Specification of Thermoelectric Module

TEC1-12706

Description

The 127 couples, 40 mm × 40 mm size single module which is made of our high performance ingot to achieve superior cooling performance and 70℃ or larger delta T max, 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

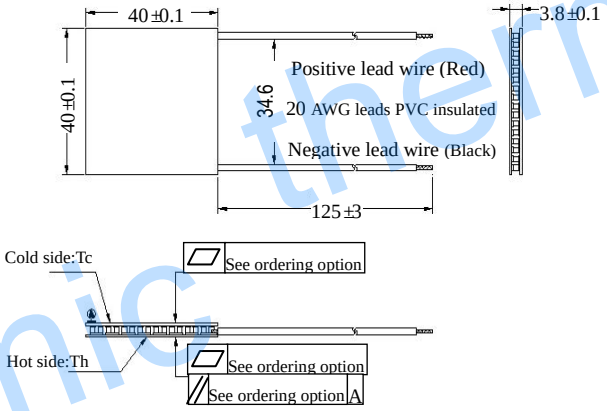
Application

- 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, N2
DTmax(℃)	70	79	Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side
Umax(Voltage)	16	17.2	Voltage applied to the module at DTmax
Imax(amps)	6.1	6.1	DC current through the modules at DTmax
QCmax(Watts)	61.4	66.7	Cooling capacity at cold side of the module under DT=0 ℃
AC resistance(ohms)	1.8~2.2	2.0~2.4	The module resistance is tested under AC

Geometric Characteristics Dimensions in millimeters



Manufacturing Options

A. Solder:

1. T100: BiSn (Melting Point=138℃)
2. T200: CuSn (Melting Point= 227 ℃)

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	125±3/Specify
TF	1:3.8±0.05	1:0.025/0.025	125±3/Specify
TF	2:3.8±0.03	2:0.015/0.015	125±3/Specify
Eg. TF01: Thickness 3.8±0.1(mm) and Flatness 0.025/0.025(mm)			

Naming for the Module

TEC1- 12706 X -X - X - X

- Ceramics
- Flatness/ Parallelism
- Sealant
- Solder

TEC1-12706- T100 -NS - TF02 - AlO

T100: Solder, BiSn (Melting Point=138℃)

NS: No sealing

AlO: Alumina white 96%

TF02: Thickness ±0.1(mm) and Flatness/Parallelism 0.015/0.015(mm)

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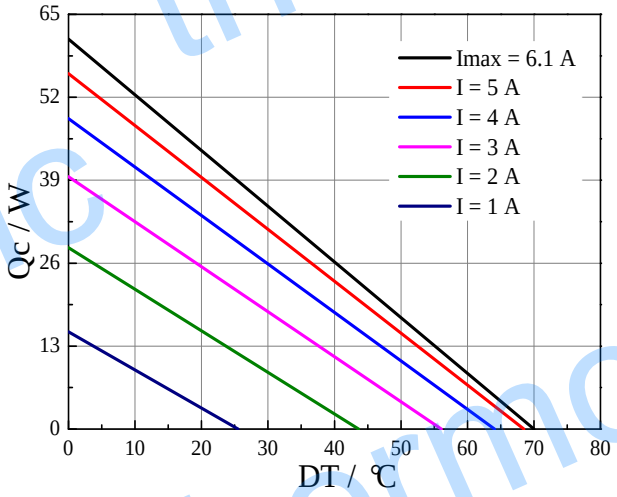
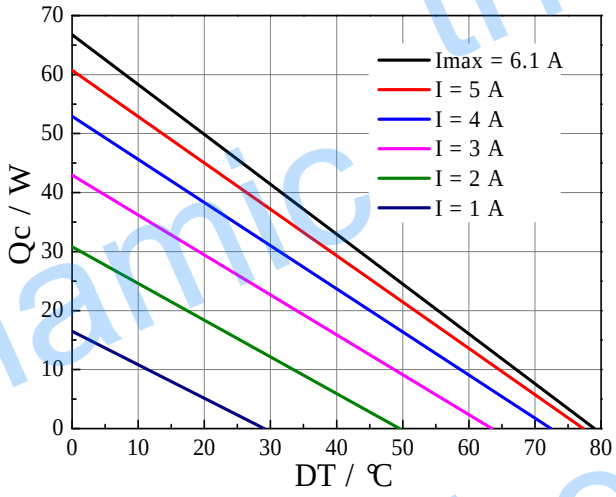
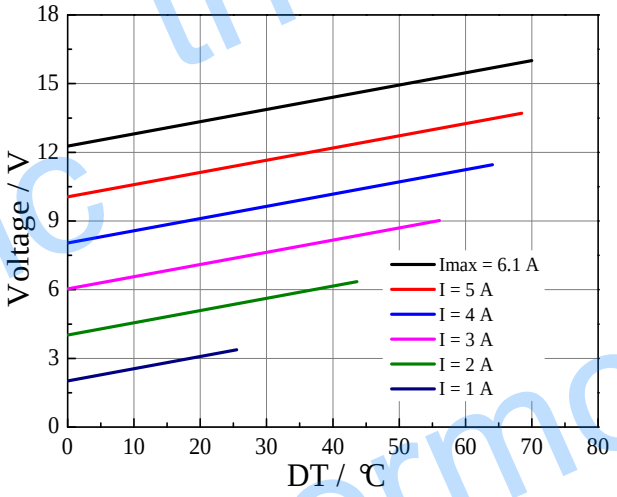
Performance Curves at Th=27 ℃

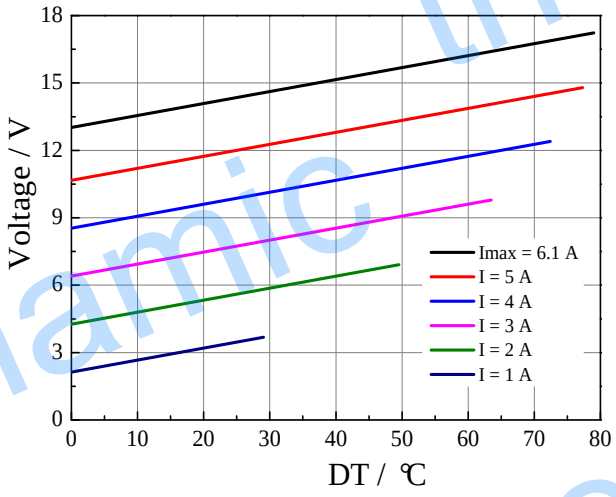


Performance Curves at Th=50 ℃

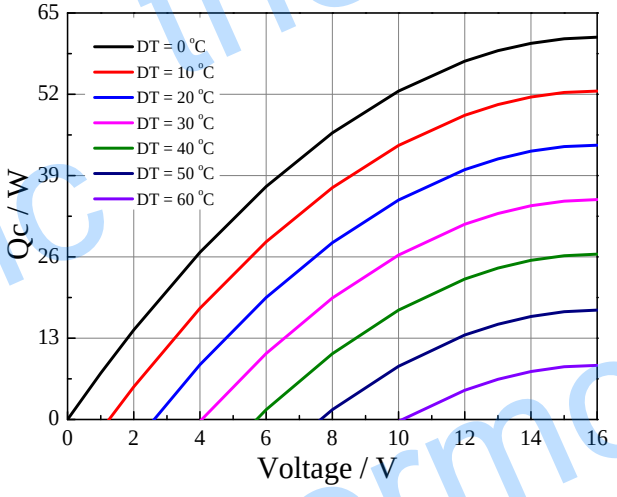


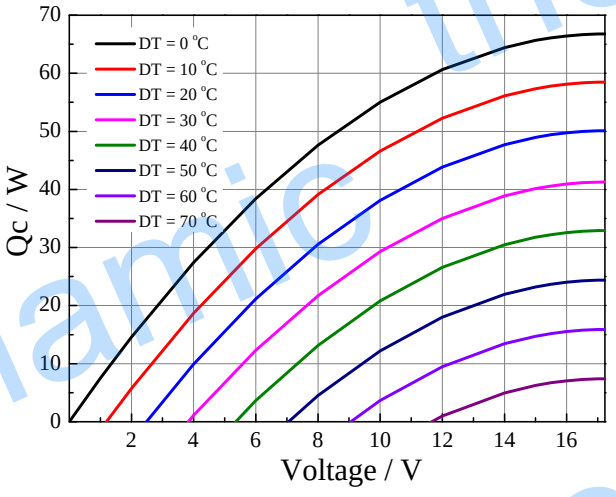
Standard Performance Graph Qc= f(DT)





Standard Performance Graph V= f(ΔT)





Standard Performance Graph Qc= f(V)

Specification of Thermoelectric Module

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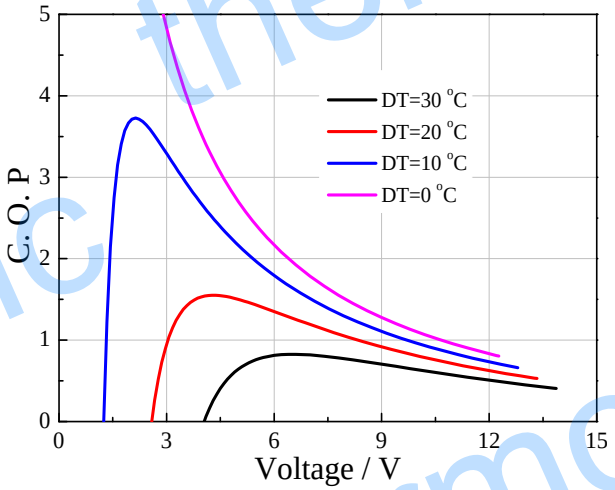
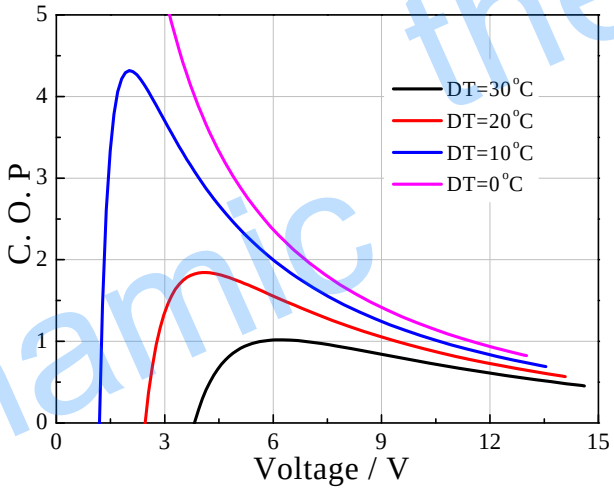
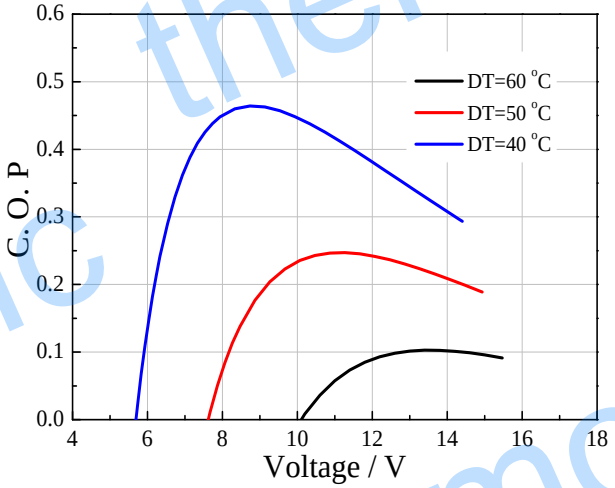
Performance Curves at Th=27 ℃

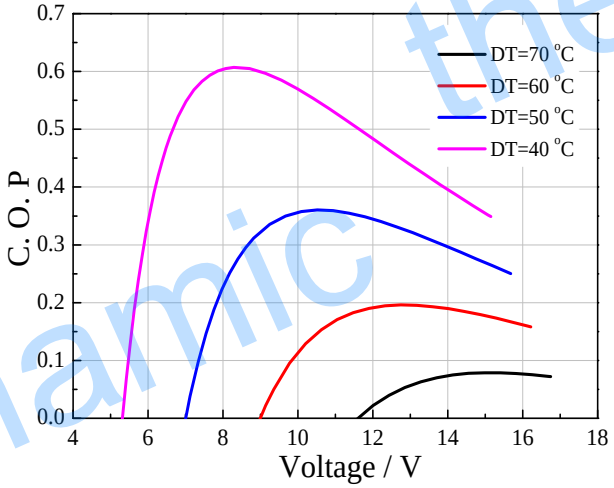


Performance Curves at Th=50 ℃



Standard Performance Graph COP = f(V) of ΔT ranged from 0 to 30 ˚C





Standard Performance Graph COP = f(V) of ΔT 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 or storage module below 100 ℃
- Operation below I_{max} or V_{max}
- Work under DC