

Specification of Thermoelectric Module

TEFC1-01812P

Description

The 18 couples, 2.0/2.7 mm × 2.0mm size 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 200°C applications in photonics. It has maximum 200°C processing temperature. 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

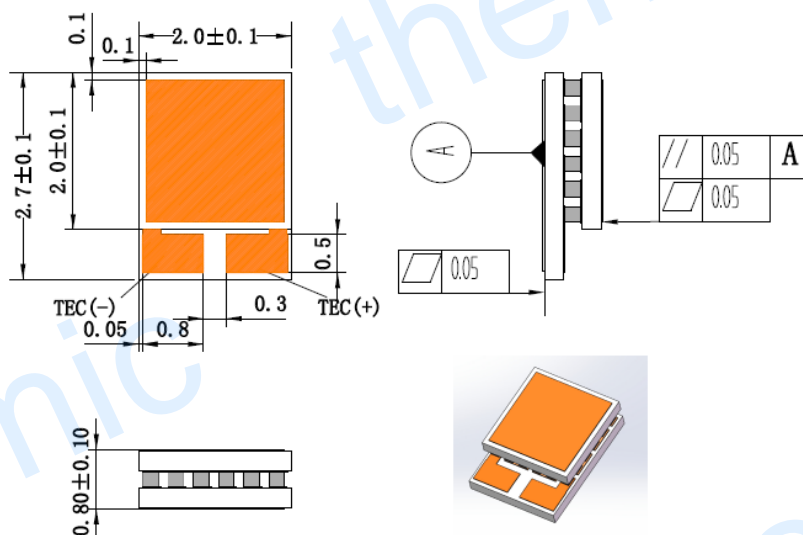
Application

- Photonics
- Temperature stabilizer

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)	2.24	2.42	Voltage applied to the module at DT _{max}
I _{max} (Amps)	1.2	1.2	DC current through the modules at DT _{max}
Q _{Cmax} (Watts)	1.72	1.85	Cooling capacity at cold side of the module under DT=0 °C
AC resistance (Ohms)	1.4~1.8	1.5~1.9	The module resistance is tested under AC
Tolerance (%)	10%		For thermal and electricity parameters

Geometric Characteristics Dimensions in millimeters



Manufacturing Options

A. Solder:

1. T240: SbSn (T_{melt}=240 °C)
2. T280: AuSn (T_{melt}=280 °C)

B. Sealant:

NS: No sealing

C. Ceramics:

AlN : Aluminum Nitride

D. Ceramics Surface Options:

Hot side: Metalized (Au plating)

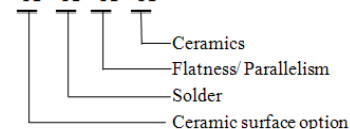
Cold side: Metalized (Au plating)

Ordering Option

Suffix	Thickness H (mm)	Flatness/ Parallelism (mm)	Lead wire length(mm) Standard/Optional length
TF	0:0.8±0.10	0: 0.05/0.05	No Wires

Naming for the Module

TEFC1- 01812P - X - X - X - X



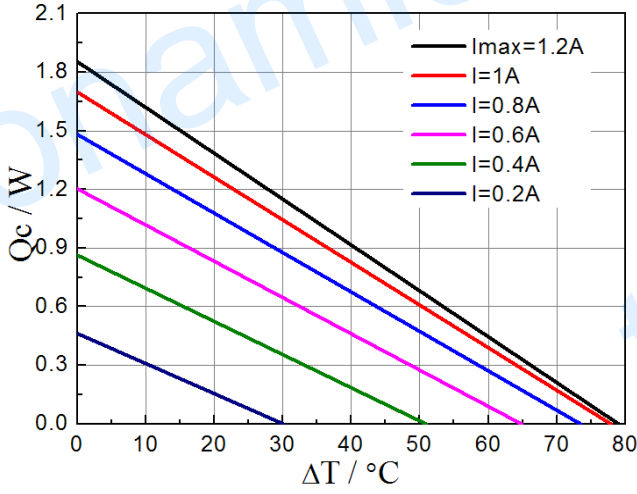
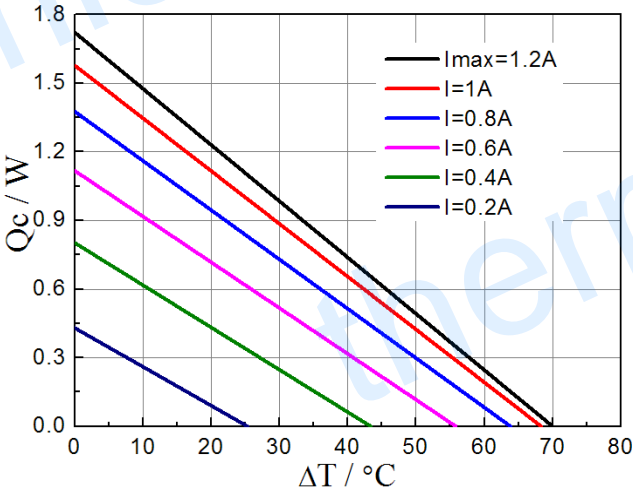
TEFC1- 01812P - TTAu – T240 - TF00 - AlN

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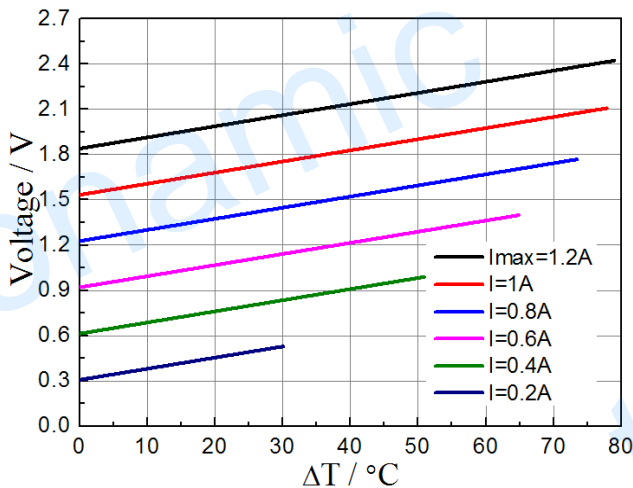
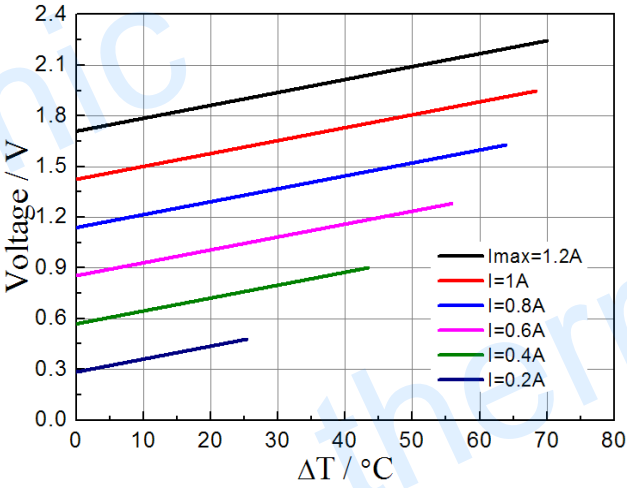
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Performance Curves at Th=27 °C

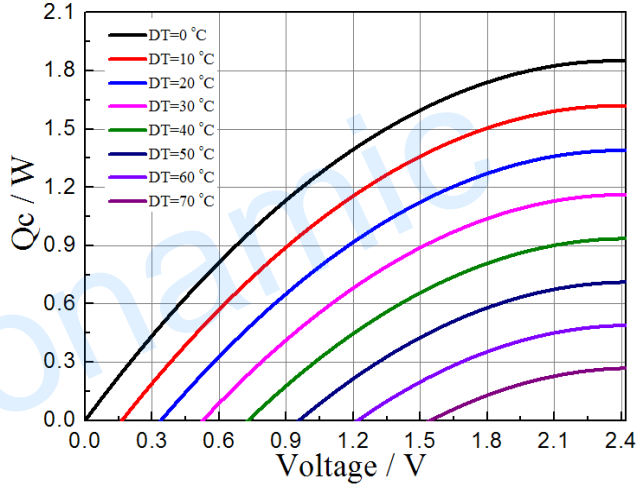
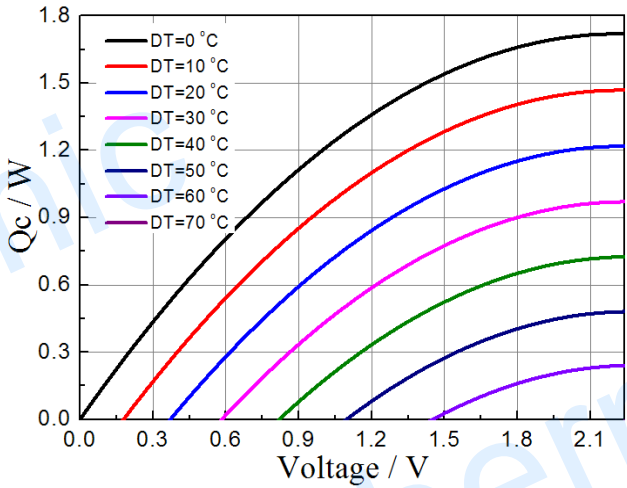
Performance Curves at Th=50 °C



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



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

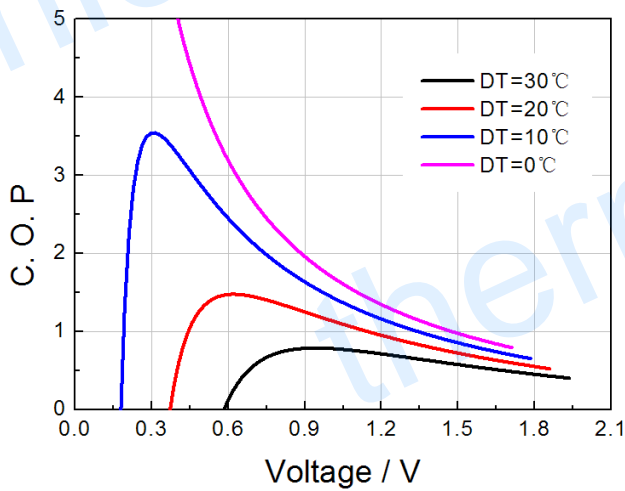


Standard Performance Graph $Q_c = f(V)$

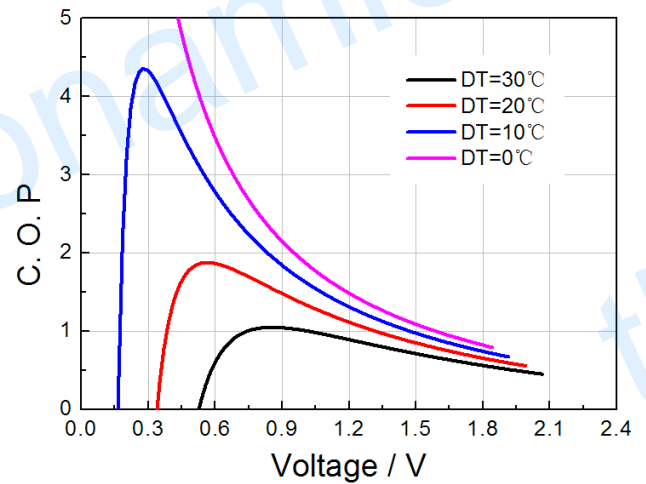
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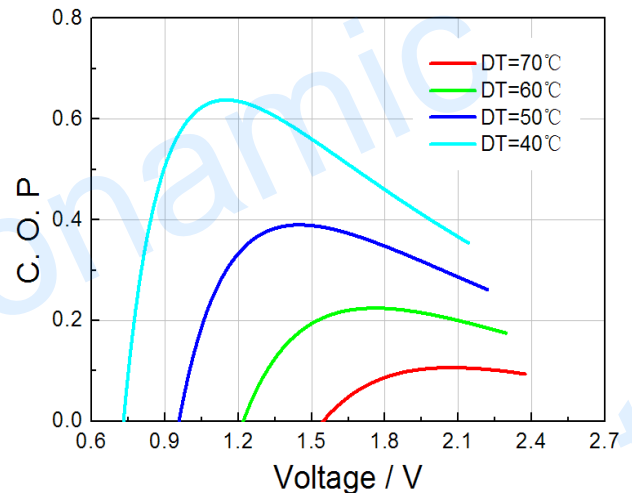
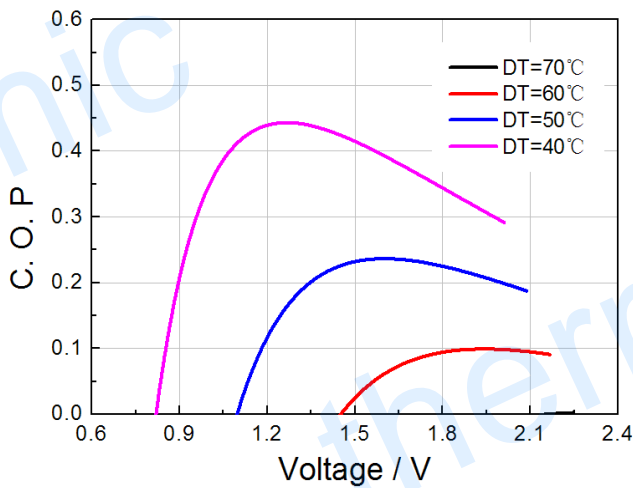
Performance Curves at Th=27 °C



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 Caution

- 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.