

Specification of Thermoelectric Module

TEFC1-00205P

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 73 °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

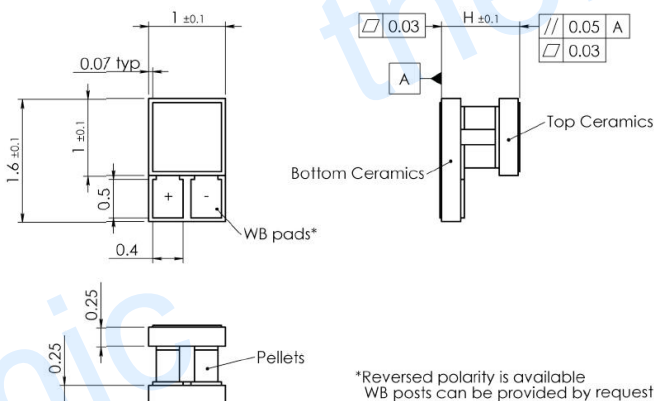
Application

- 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)	73	82	Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side
U _{max} (Voltage)	0.24	0.26	Voltage applied to the module at DT _{max}
I _{max} (Amps)	0.5	0.5	DC current through the modules at DT _{max}
Q _{Cmax} (Watts)	0.09	0.09	Cooling capacity at cold side of the module under DT=0 °C
AC resistance (Ohms)	0.35	0.38	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: CuAgSn (T_{melt} = 217°C)
3. T240: SbSn (T_{melt} = 240°C)

B. Sealant:

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

C. Ceramics:

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

D. Ceramics Surface Options:

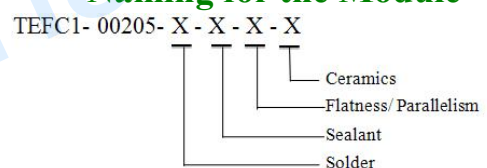
1. Blank ceramics (not metalized)
2. Metalized

Ordering Option

Suffix	Thickness H (mm)	Flatness/ Parallelism (mm)	Lead wire length(mm) Standard/Optional length
TF	0: 1.4 ± 0.1	0: 0.03/0.03	Available on request
TF	1: 1.4 ± 0.03	1: 0.015/0.015	Available on request

Eg. TF01: Thickness 1.4± 0.1 (mm) and Flatness 0.015/0.015 (mm)

Naming for the Module



TEFC1- 00205- T100 -NS - TF01 - AIO

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

NS: No sealing

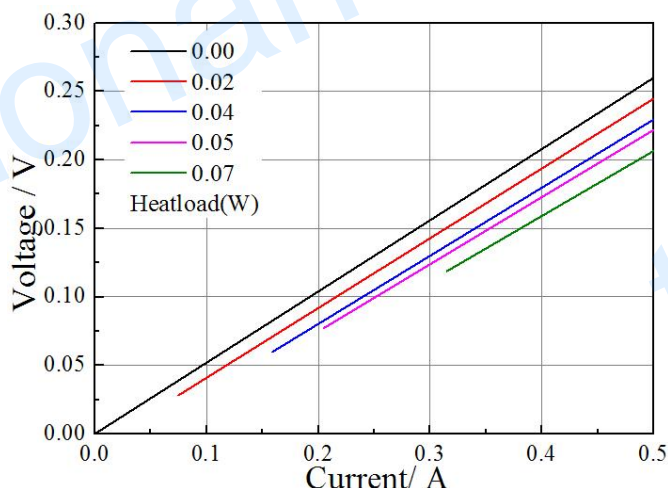
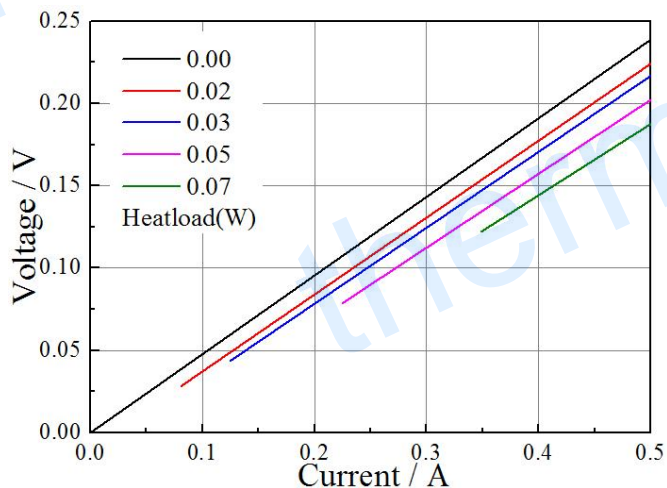
AIO: Alumina white 96%

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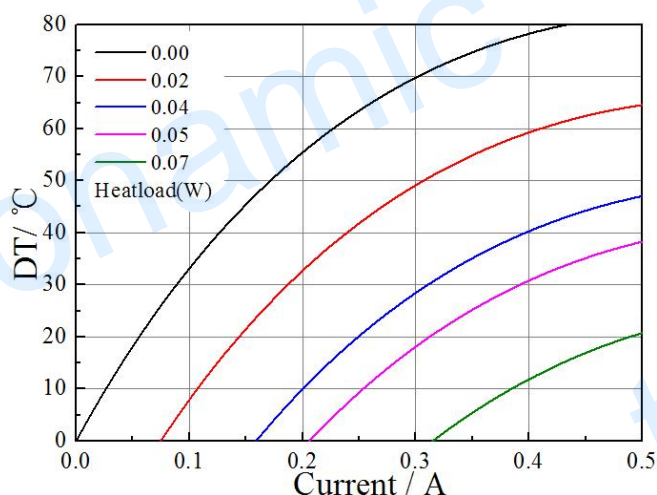
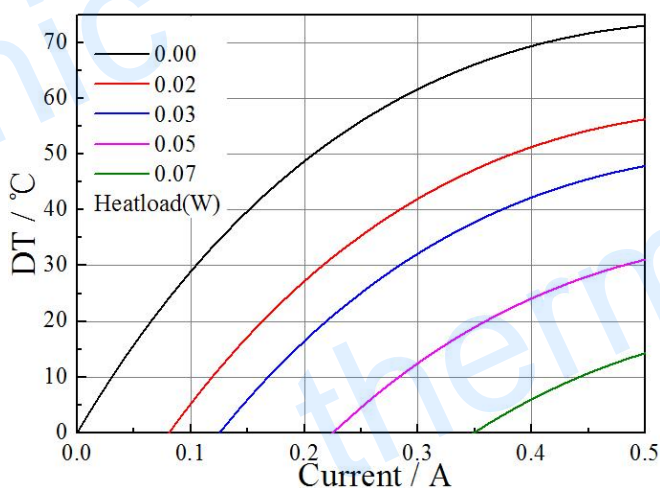
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Performance Curves at Th=27 °C

Performance Curves at Th=50 °C



Standard Performance Graph $V = f(I)$



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

Operation Cautions

- 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 or storage module below 100 °C
- Operation below I_{max} or V_{max}
- Work under DC