

Specification of Thermoelectric Module

TEFC1-00211P

Description

The 2 couples, 1.0 mm × 1.6mm size module which is made of selected high performance ingot to achieve superior cooling performance and greater delta T up to 71 °C, designed for superior cooling and heating up to 100/200 °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

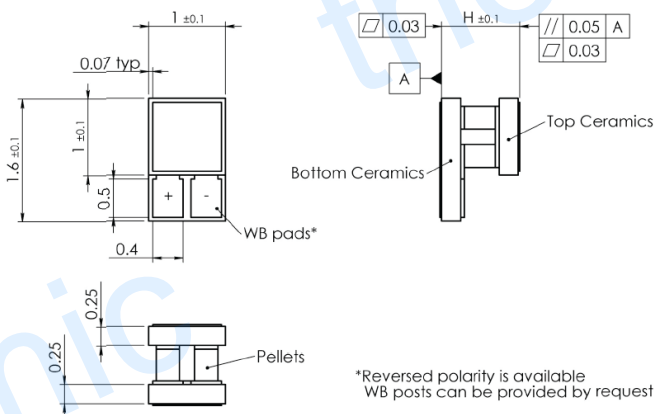
Application

- 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)	71	80	Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side
U _{max} (Voltage)	0.26	0.28	Voltage applied to the module at DT _{max}
I _{max} (Amps)	1.1	1.1	DC current through the modules at DT _{max}
Q _{Cmax} (Watts)	0.17	0.18	Cooling capacity at cold side of the module under DT=0 °C
AC resistance (Ohms)	0.18	0.19	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_{melt}=138°C)
2. T200: CuSn (T_{melt} = 227 °C)

B. Sealant:

1. NS: No sealing (Standard)
2. SS: Silicone sealant
3. EPS: Epoxy sealant
4. Customer specify sealing

C. Ceramics:

1. Alumina (Al₂O₃, white 96%)
2. Aluminum Nitride (AlN)

D. Ceramics Surface Options:

1. Blank ceramics (not metallized)
2. Metallized (Au plating)

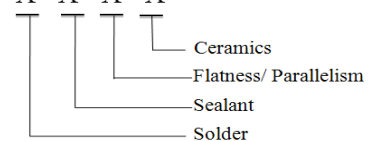
Ordering Option

Suffix	Thickness H (mm)	Flatness/ Parallelism (mm)	Lead wire length(mm) Standard/Optional length
TF	0:0.9 ± 0.1	0: 0.05/0.08	Available on request
TF	1:0.9 ± 0.05	1: 0.03/0.05	Available on request
TF	2:0.9 ± 0.025	2: 0.02/0.03	Available on request

Eg. TF01: Thickness 0.9± 0.1 (mm) and Flatness 0.03/0.05 (mm)

Naming for the Module

TEFC1-00211-X-X-X-X



TEFC1-00211-T100-NS-TF01-AIO

T100: Solder, BiSn (Melting Point=138 °C)

NS: No sealing

AIO: Alumina white 96%

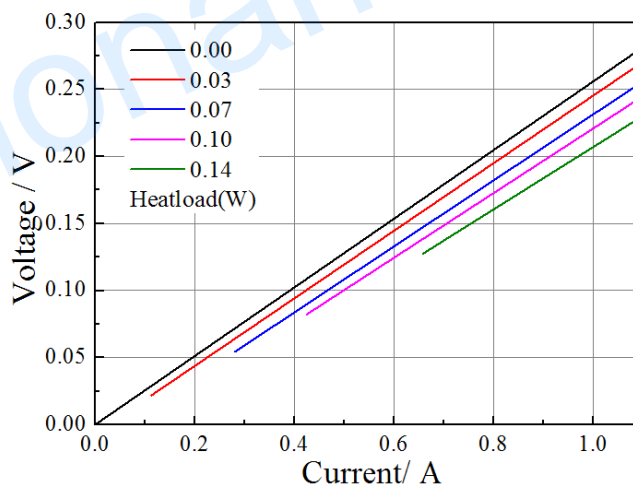
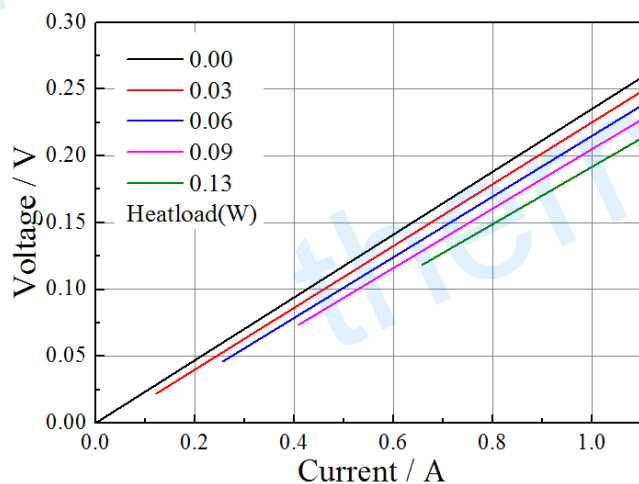
TF01: Thickness ± 0.1(mm) and Flatness/Parallelism 0.03/0.05(mm)

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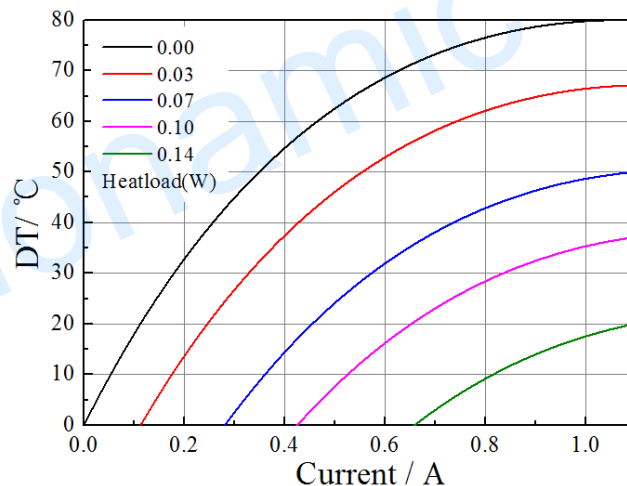
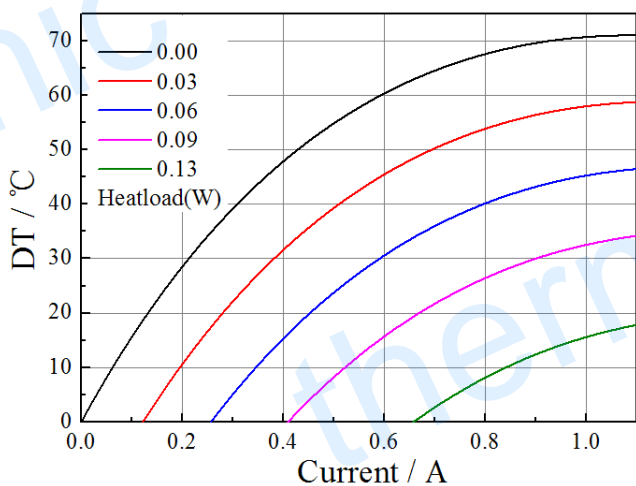
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Performance Curves at $T_h=27\text{ }^\circ\text{C}$

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



Standard Performance Graph $V=f(I)$



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

Operation Cautions

- Cold side of the module stucked on the object being cooled
- Hot side of the module mounted on a heat radiator
- Operation or storage module below $100\text{ }^\circ\text{C}$
- Operation below I_{max} or V_{max}
- Work under DC

Creative technology with fine manufacturing processes provides you the reliable and quality products

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