

# Specification of Thermoelectric Module

## TEFC1-00208P

### 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 72 °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

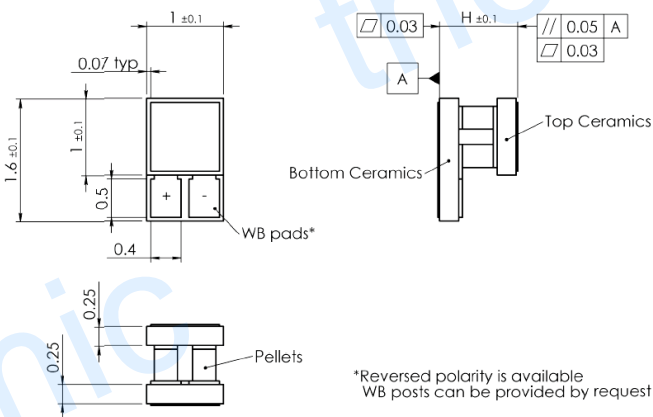
### Application

- 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 <sub>2</sub>
DT <sub>max</sub> (°C)	72	81	Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side
U <sub>max</sub> (Voltage)	0.26	0.28	Voltage applied to the module at DT <sub>max</sub>
I <sub>max</sub> (Amps)	0.8	0.8	DC current through the modules at DT <sub>max</sub>
Q <sub>Cmax</sub> (Watts)	0.13	0.14	Cooling capacity at cold side of the module under DT=0 °C
AC resistance (Ohms)	0.22	0.24	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<sub>melt</sub>=138°C)
2. T200: CuSn (T<sub>melt</sub> = 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 (Al<sub>2</sub>O<sub>3</sub>, white 96%)
2. Aluminum Nitride (AlN)

#### D. Ceramics Surface Options:

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

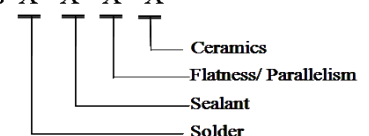
### Ordering Option

Suffix	Thickness H (mm)	Flatness/ Parallelism (mm)	Lead wire length(mm) Standard/Optional length
TF	0:1.1 ± 0.1	0: 0.05/0.08	Available on request
TF	1:1.1 ± 0.08	1: 0.03/0.05	Available on request
TF	2:1.1± 0.025	2: 0.02/0.03	Available on request

Eg. TF01: Thickness 1.1± 0.1 (mm) and Flatness 0.03/0.05 (mm)

### Naming for the Module

TEFC1-00208- X - X - X - X



TEFC1-00208-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)

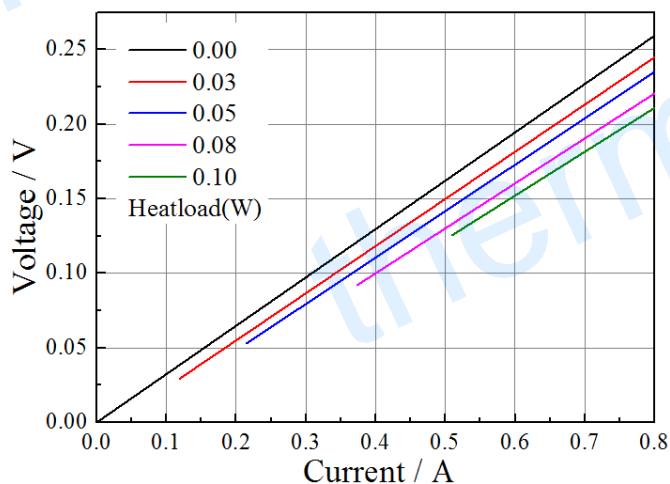
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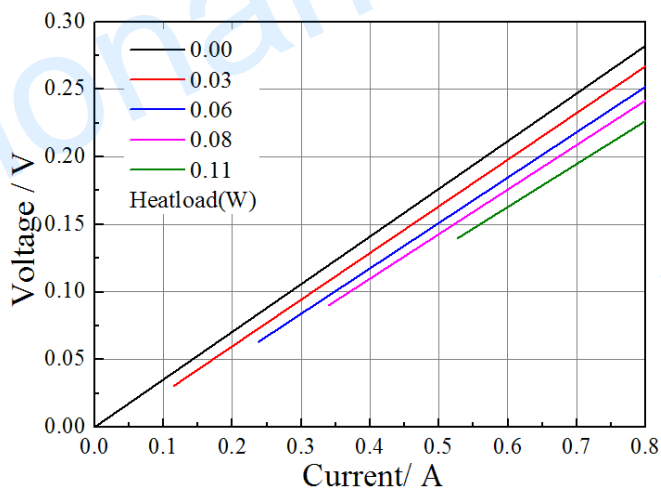
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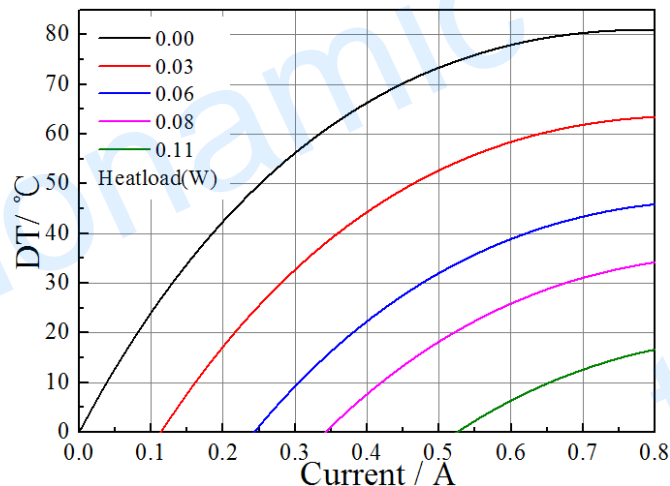
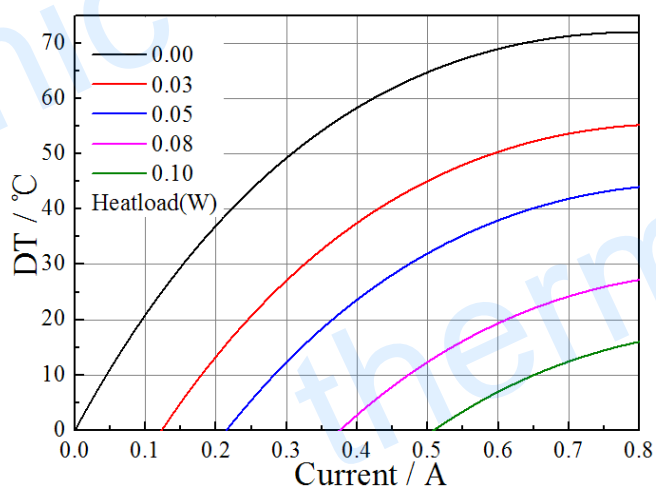
#### Performance Curves at Th=27 °C



#### Performance Curves at Th=50 °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 °C
- Operation below  $I_{max}$  or  $V_{max}$
- Work under DC

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