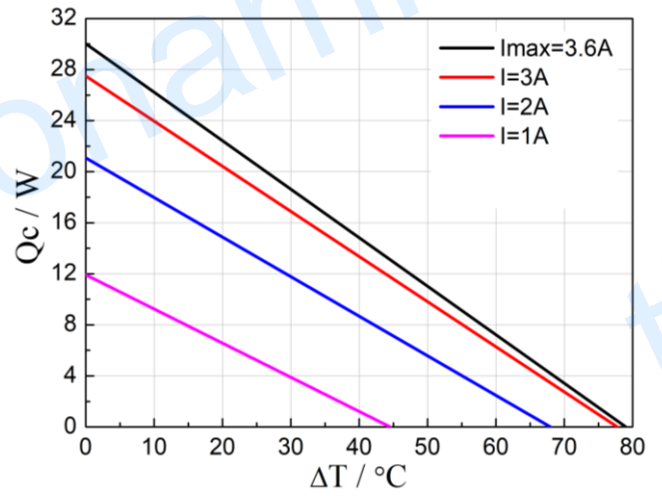
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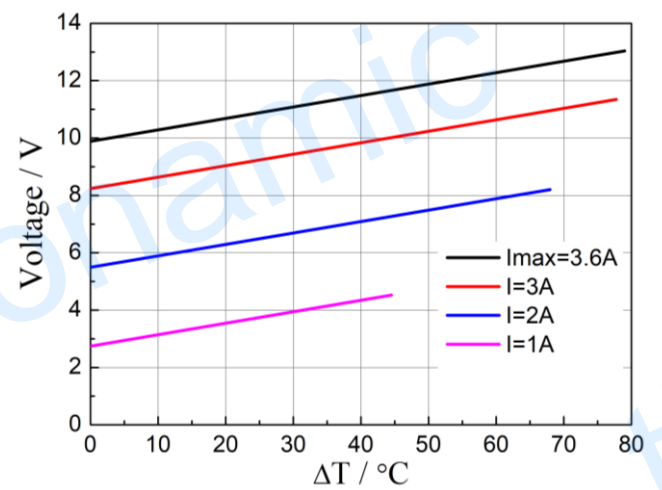
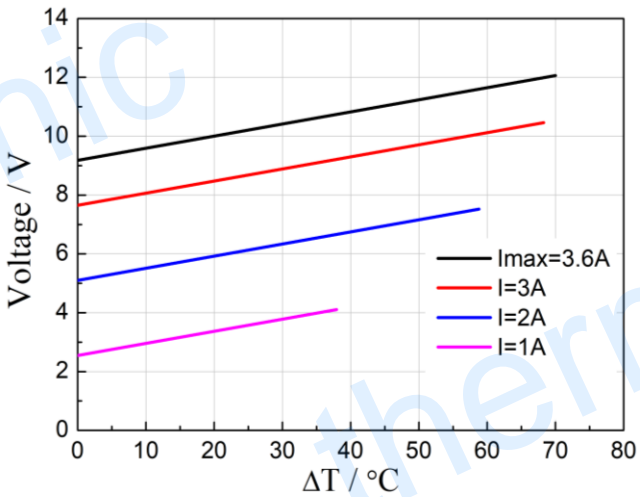
Performance Curves at Th=27 °C



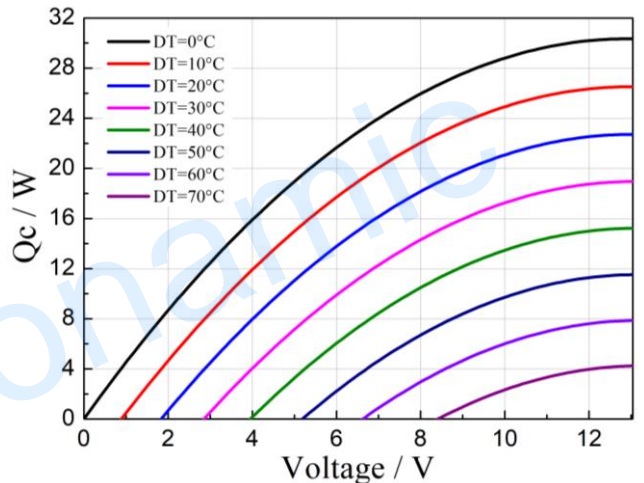
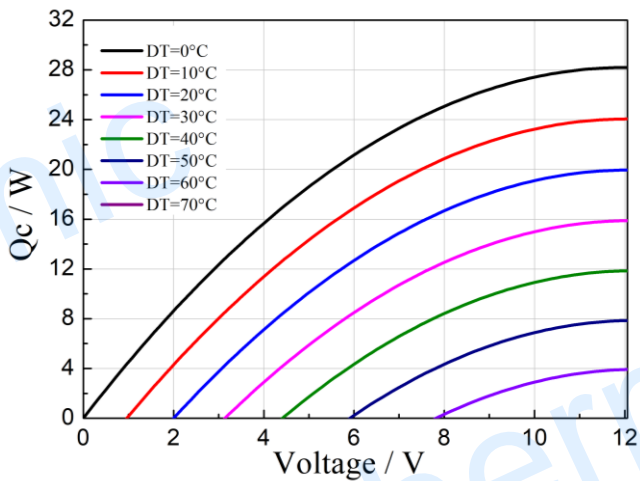
Performance Curves at Th=50 °C



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



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



Standard Performance Graph $Q_c = f(V)$

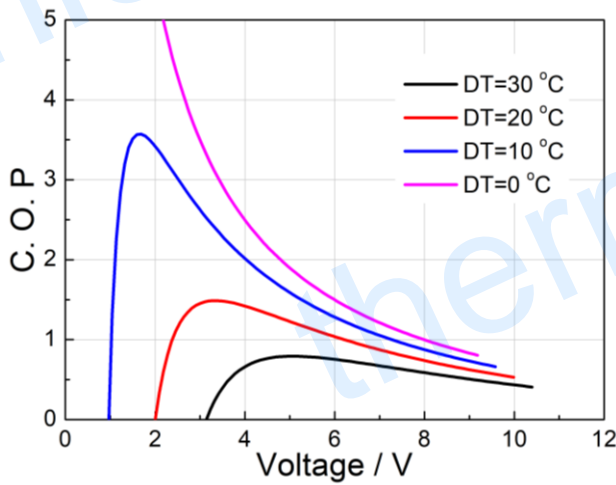
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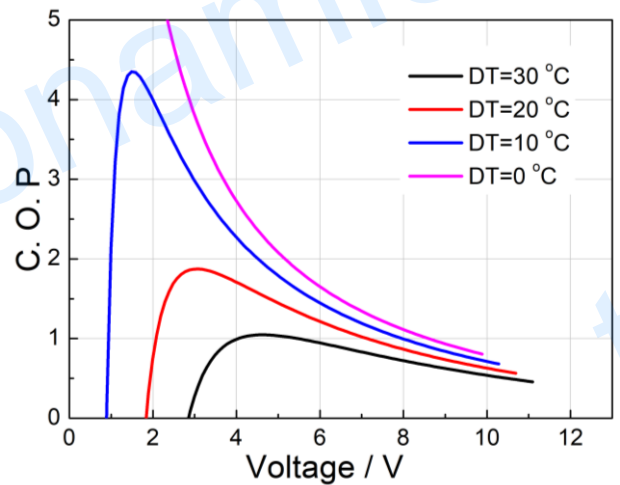
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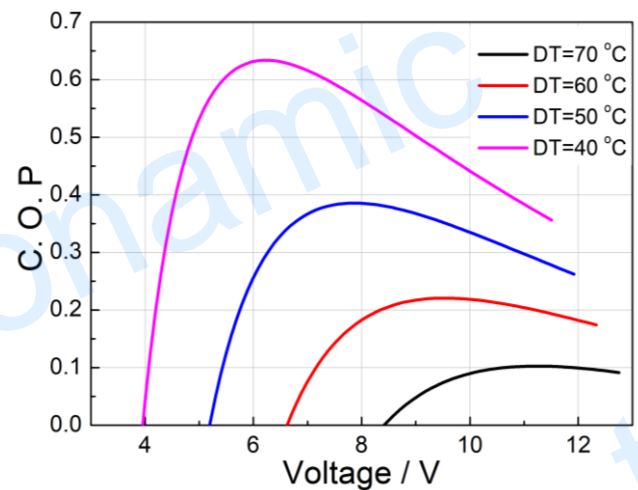
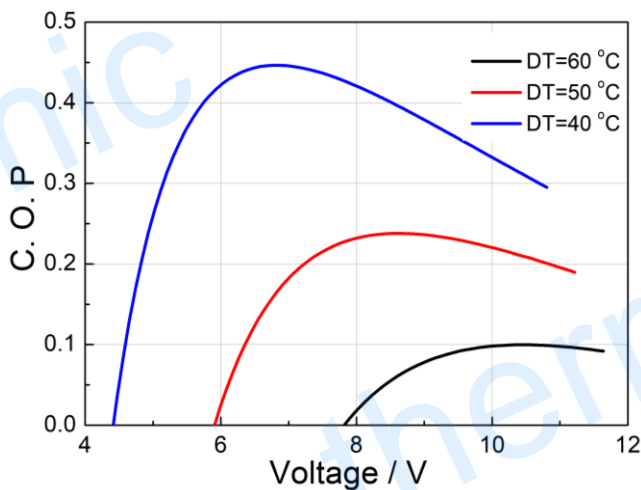
Performance Curves at $T_h=27\text{ }^\circ\text{C}$



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



Standard Performance Graph 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 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
- Operation below I_{max} or V_{max}
- Work under DC

Note: All specifications subject to change without notice.