Specification of Thermoelectric Module

TEC1-19906

Description

The 199 couples, 40 mm × 40 mm size 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 ℃ 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

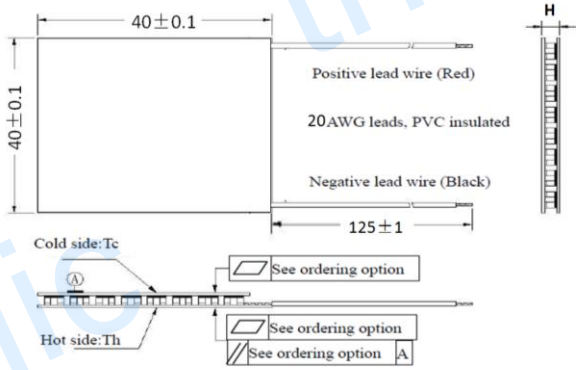
Application

- 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)	24.74	26.66	Voltage applied to the module at DT_{max}
I_{max}(amps)	6.1	6.1	DC current through the modules at DT_{max}
Q_{Cmax}(Watts)	94.9	103.8	Cooling capacity at cold side of the module under DT=0 ℃
AC resistance(ohms)	3.1	3.35	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° C)
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 other than above

C. Ceramics:

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

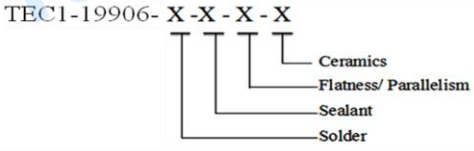
D. Ceramics Surface Options:

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

Ordering Option

Suffix	Thickness (mm)	Flatness/ Parallelism (mm)	Lead wire length(mm) Standard/Optional length
TF	0:3.8 ± 0.1	0:0.05 / 0.05	125±1/Specify
TF	1:3.8 ± 0.05	1:0.025 / 0.025	125±1/Specify
TF	2:3.8±0.025	2:0.015 / 0.015	125±1/Specify
Eg. TF01: Thickness 3.8 ± 0.1(mm) and Flatness 0.025 / 0.025 (mm)			

Naming for the Module



TEC1-19906–T100 -NS –TF01 -AlO

T100: BiSn (Tmelt=138°C)

NS: No sealing AlO: Alumina white 96%

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

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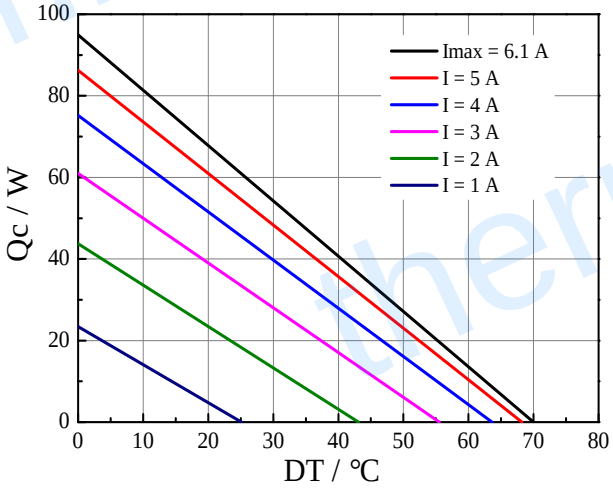
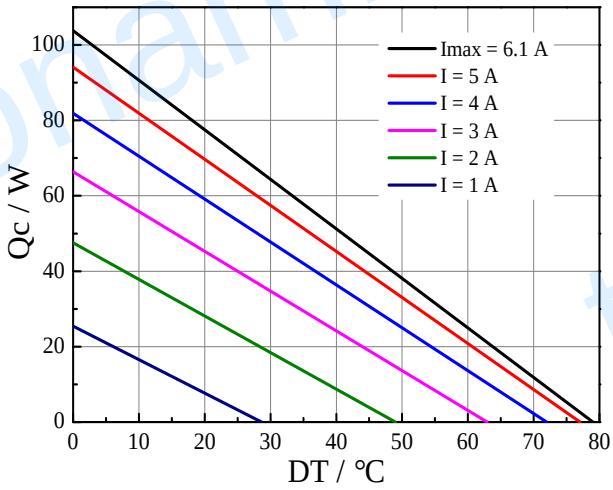
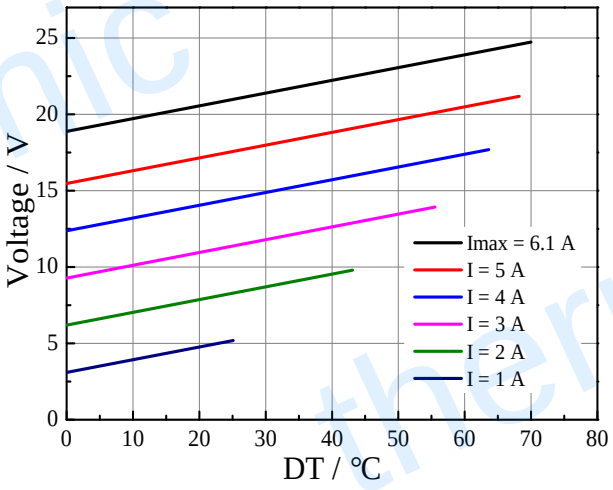
Performance Curves at Th=27 ℃

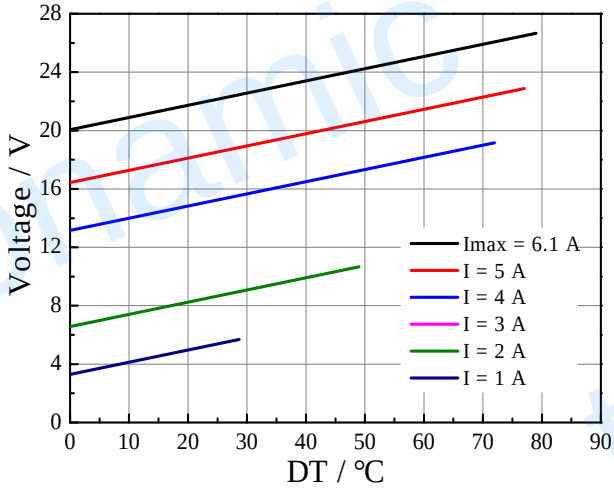


Performance Curves at Th=50 ℃

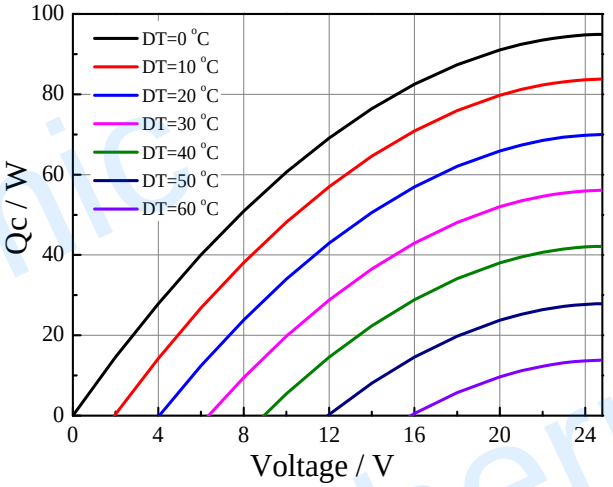


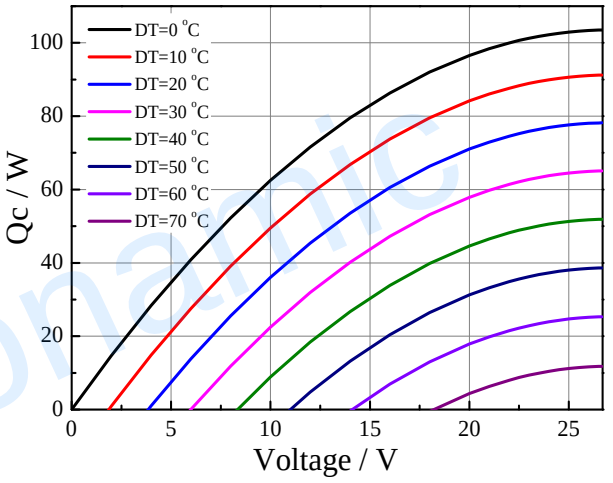
Standard Performance Graph Qc= f(DT)





Standard Performance Graph V= f(ΔT)





Standard Performance Graph Qc= f(V)

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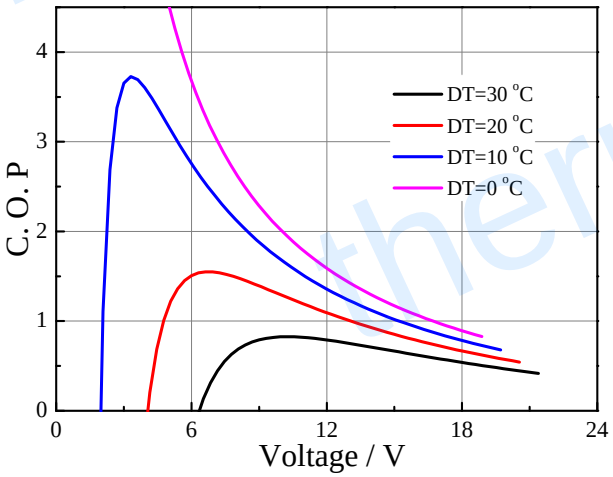
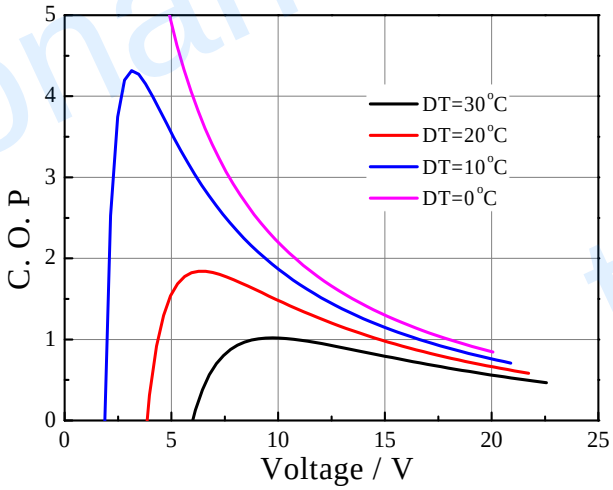
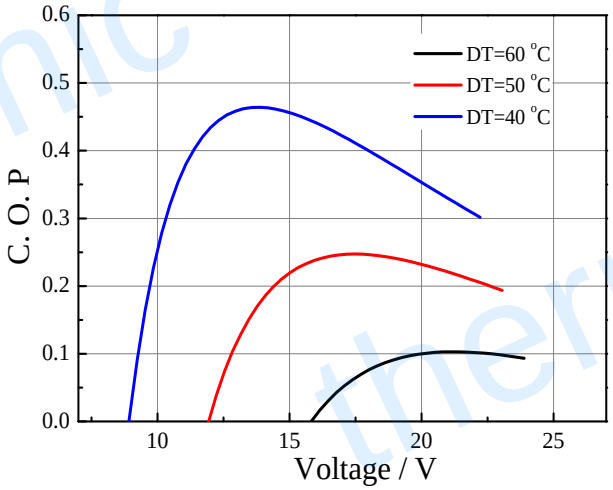
Performance Curves at Th=27 ℃

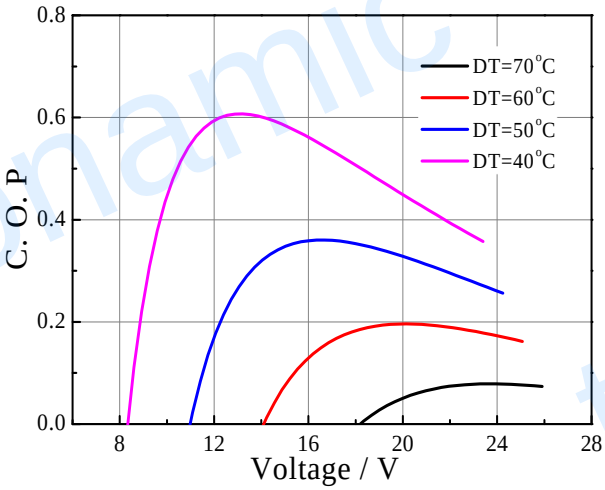


Performance Curves at Th=50 ℃



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
- Storage module below 100 ℃
- Operation below I_{max} or V_{max}
- Work under DC