Specification of Thermoelectric Module

TEC1-03505

Description

The 35 couples, 15 mm × 30 mm size single module which is made of our high performance ingot to achieve superior cooling performance and 70 ℃ 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

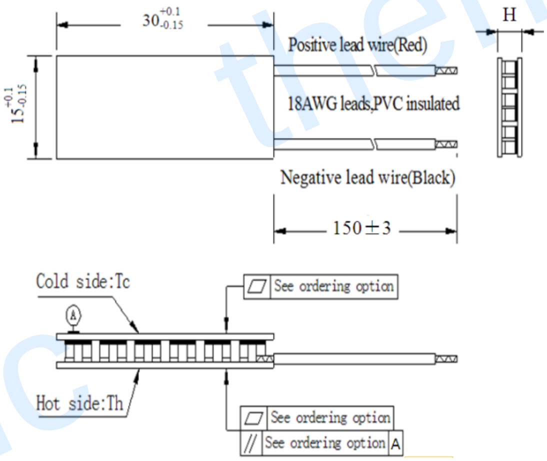
Application

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

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)	4.5	4.8	Voltage applied to the module at DT_{max}
I_{max} (Amps)	5.3	5.3	DC current through the modules at DT_{max}
QC_{max} (Watts)	14.9	16.3	Cooling capacity at cold side of the module under DT=0 ℃
AC resistance (Ohms)	0.65	0.70	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 (Melting Point=138℃)
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 (Al_2O_3, white 96%)(AlO)
2. Aluminum Nitride (AlN)

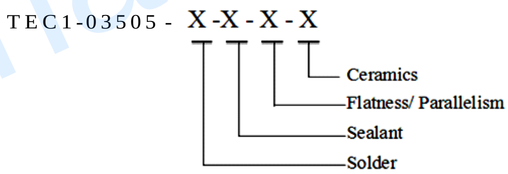
D. Ceramics Surface Options:

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	0:3.8±0.1	0:0.05/0.05	150±3/Specify
TF	1:3.8±0.05	1:0.025/0.025	150±3/Specify
TF	2:3.8±0.025	2:0.015/0.015	150±3/Specify
Eg. TF01: Thickness 3.8±0.1 (mm) and Flatness 0.025/0.025(mm)			

Naming for the Module



TEC1-03505–T100 -NS –TF01 -AlO

T100: BiSn (Tmelt=138 ℃)

NS: No sealing AlO: Alumina white 96%

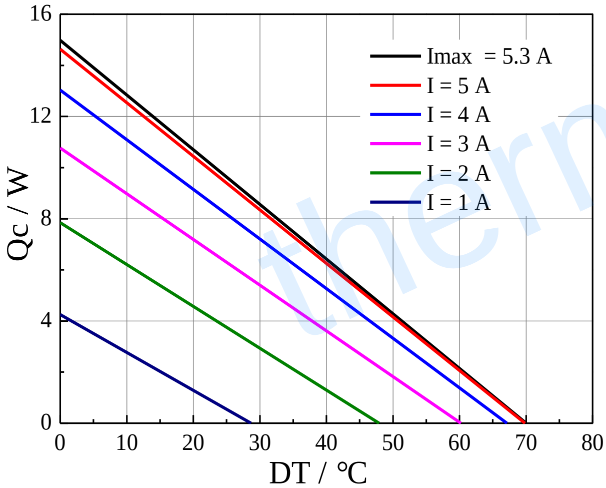
TF01: Thickness ± 0.1 (mm) and Flatness/Parallelism 0.025/0.025(mm)

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

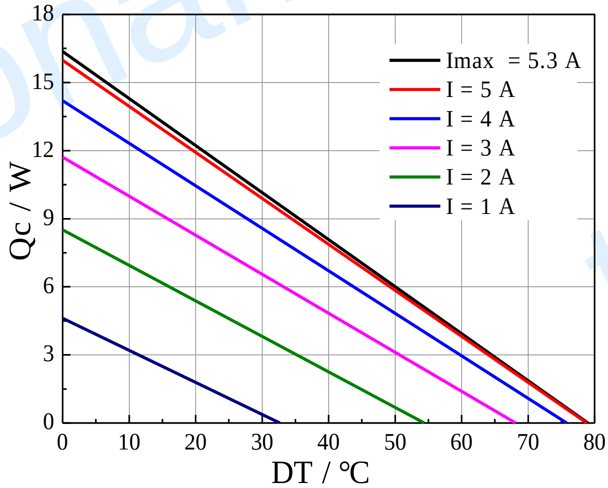
Specification of Thermoelectric Module

TEC1-03505

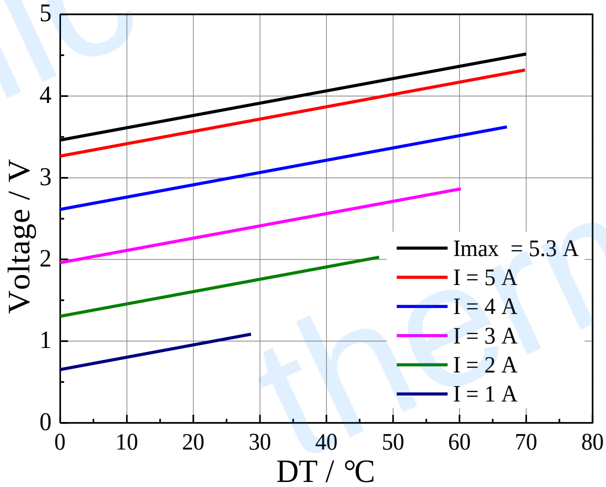
Performance Curves at Th=27 ℃

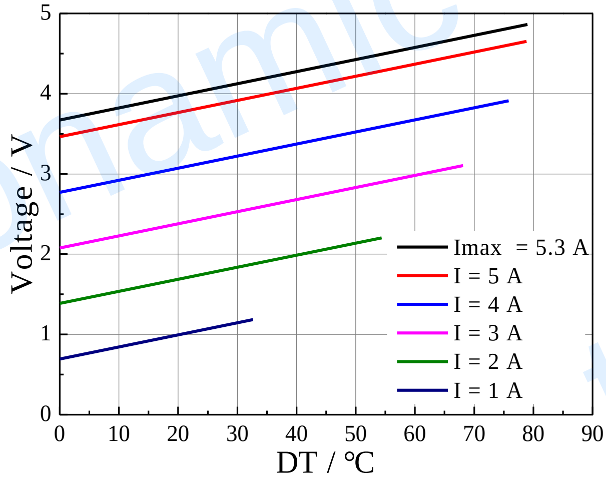


Performance Curves at Th=50 ℃

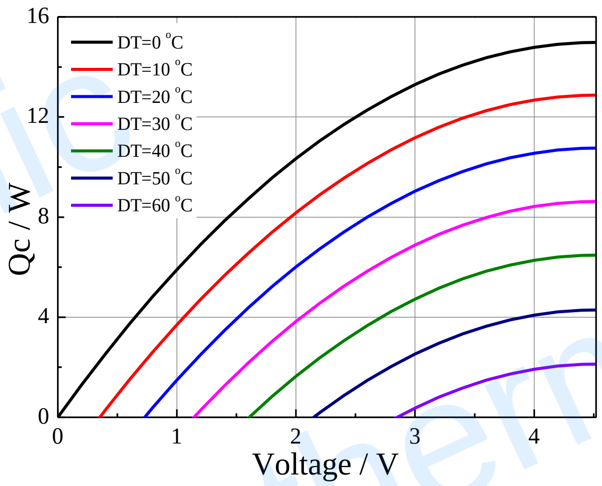


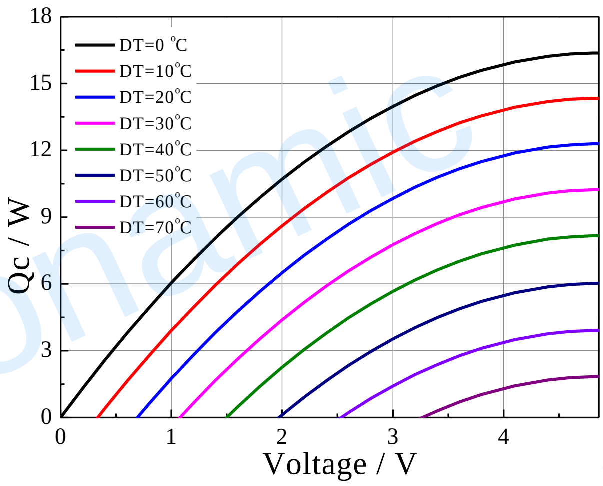
Standard Performance Graph Qc= f(DT)





Standard Performance Graph V= f(DT)



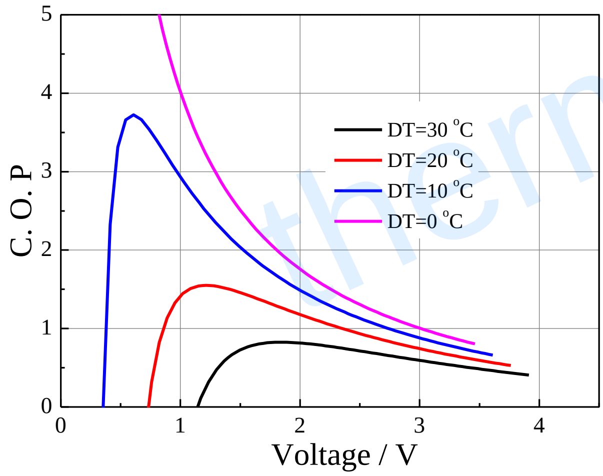


Standard Performance Graph Qc= f(V)

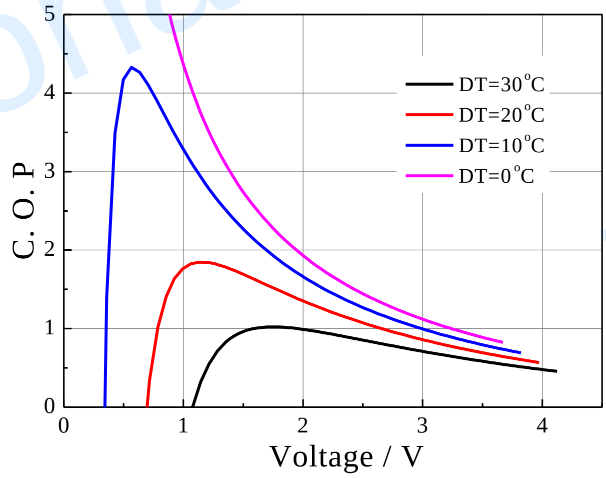
Specification of Thermoelectric Module

TEC1-03505

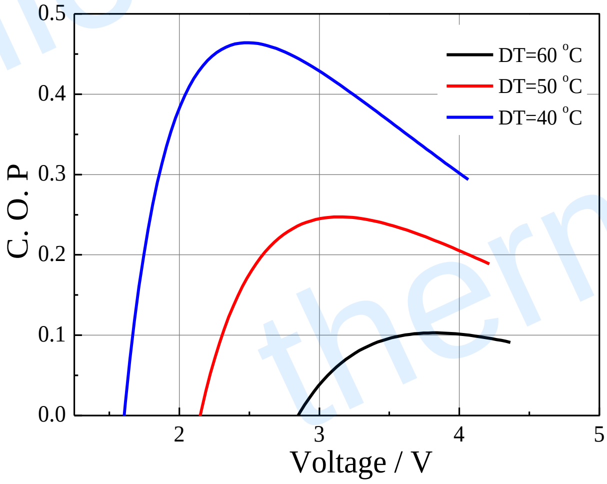
Performance Curves at Th=27 ℃

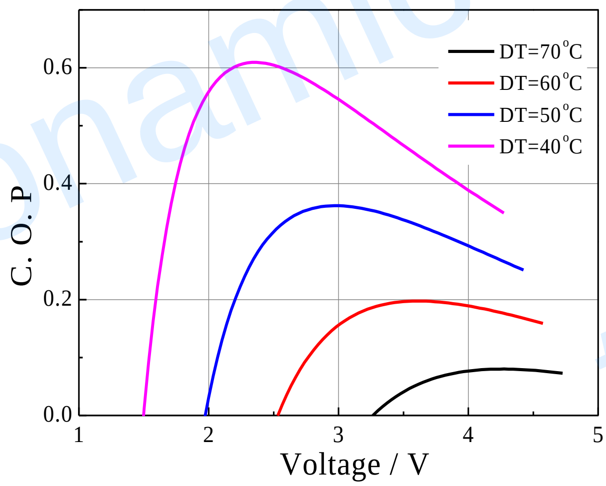


Performance Curves at Th=50 ℃



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 sticked 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

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