

Specification of Thermoelectric Module

TEHC1-19512L1P

Description

The 195 couples, 20 mm × 40/44 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

- High effective cooling and efficiency
- 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

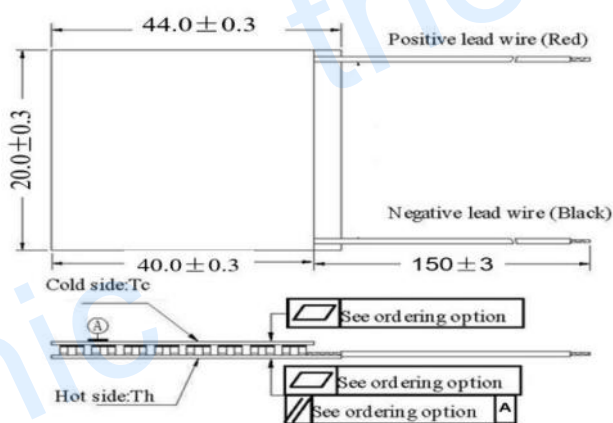
Application

- Food and beverage service refrigerator
- Portable cooler box for cars
- Temperature stabilizer
- Liquid cooling
- 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)	25.1	27.1	Voltage applied to the module at DT _{max}
I _{max} (Amps)	12	12	DC current through the modules at DT _{max}
Q _{Cmax} (Watts)	196.5	211.6	Cooling capacity at cold side of the module under DT=0 °C
AC resistance (Ohms)	1.60	1.72	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: 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 (Al₂O₃, white 96%)
2. Aluminum Nitride (AlN)

D. Ceramics Surface Options:

1. Blank ceramics (not metalized)
2. Metalized

Ordering Option

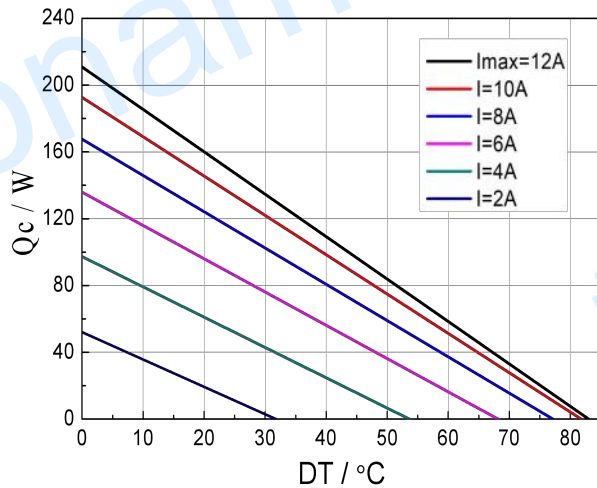
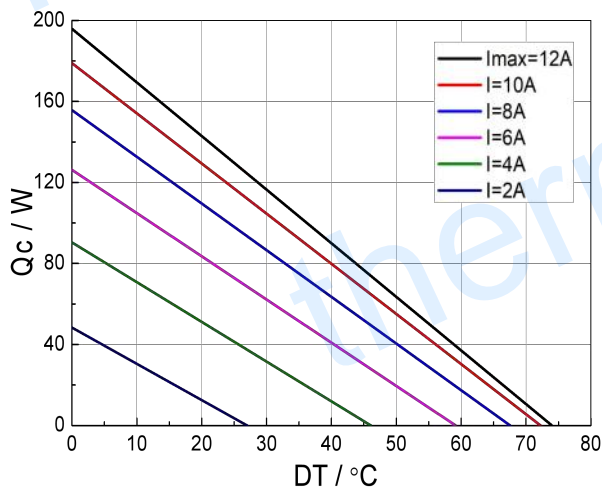
Suffix	Thickness H / (mm)	Flatness/ Parallelism(mm)	Lead wire length (mm) Standard/Optional length
TF	0:3.0±0.1	0:0.07/0.07	150±3/Specify
TF	1:3.0±0.05	1:0.03/0.03	150±3/Specify

Specification of Thermoelectric Module

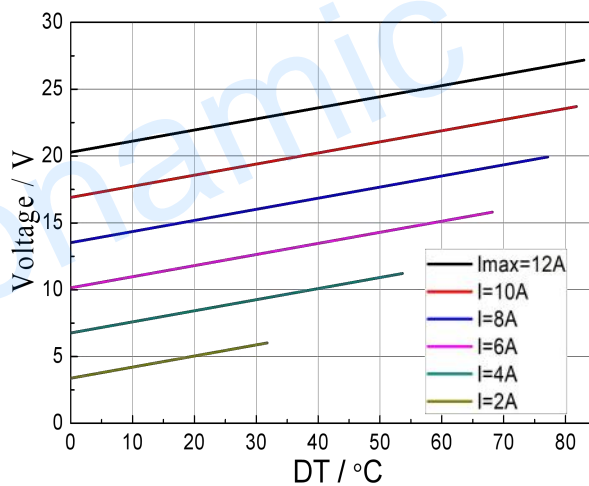
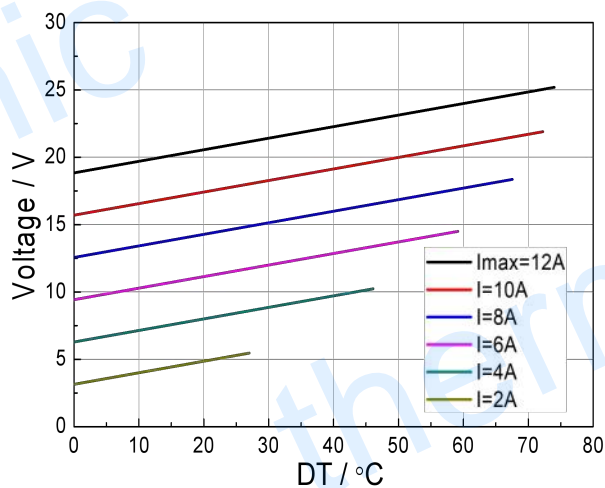
TEHC1-19512L1P

Performance Curves at $T_h=27^\circ\text{C}$

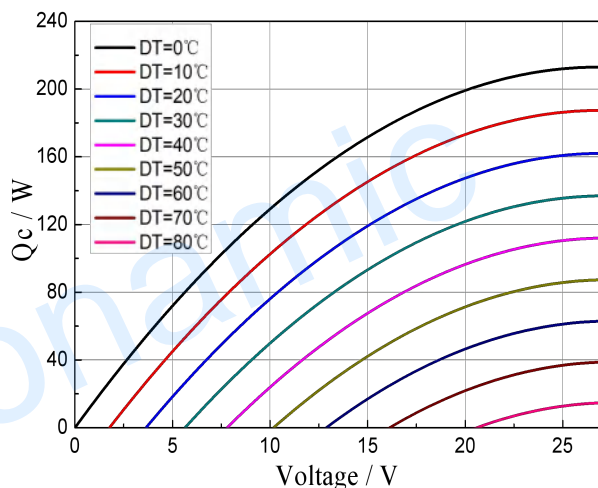
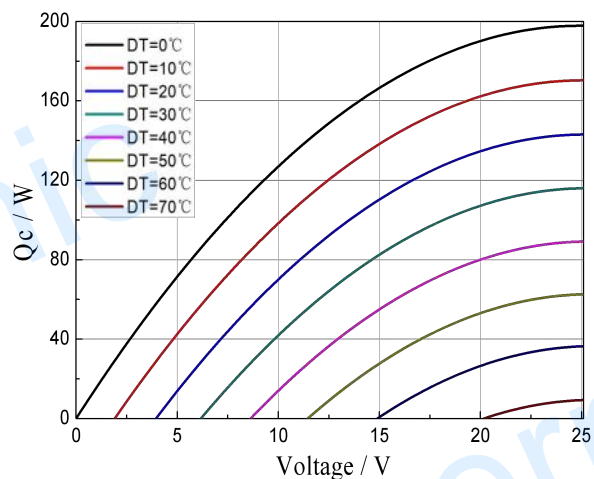
Performance Curves at $T_h=50^\circ\text{C}$



Standard Performance Graph $Q_c = f(DT)$



Standard Performance Graph $V = f(DT)$

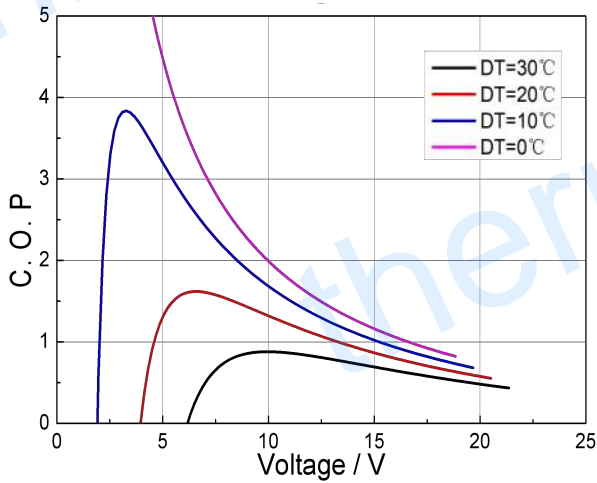


Standard Performance Graph $Q_c = f(V)$

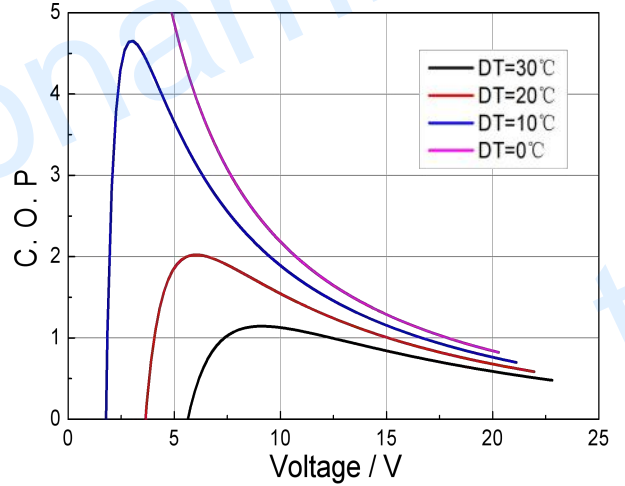
Specification of Thermoelectric Module

TEHC1-19512L1P

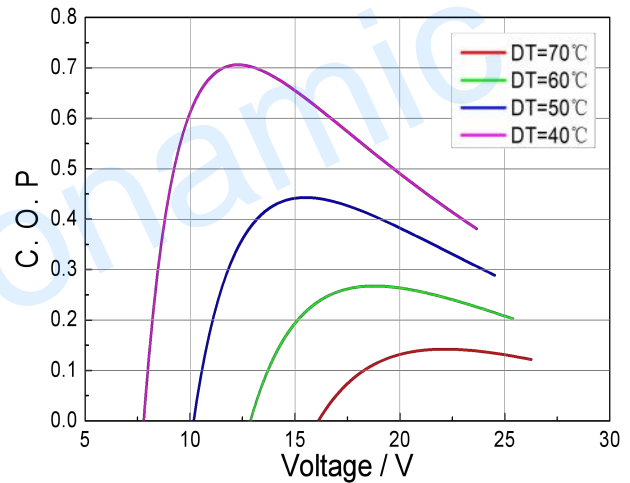
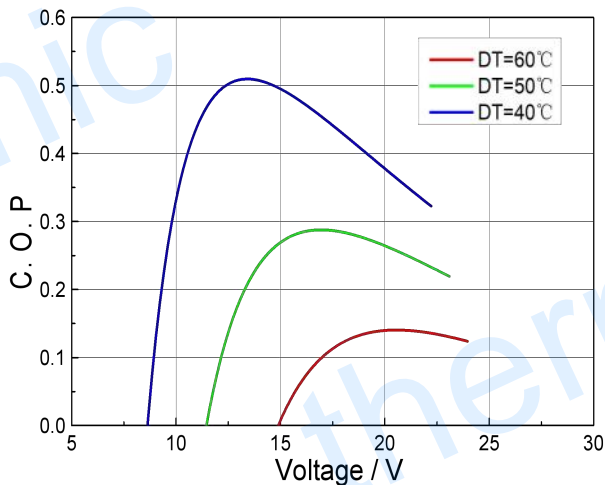
Performance Curves at Th=27 °C



Performance Curves at Th=50 °C



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 Q_c /Input power ($V \times I$).

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

Note: All specifications subject to change without notice.