Specification of Thermoelectric Module TEHC1-24112

Description

The 241 couples, 55 mm × 55 mm size single module which is made of our high performance ingot to achieve superior cooling performance and 74 °C 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

Performance Specification Sheet

Th(°C)	27	50	Hot side temperature at environment: dry air, N ₂	
DT _{max} (°C)	74	83	Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side	
U _{max} (Voltage)	31.8	34.2	Voltage applied to the module at DT _{max}	
I _{max(} amps)	11.4	11.4	DC current through the modules at DT _{max}	
Q _{Cmax} (Watts)	231.3	252.1	Cooling capacity at cold side of the module under DT=0 °C	
AC resistance(ohms)	2.1	2.3	The module resistance is tested under AC	
Tolerance (%)	± 10		For thermal and electricity parameters	

Geometric Characteristics Dimensions in millimeters

Positive lead wire (Red) 16 AWG leads, Teflon insulated Negative lead wire (Black) 125±3 Cold side:Tc See ordering option See ordering option See ordering option

Ordering Option

Suffix	Thickness	Flatness/	Lead wire length(mm)		
	(mm)	Parallelism(mm)	Standard/Optional length		
TF	0:3.75±0.1	0:0.1/0.1	125±3/Specify		
TF	1:3.75±0.05	1:0.05/0.05	125±3/Specify		
Ex. TEO0: Thiskness 2.75+0.1(mm) and Flatness 0.1/0.1(mm)					

Eg. TF00: Thickness 3.75±0.1(mm) and Flatness 0.1/0.1(mm)

Manufacturing Options

B. Sealant:

1. T100: BiSn (Tmelt=138°C)

1. NS: No sealing (Standard)

2. T200: CuAgSn (Tmelt = 217°C)

2. SS: Silicone sealant

3. T240: SbSn (Tmelt = 240° C)

3. EPS: Epoxy sealant

C. Ceramics:

D. Ceramics Surface Options:

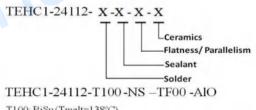
1. Alumina (Al₂O₃, white 96%)

1. Blank ceramics (not metalized)

2. Aluminum Nitride (AlN)

2. Metalized

Naming for the Module



T100: BiSn(Tmelt=138°C)

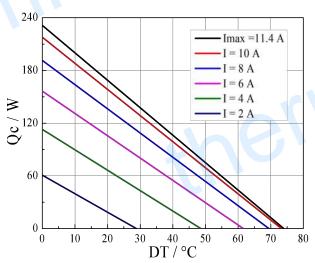
NS: No sealing AlO: Alumina (Al2O3, white 96%)

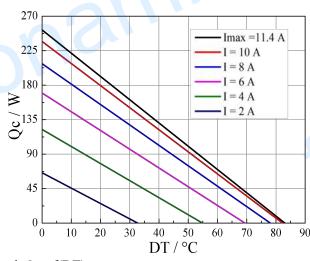
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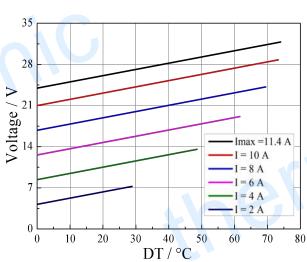


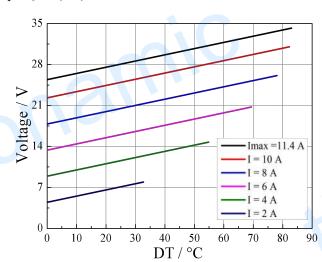
Performance Curves at Th=50 °C



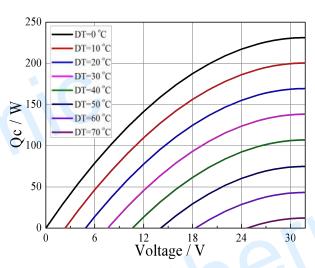


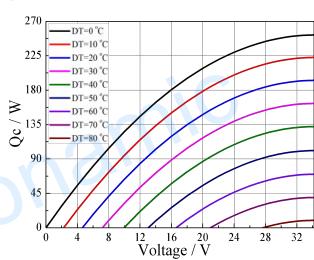
Standard Performance Graph Qc= f(DT)





Standard Performance Graph $V = f(\Delta T)$





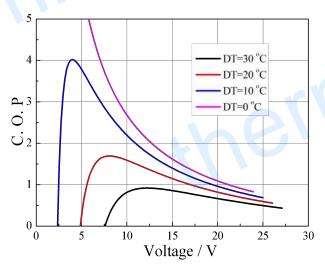
Standard Performance Graph Qc = f(V)

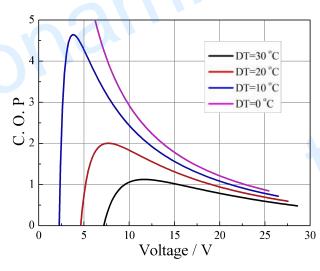
Specification of Thermoelectric Module

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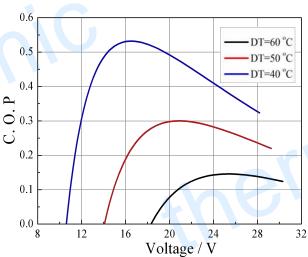
Performance Curves at Th=27 °C

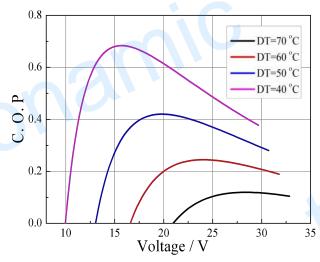
Performance Curves at Th=50 °C





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

- Attach the cold side of module to the object to be cooled
- Attach the hot side of module to a heat radiator for heat dissipating
- Storage module below 100 °C
- Operation below I_{max} or V_{max}
- Work under DC