

Specification of Thermoelectric Module

TEFC1-00718

Description

The 7 couples, 4.2 mm × 4.2 mm size single module which is made of selected high performance ingot to achieve superior cooling performance and greater delta T up to 70 °C, designed for superior cooling and heating up to 100 °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

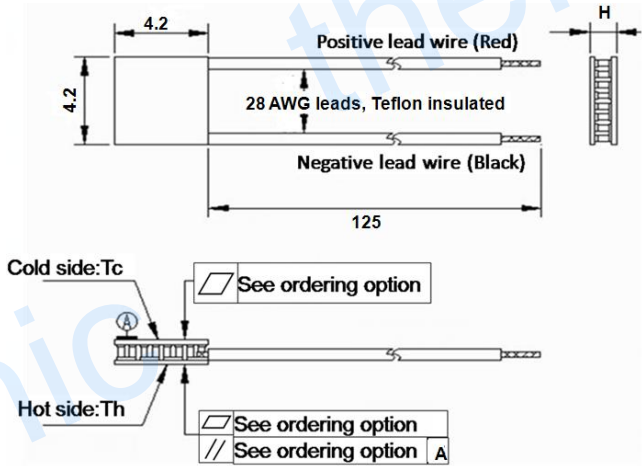
Application

- 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 (°C)	27	50	Hot side temperature at environment: dry air, N ₂
DT _{max} (°C)	70	79	Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side
U _{max} (Voltage)	0.86	0.92	Voltage applied to the module at DT _{max}
I _{max} (amps)	1.80	1.80	DC current through the modules at DT _{max}
Q _{Cmax} (Watts)	1.02	1.10	Cooling capacity at cold side of the module under DT=0 °C
AC resistance (ohms)	0.36	0.39	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 (T_{mel}=138°C)
 - 1. T200: CuSn (T_{mel}=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 (Al₂O₃, white 96%)
 - 2. Aluminum Nitride (AlN)
- D. Ceramics Surface Options:**
 - 1. Blank ceramics (not metallized)
 - 2. Metallized (Au plating)

Ordering Option

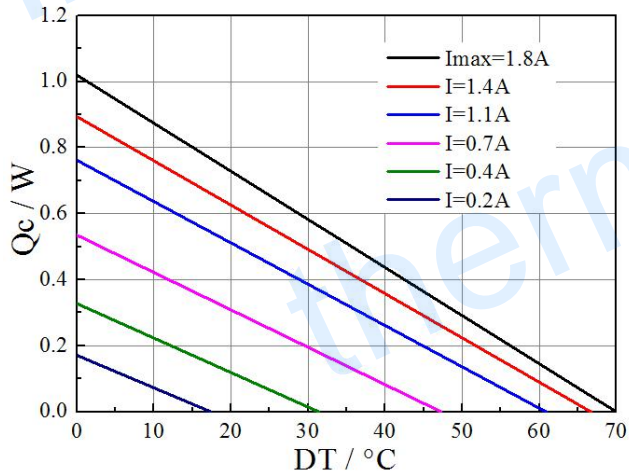
Suffix	Thickness H (mm)	Flatness/ Parallelism (mm)	Lead wire length(mm) Standard/Optional length
TF	0:2.1±0.1	0:0.02/0.02	125±3/Specify
TF	1:2.1±0.05	1:0.015/0.015	125±3/Specify
TF	2:2.1±0.03	2:0.01/0.01	125±3/Specify

Eg. TF01: Thickness 2.1 ± 0.1 (mm) and Flatness 0.015 / 0.015 (mm)

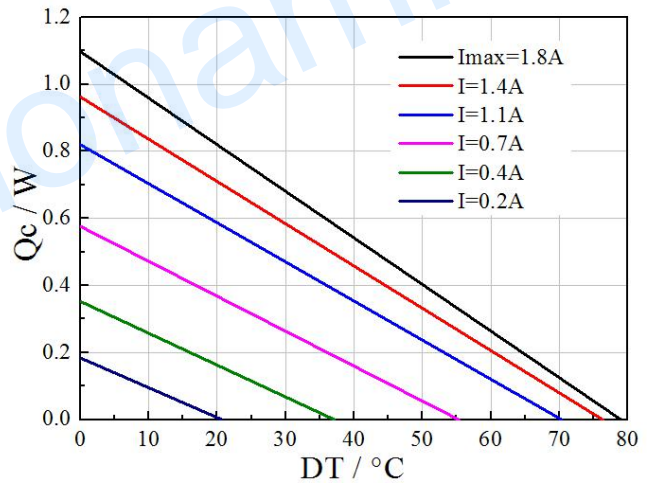
Specification of Thermoelectric Module

TEFC1-00718

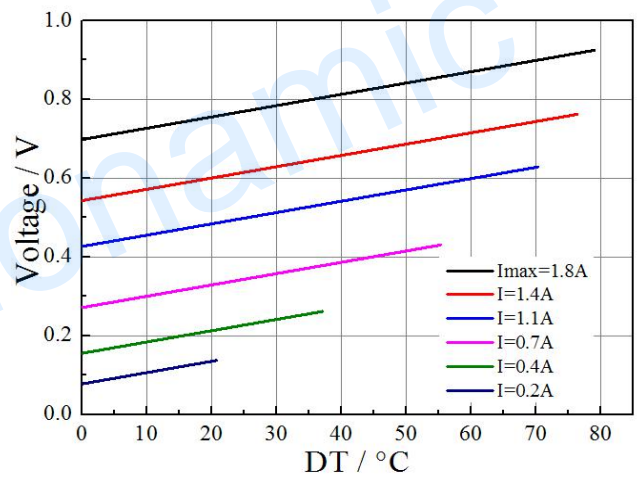
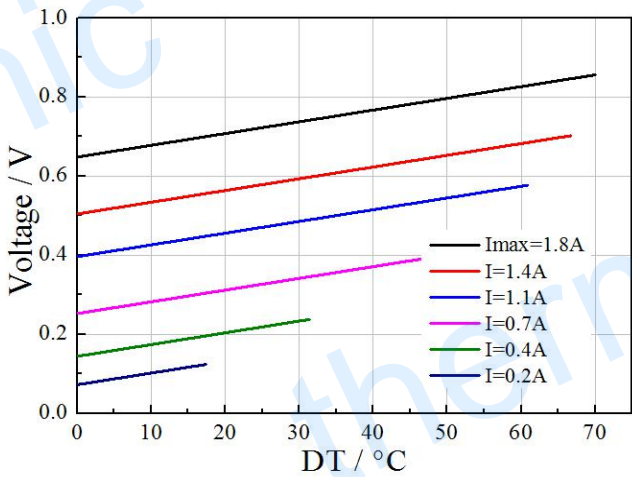
Performance Curves at Th=27 °C



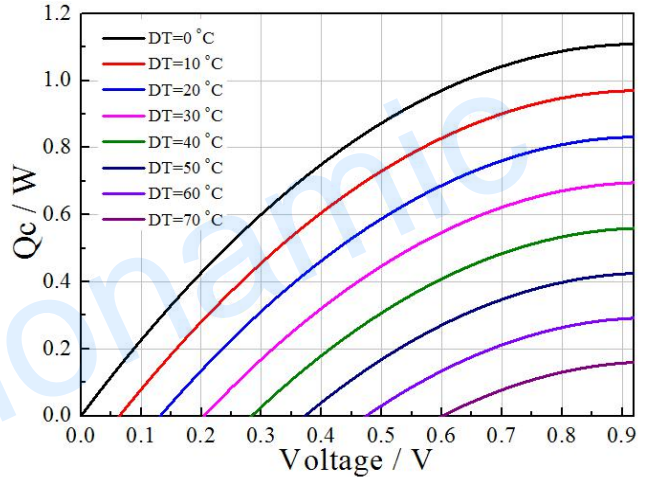
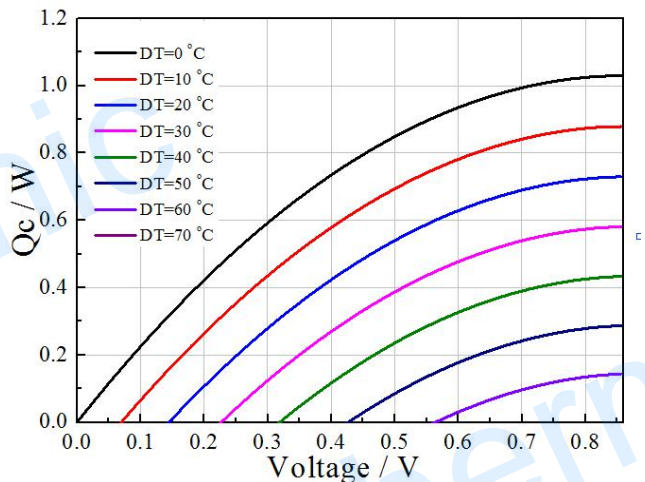
Performance Curves at Th=50 °C



Standard Performance Graph $Q_c = f(DT)$



Standard Performance Graph $V = f(DT)$

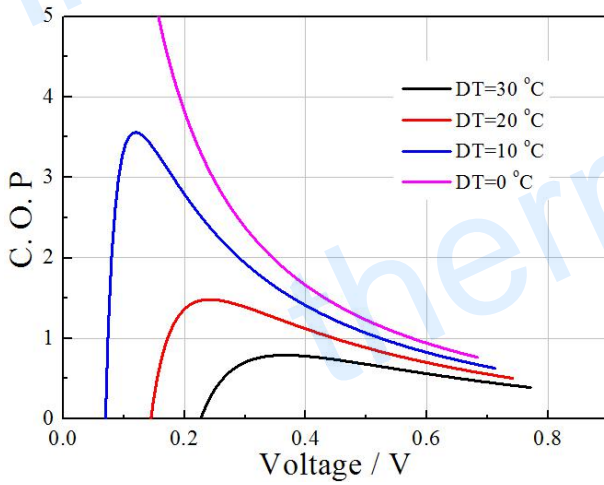


Standard Performance Graph $Q_c = f(V)$

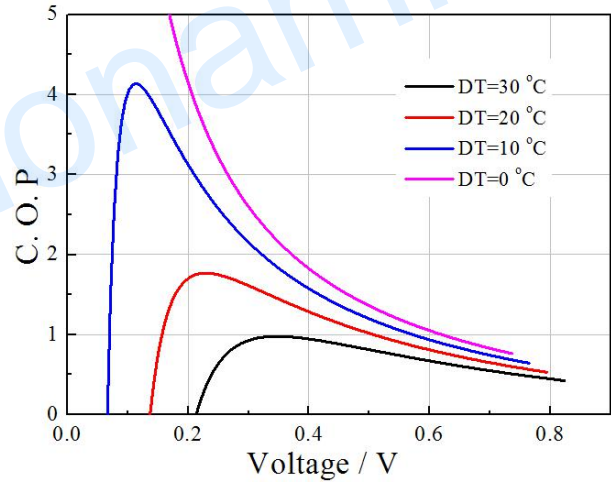
Specification of Thermoelectric Module

TEFC1-00718

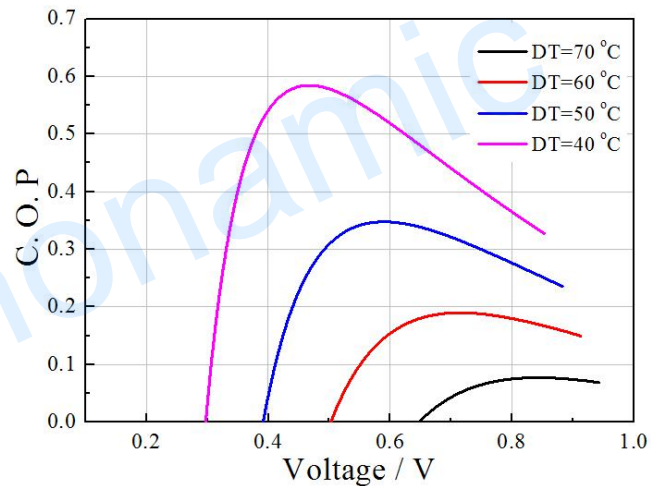
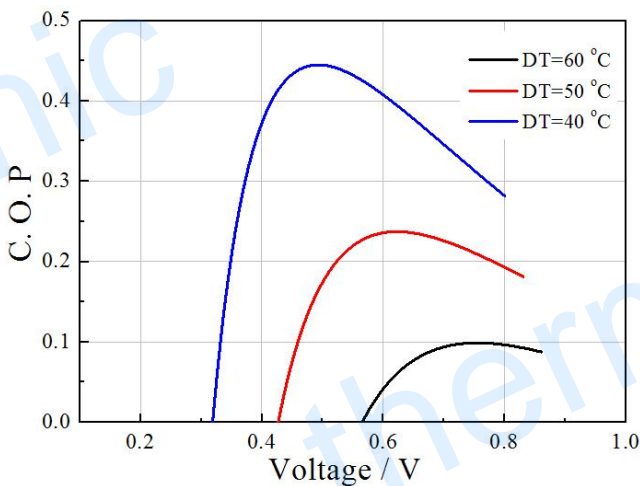
Performance Curves at $T_h=27\text{ }^\circ\text{C}$



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



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
- Operation below I_{max} or V_{max}
- Work under DC

Note: All specifications subject to change without notice.