

High Performance and Highly Reliable Solution
for Cooling and Heating Applications

Specification of Thermoelectric Module

TEC1-12706

Description
The 127 couples, 40 mm x 40 mm size single stage module is made of selected high performance p-n junction to achieve superior cooling performance and greater delta T up to 70 °C, designed for superior cooling and heating up to 100 °C requirement. 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

- High effective cooling and efficiency
- No moving parts, no noise and solid-state
- Compact structure, small in size, light in weight
- Environmental friendly, RoHS compliant
- Simple temperature control
- Exceptionally reliable in quality, high performance

Application

- Food and beverage service refrigerator
- Portable cooler box for cars
- Liquid cooling
- Temperature stabilizer
- Photonic and medical systems

Performance Specification Sheet

T_c (°C)	27	50	Hot side temperature at environment domain
ΔT (°C)	70	79	Temperature Difference between cold and hot side of the module when cooling capacity is zero or cold side
U_{max} (Vdc/Vage)	16.0	17.2	Voltage applied to the module at D_{max}
I_{max} (amps)	8.1	8.1	DC current through the module at D_{max}
Q_{max} (Watts)	61.4	65.7	Cooling capacity on cold side of the module under $\Delta T = 0$ °C
AC resistance (ohms)	2.0	2.2	The module resistance is tested under AC
Tolerance (%)	± 10		For thermal and electricity parameters

Geometric Characteristics Dimensions in millimeters

Sealing Option

A. Solder:

- T100 Silver (Tmax = 128 °C)

B. Sealant:

- NS: No sealing (Standard)
- SS: Silicone sealant
- EPS: Epoxy sealant
- Custom: epoxy sealing other than above

C. Ceramic:

- Alumina (Al₂O₃ white 96%)
- Aluminum Nitride (AlN)

D. Ceramic Sealant Options:

- Blank ceramic (not metallized)
- Metallized (Au plating)

Ordering Option

Suffix	Thickness (mm)	Flatness/Parallelism (mm)	Lead wire length (mm) Standard/Optional length
TF	0.3 ± 0.1	0.0 0.025/0.025	125 ± 3/Specify
TF	1.3 ± 0.05	1.0 0.025/0.025	125 ± 3/Specify
TF	2.3 ± 0.025	2.0 0.025/0.025	125 ± 3/Specify

Eg. TF01: Thickness 3.3 ± 0.1 (mm) and Flatness 0.025 / 0.025 (mm)

Sealing for the Module

TEC1-12706-T100-NS-TP01-A10
T100 Silver (Tmax=128°C) A10: Alumina white 96%
NS: No sealing
TP01: Thickness 1.31 (mm) and Flatness/Parallelism 0.025/0.025 (mm)

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