Specification of Thermoelectric Module

TEFC1-07441D13

Description

The 74 couples, 18.25 mm × 13.90 mm size ingle 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 /200 ˚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

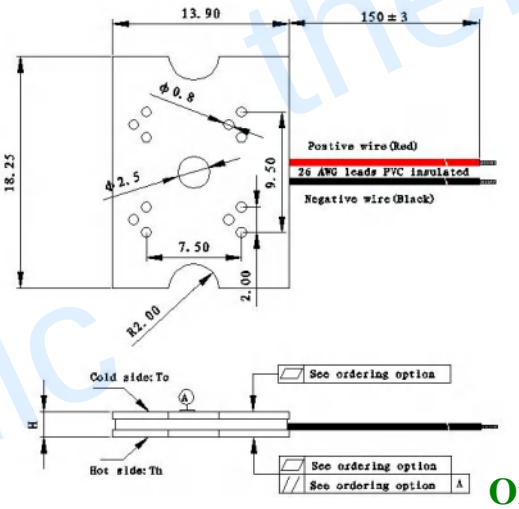
Application

- 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 (ºC)	27	50	Hot side temperature at environment: dry air, N_2
DT_{max} (ºC)	70	79	Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side
U_{max} (Voltage)	9.17	9.90	Voltage applied to the module at DT_{max}
I_{max} (amps)	4.1	4.1	DC current through the modules at DT_{max}
Q_{Cmax} (Watts)	24.3	26.2	Cooling capacity at cold side of the module under DT=0 ºC
AC resistance (ohms)	1.70	1.83	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=138ºC)
2. T200: CuAgSn (Tmelt = 217°C)
3. T240: SbSn (Tmelt = 240°C)

B. Sealant:

1. NS: No sealing (Standard)
2. SS: Silicone sealant
3. EPS: Epoxy sealant

C. Ceramics:

1. Alumina (Al_2O_3, white 96%)
2. Aluminum Nitride (AlN)

D. Ceramics Surface Options:

1. Blank ceramics (not metalized)
2. Metalized

Ordering Option

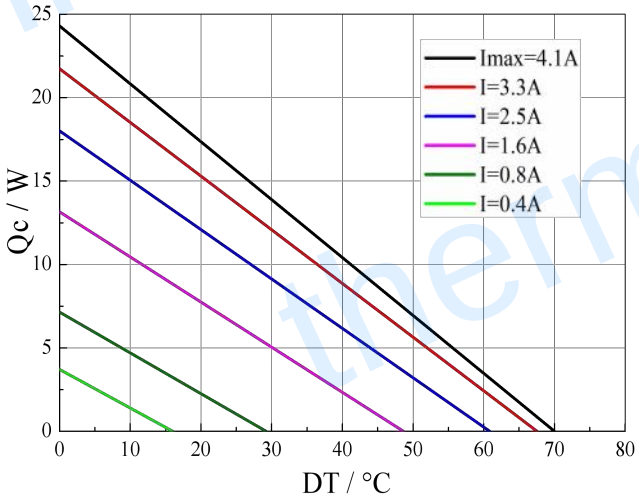
Suffix	Thickness H (mm)	Flatness/ Parallelism (mm)	Lead wire length(mm) Standard/Optional length
TF	0:2.1±0.10	0:0.05/0.05	150±3/Specify
TF	1: 2.1±0.03	1:0.02/0.02	150±3/Specify
Eg. TF01: Thickness 2.1± 0.10 (mm) and Flatness 0.02 / 0.02(mm)			

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

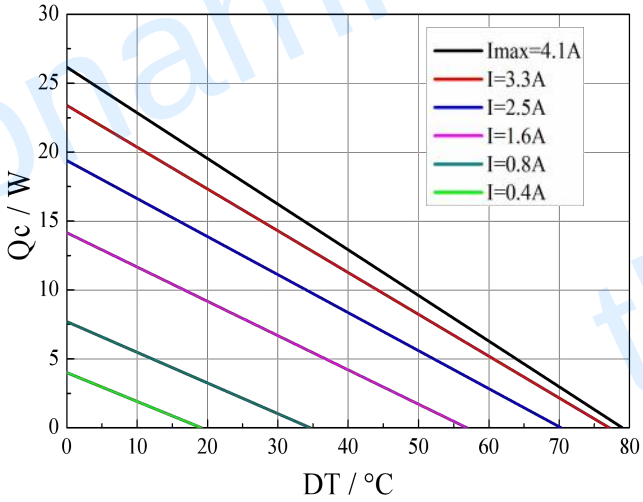
Specification of Thermoelectric Module

TEFC1-07441D13

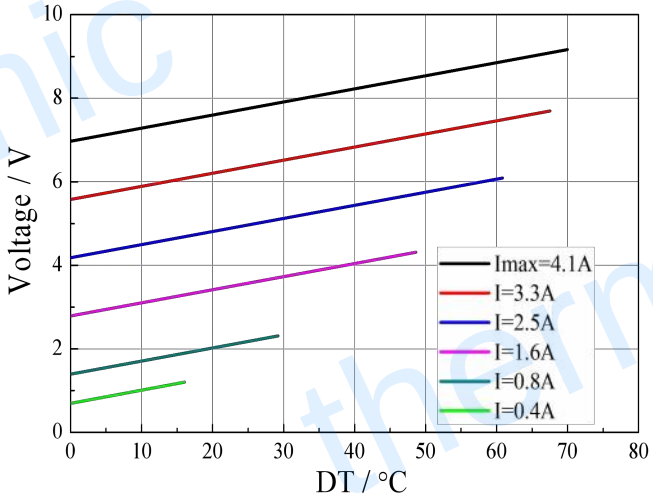
Performance Curves at Th=27 ºC

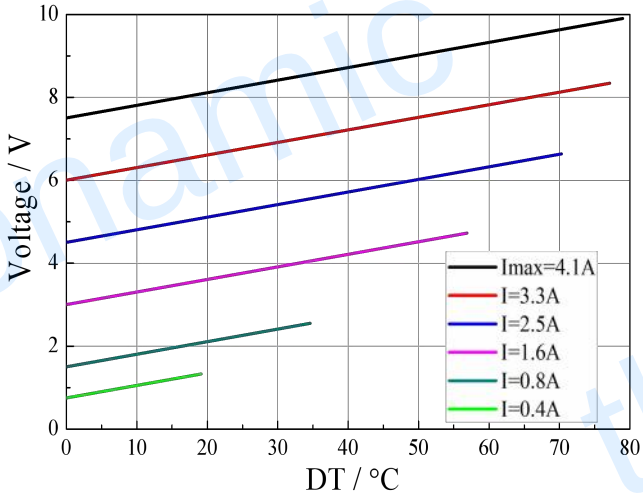


Performance Curves at Th=50 ºC

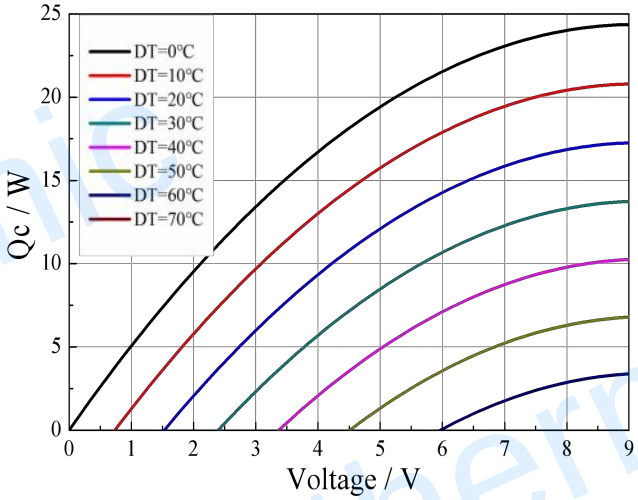


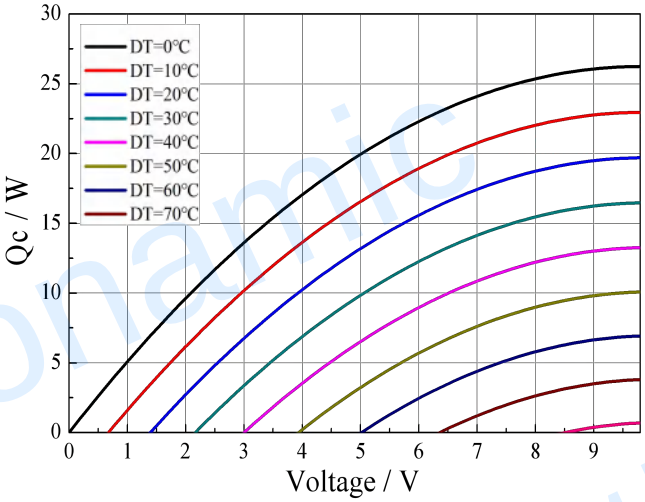
Standard Performance Graph Qc= f(DT)





Standard Performance Graph V= f(DT)





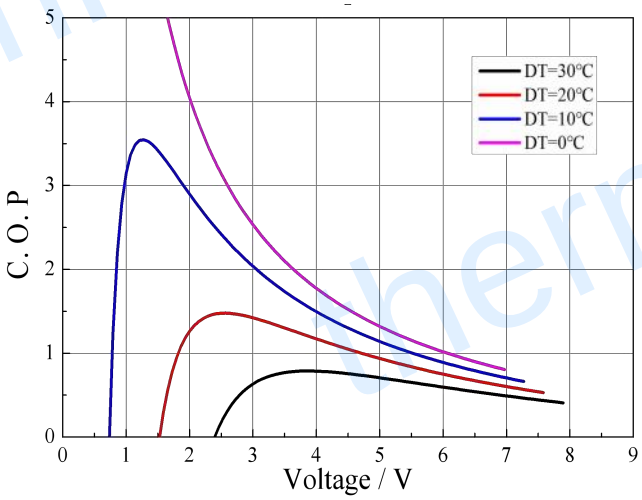
Standard Performance Graph Qc= f(V)

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

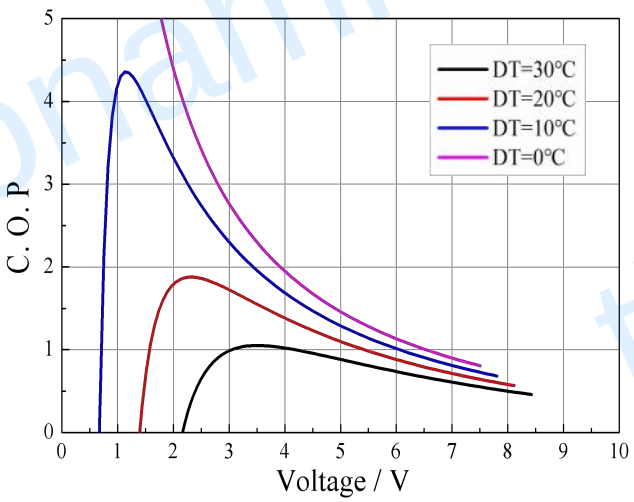
Specification of Thermoelectric Module

TEFC1-07441D13

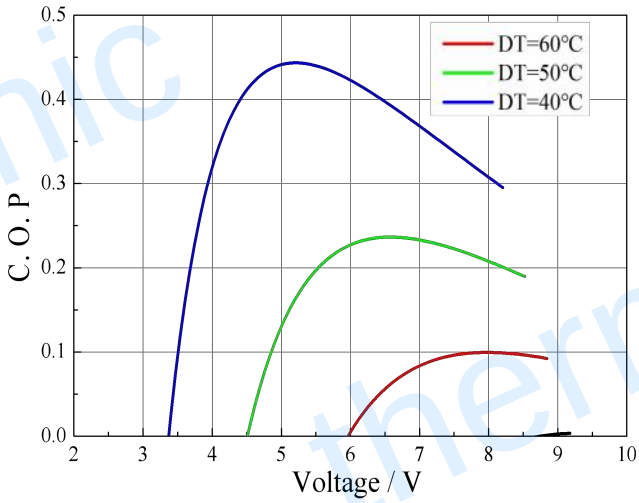
Performance Curves at Th=27 ºC

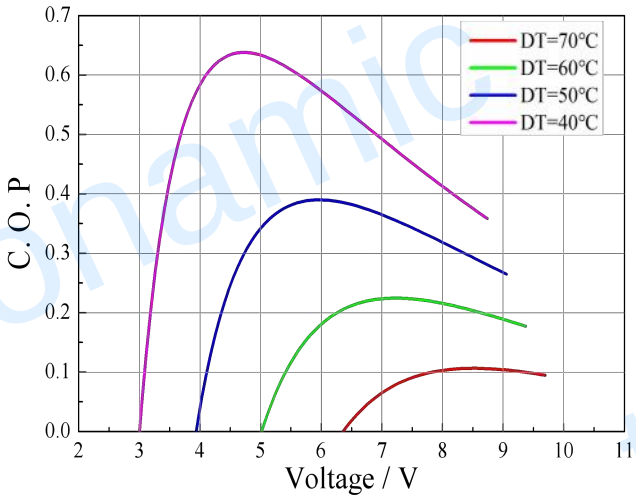


Performance Curves at Th=50 ºC



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

Note: All specifications subject to change without notice.