

# Specification of Thermoelectric Module

## TEC2-71-17-05

### Description

The TEC2-71-17-05 is a multistage module designed for greater temperature differential cooling, good for cooling and heating up to 100 °C applications. It is a 71-17 couples module in size of 13 mm × 13 mm (top) / 29.6 mm × 29.6 mm (bottom). If higher operation or processing temperature is required, please specify, we can design and manufacture according to your special requirements.

### Features

- High Temperature Differential
- 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

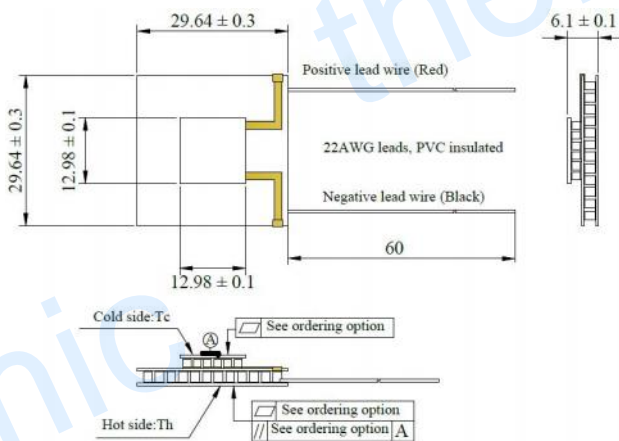
### Application

- Infrared (IR) Sensors
- CCD Sensor
- Gas Analyzers
- Calibration Equipment
- CPU cooler and scientific instrument
- Photonic and medical systems
- Guidance Systems

### Performance Specification Sheet

Th (°C)	27	50	Hot side temperature at environment: dry air, N <sub>2</sub>
DT <sub>max</sub> (°C)	100	112	Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side
U <sub>max</sub> (Voltage)	8.8	9.8	Voltage applied to the module at DT <sub>max</sub>
I <sub>max</sub> (Amps)	5.4	5.4	DC current through the modules at DT <sub>max</sub>
Q <sub>Cmax</sub> (Watts)	10.6	11.8	Cooling capacity at cold side of the module under DT=0 °C
AC resistance (Ohms)	1.42	1.57	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 (Tmelt=138°C)
2. T200: CuAgSn (Tmelt = 217°C)
3. T240: SbSn (Tmelt = 240°C)

#### B. Sealant:

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

#### 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 metalized)
2. Metalized

### Ordering Option

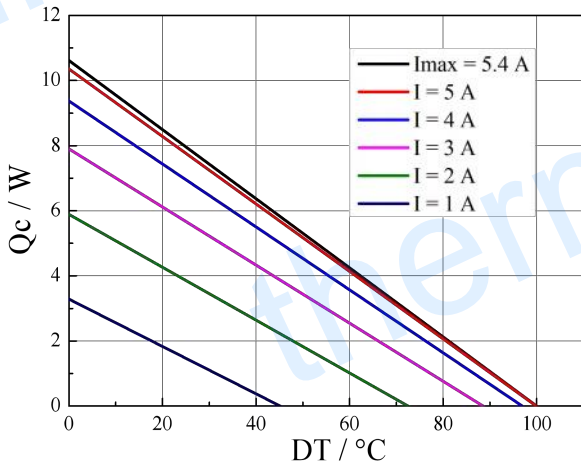
Suffix	Thickness (mm)	Flatness/ Parallelism (mm)	Lead wire length(mm) Standard/Optional length
TF	0: 6.1 ± 0.20	0: Face II 0.05/0.05, Face III 0.07/0.07	60 ±1/Specify
TF	1: 6.1 ± 0.10	1: Face II 0.02/0.02, Face III 0.025/0.025	60 ±1/Specify

Eg. TF01: Thickness 6.1 ± 0.20 (mm) and Flatness : Face II 0.02/0.02, Face III 0.025/0.025

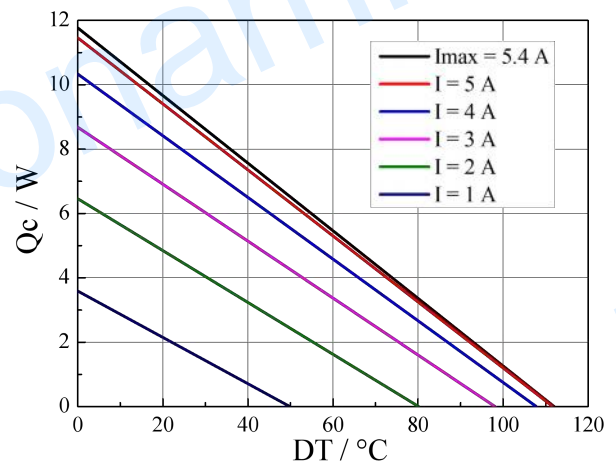
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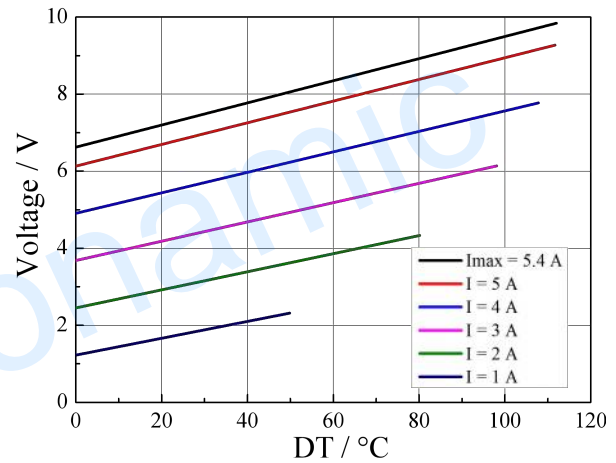
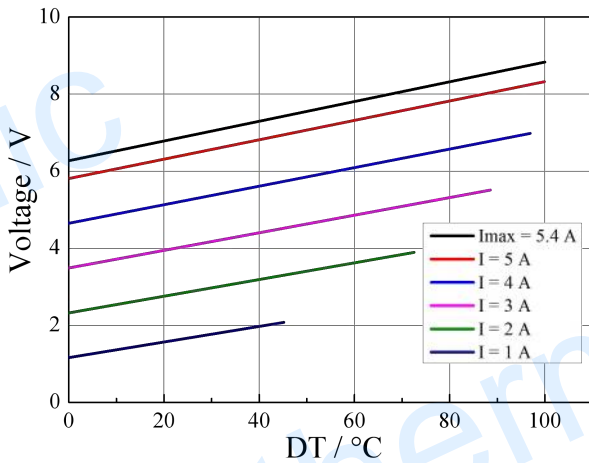
## Performance Curves at $T_h=27^\circ\text{C}$



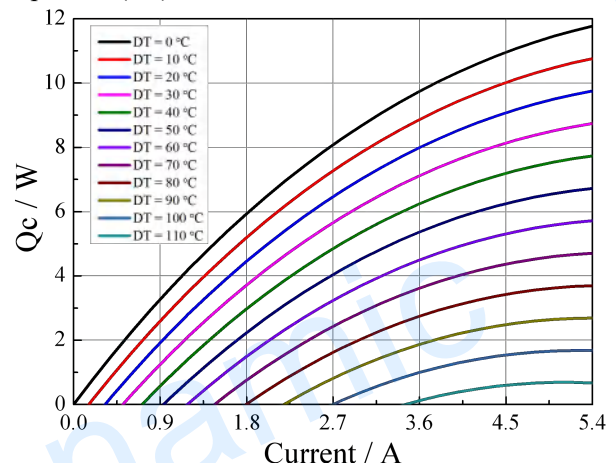
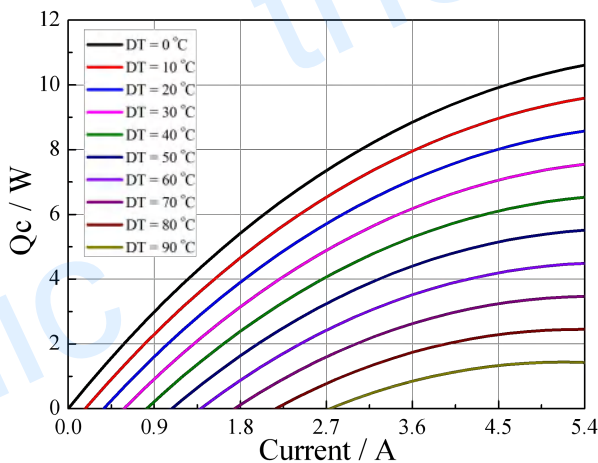
## Performance Curves at $T_h=50^\circ\text{C}$



Standard Performance Graph  $Q_c = f(DT)$



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



Standard Performance Graph  $Q_c = f(A)$

## 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  $100^\circ\text{C}$
- Operation below  $I_{max}$  or  $V_{max}$
- Work under DC