Specification of Thermoelectric Module TEFC1-01809P

Application

• Temperature stabilizer

Photonics

Description

The 18 couples, $2.0/2.7 \text{ mm} \times 2.0 \text{mm}$ size module which is made of selected high performance ingot to achieve superior cooling performance and greater delta T up to $70 \, \text{C}$, designed for superior cooling and heating up to $200 \, \text{C}$ applications in photonics. It has maximum $200 \, \text{C}$ 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.

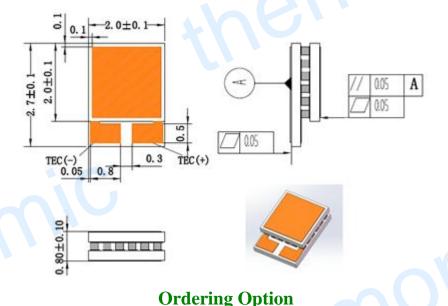
Features

- 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

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 | 2.41 | Voltage applied to the module at DT _{max} | |
| I _{max} (Amps) | 0.96 | 0.96 | DC current through the modules at DT _{max} | |
| Q _{Cmax} (Watts) | 1.38 | 1.49 | Cooling capacity at cold side of the module under DT=0 °C | |
| AC resistance (Ohms) | 2.00 | 2.15 | The module resistance is tested under AC | |
| Tolerance (%) | 10% | | For thermal and electricity parameters | |

Geometric Characteristics Dimensions in millimeters



| Suffix | Thickness | Flatness/ | Lead wire length(mm) |
|--------|-----------------|------------------|--------------------------|
| Sullix | H (mm) | Parallelism (mm) | Standard/Optional length |
| TF | $0:0.80\pm0.10$ | 0: 0.05/0.05 | No Wires |

Manufacturing Options

A. Solder:

1. T240: SbSn (Tmelt=240 ℃)

2. T280: AuSn (Tmelt=280 °C)

B. Sealant:

NS: No sealing

C. Ceramics:

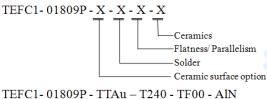
AlN: Aluminum Nitride

D. Ceramics Surface Options:

Hot side: Metalized (Au plating)

Cold side: Metalized (Au plating)

Naming for the Module

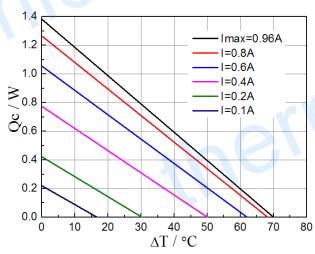


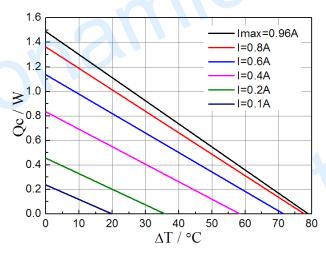
Specification of Thermoelectric Module

TEFC1-01809P

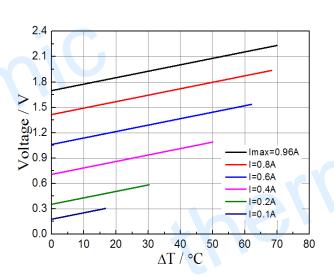
Performance Curves at Th=27 ℃

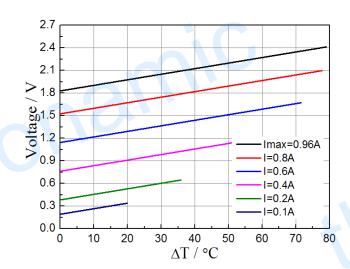
Performance Curves at Th=50 ℃



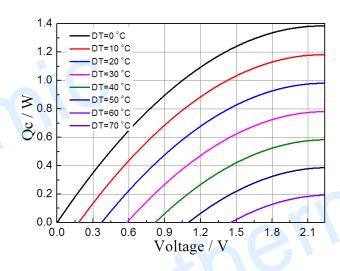


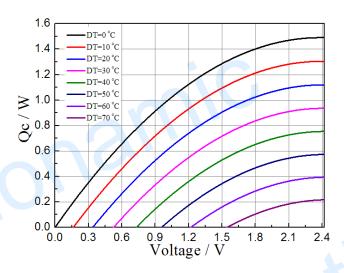
Standard Performance Graph Qc= f(DT)





Standard Performance Graph V = f(DT)





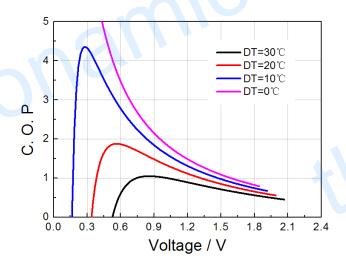
Standard Performance Graph Qc = f(V)

Specification of Thermoelectric Module

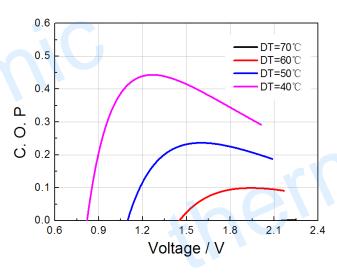
TEFC1-01809P

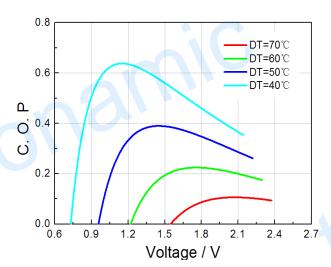
Performance Curves at Th=27 ℃

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 Qc/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
- \bullet Operation below I_{max} or V_{max}
- Work under DC

Note: All specifications subject to change without notice.