Specification of Thermoelectric Module

TEFC1-03106

Description

The 31 couples, 8 mm × 8 mm size single module which is made of selected high performance ingot to achieve superior cooling performance and greater delta T up to 70℃, 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

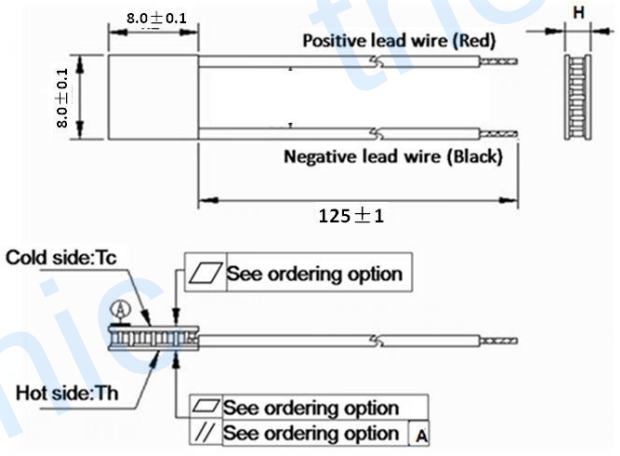
Application

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

Peformance Specification Sheet

Th (℃)	27	50	Hot side temperature at environment: dry air, N_2
DT_{max} (℃)	70	79	Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side
U_{max} (Voltage)	3.94	4.30	Voltage applied to the module at DT_{max}
I_{max} (amps)	0.77	0.77	DC current through the modules at DT_{max}
Q_{Cmax} (Watts)	1.88	2.01	Cooling capacity at cold side of the module under DT=0 ℃
AC resistance (ohms)	3.85	4.23	The module resistance is tested under AC
Tolerance (%)	10%		For thermal and electricity parameters

Geometric Characteristics Dimensions in millimeters



Manufacturing Options

A. Solder:

1. T100: BiSn (Tmelt=138℃)
2. T200: CuSn (Tmelt = 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 (Al_2O_3, white 96%)
2. Aluminum Nitride (AlN)

D. Ceramics Surface Options:

1. Blank ceramics (not metallized)
2. Metallized (Au plating)

Ordering Option

Suffix	Thickness H (mm)	Flatness/ Parallelism (mm)	Lead wire length(mm) Standard/Optional length
TF	0:3.2±0.1	0: 0.015/0.015	125±3/Specify
TF	1:3.2±0.05	1: 0.01/0.01	125±3/Specify
TF	2:3.2±0.025	2: 0.008/0.008	125±3/Specify
Eg. TF01: Thickness 3.2± 0.1 (mm) and Flatness 0.01 / 0.01 (mm)			

Naming for the Module

TEFC1- 03106- X -X - X - X

- Ceramics
- Flatness/ Parallelism
- Sealant
- Solder

TEFC1- 03106–T100 -NS –TF01 -AlO

T100: BiSn (Tmelt=138°C)

NS: No sealing AlO： Alumina, white 96%

TF01: Thickness ± 0.1 (mm) and Flatness/ Parallelism 0.01/0.01 (mm)

Tel: +86-791-88198288 Fax: +86-791-88198308 Email: sales@thermonamic.com.cn Web Site: www.thermonamic.com.cn

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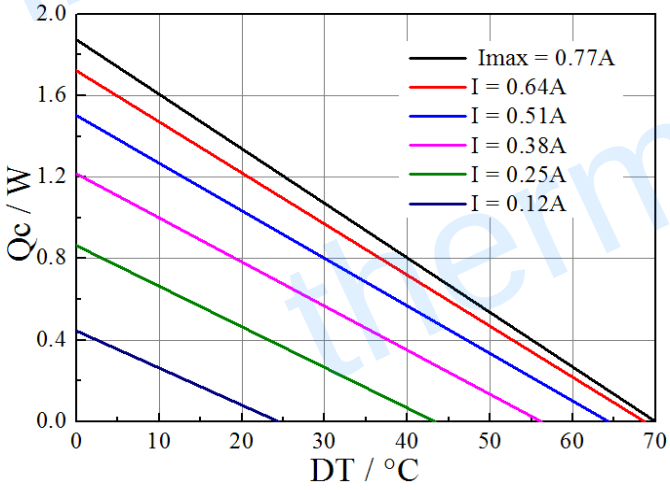
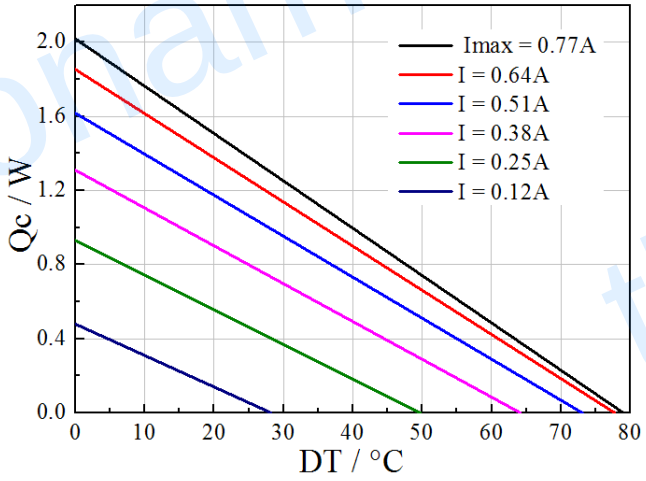
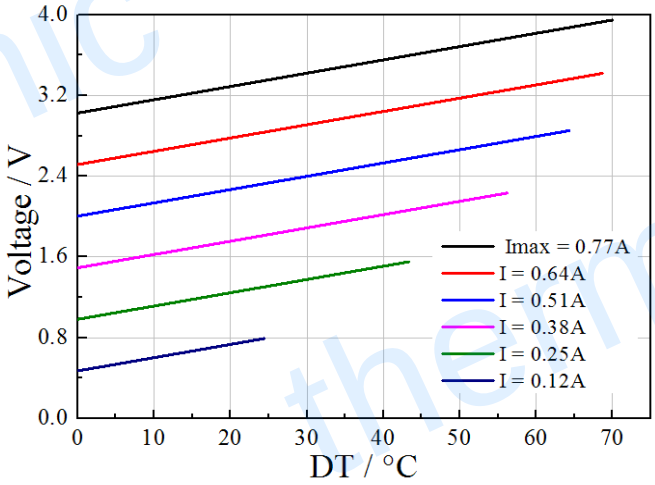
Performance Curves at Th=27 ℃

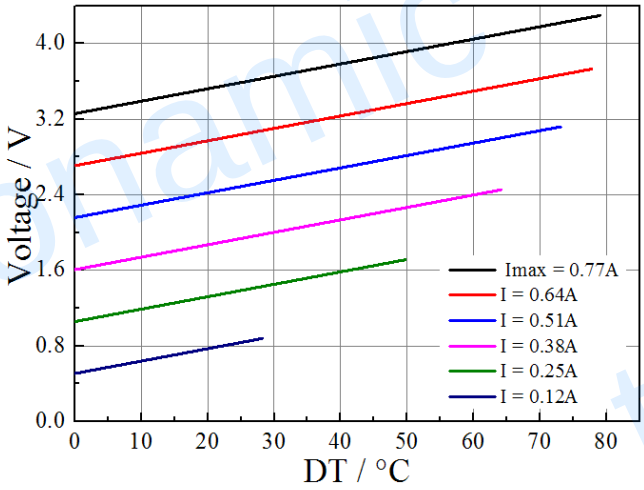


Performance Curves at Th=50 ℃

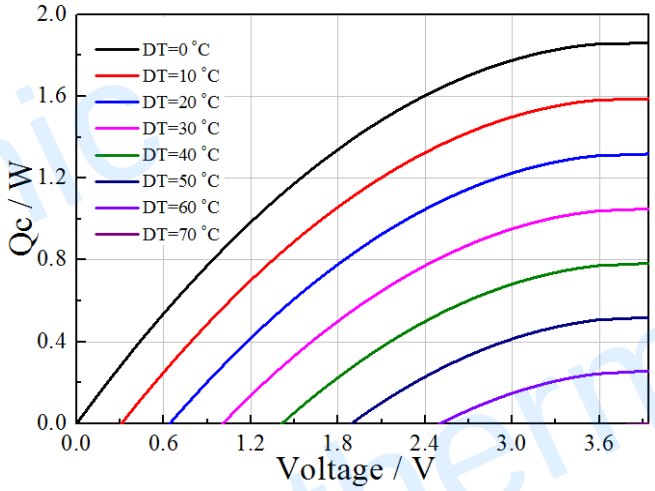


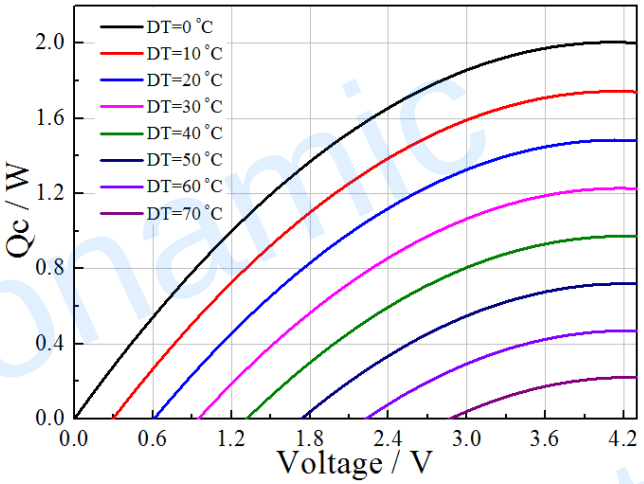
Standard Performance Graph Qc= f(DT)





Standard Performance Graph V= f(DT)





Standard Performance Graph Qc= f(V)

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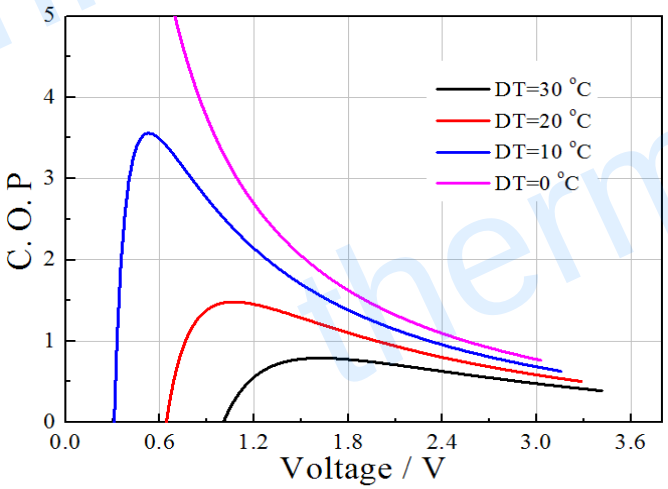
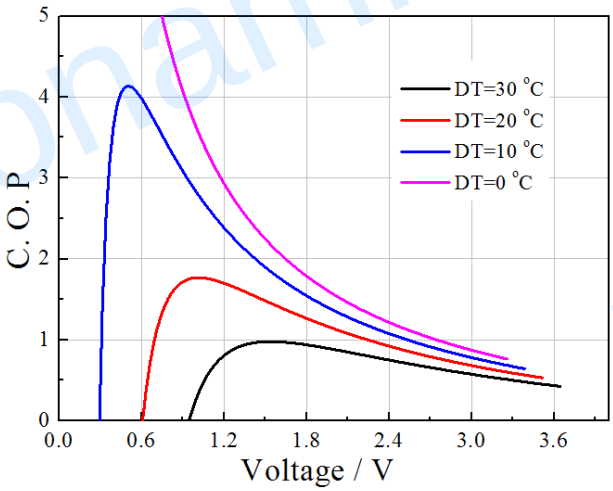
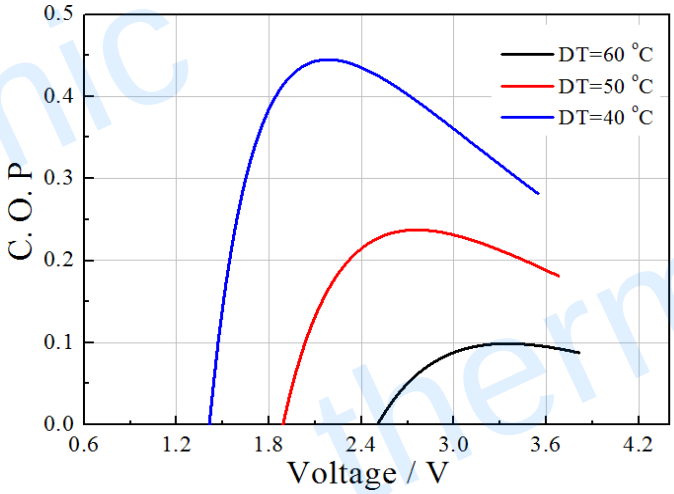
Performance Curves at Th=27 ℃

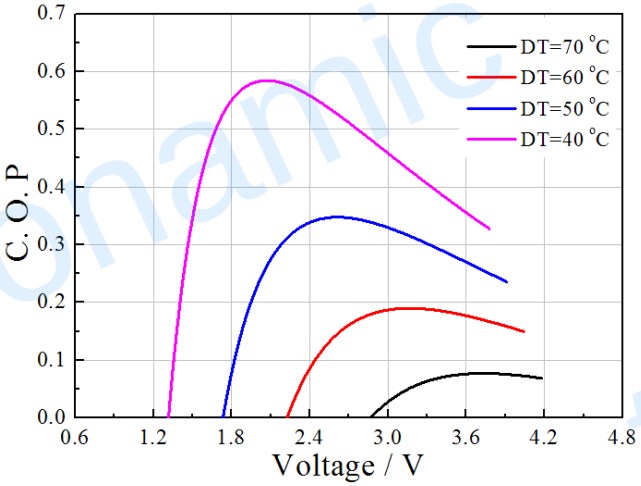


Performance Curves at Th=50 ℃



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 Qc/Input power (V × I).

Operation Cautions

- 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.