

Specification of Thermoelectric Module

TEHC1-124038CH4.7-T100-EPS-TF02-AIO

Description

The 124 couples, 40mm x 40mm size module is a single stage module which is made of our high performance ingot to achieve superior cooling performance and 72°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

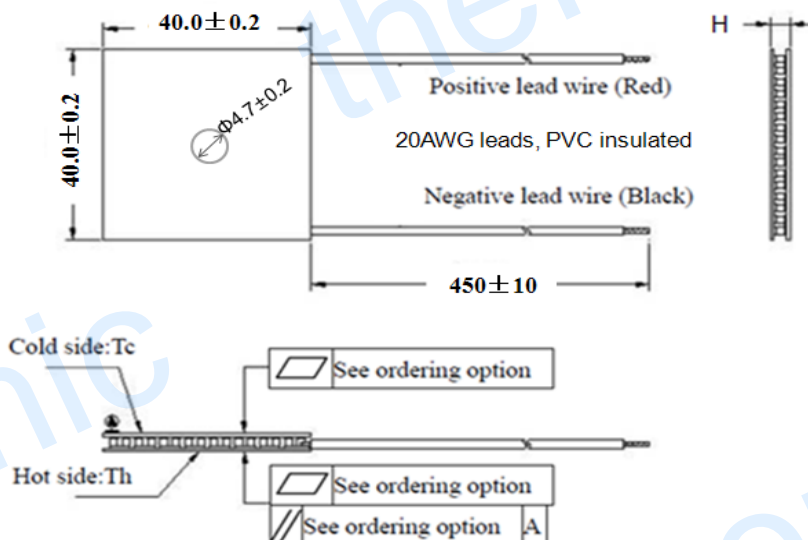
Application

- 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)	72	81	Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side
U _{max} (Voltage)	15.7	16.9	Voltage applied to the module at DT _{max}
I _{max} (Amps)	3.7	3.7	DC current through the modules at DT _{max}
Q _{Cmax} (Watts)	37.6	40.4	Cooling capacity at cold side of the module under DT=0 °C
AC resistance (Ohms)	3.20	3.45	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 (Melting Point= 138 °C)

B. Sealant:

EPS: Epoxy sealing

C. Ceramics:

AIO: Alumina (Al₂O₃, white 96%)

D. Ceramics Surface Options:

Blank ceramics (not metalized)

Ordering Option

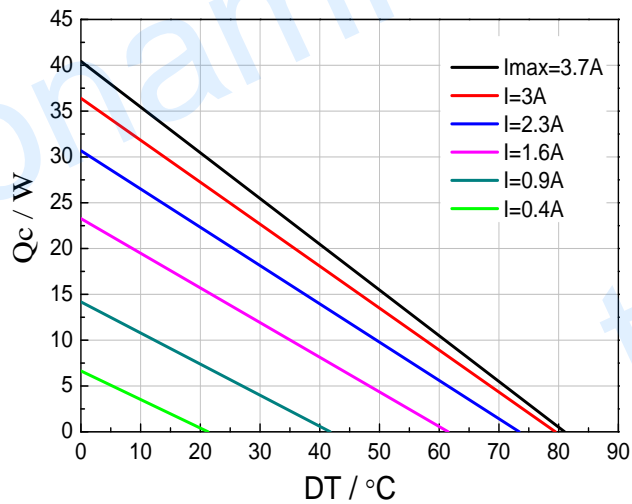
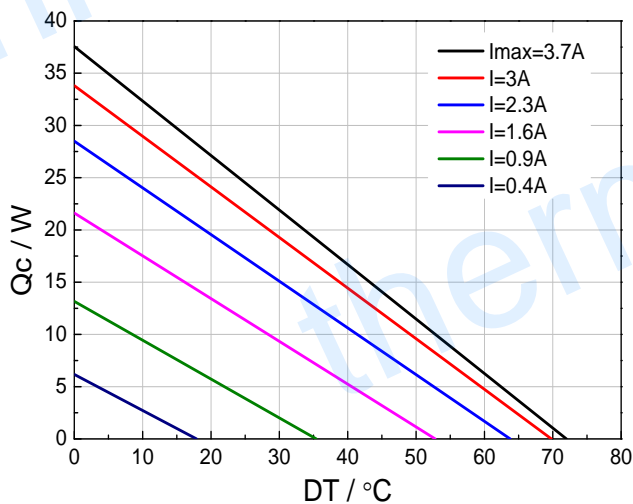
Suffix	Thickness H (mm)	Flatness/ Parallelism (mm)	Lead wire length(mm) Standard/Optional length
TF	0:4.2± 0.1	2: 0.02/0.03	450±10/Specify

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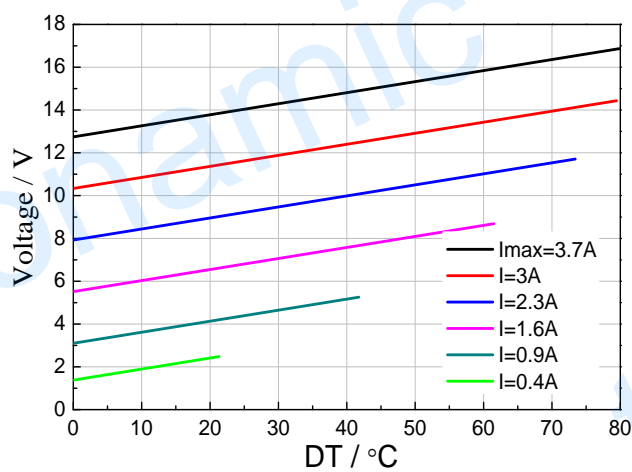
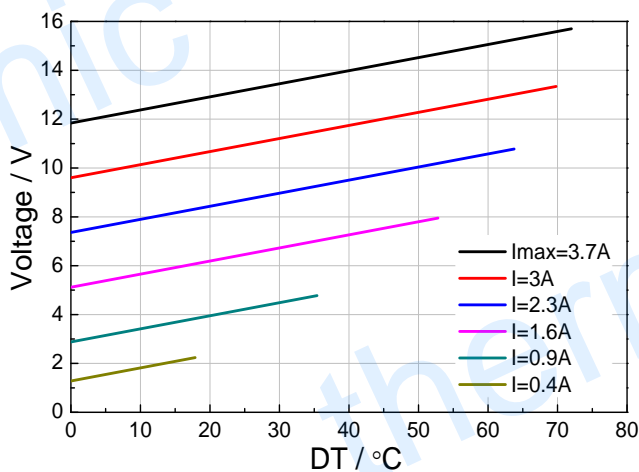
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Performance Curves at Th=27 °C

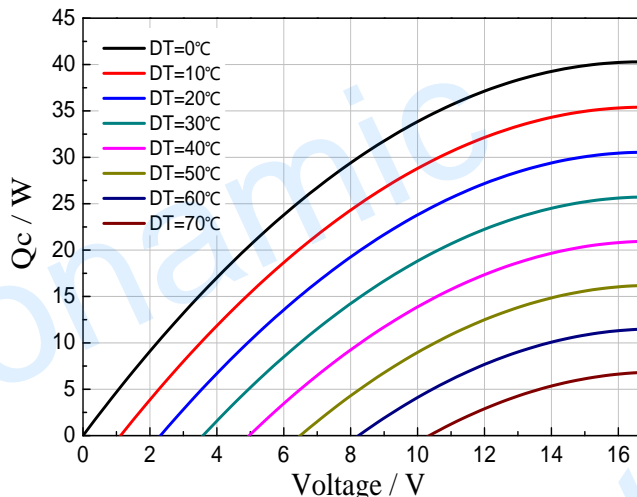
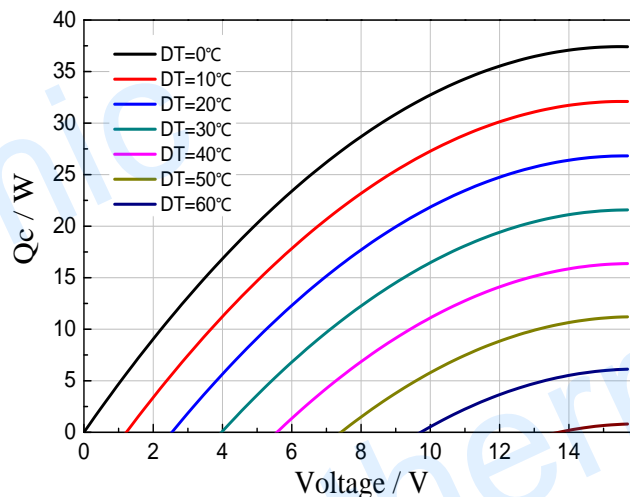
Performance Curves at Th=50 °C



Standard Performance Graph Qc= f(DT)



Standard Performance Graph V= f(DT)

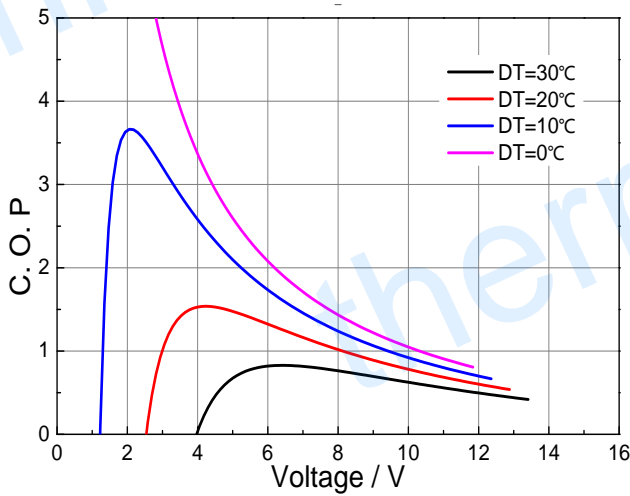


Standard Performance Graph Qc= f(V)

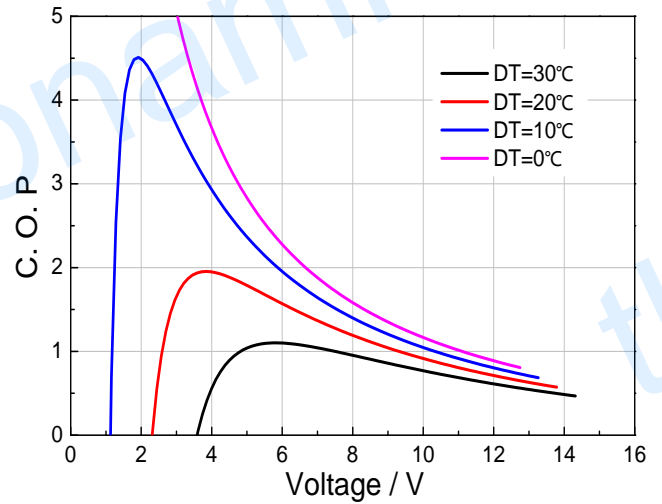
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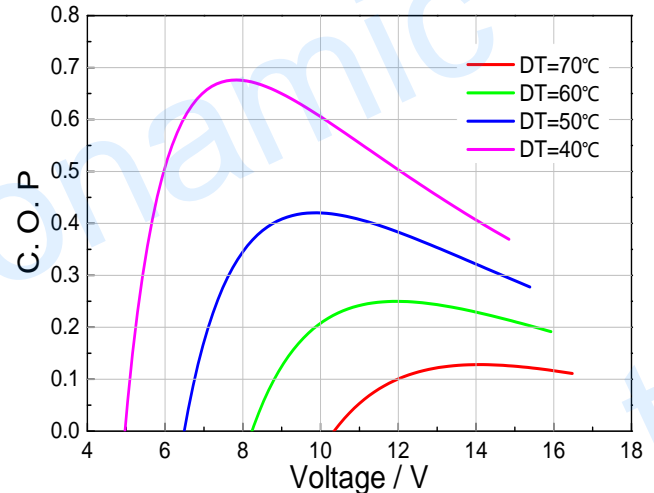
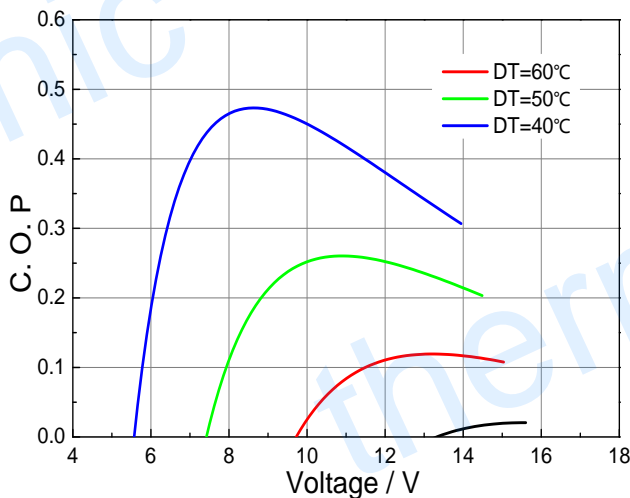
Performance Curves at $T_h=27\text{ }^\circ\text{C}$



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



Standard Performance Graph $COP = f(V)$ of DT ranged from 0 to $30\text{ }^\circ\text{C}$



Standard Performance Graph $COP = f(V)$ of DT ranged from 40 to 60/70 $^\circ\text{C}$

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

Operation Caution

- 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.