

# Specification of Thermoelectric Module

TEC2-71-31-04

## Description

The TEC2-71-31-04 is a multistage module designed for greater temperature differential cooling, good for cooling and heating up to 100 °C applications. It is a 71-31 couples module in size of 20 mm × 20 mm (top) / 30 mm × 30 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

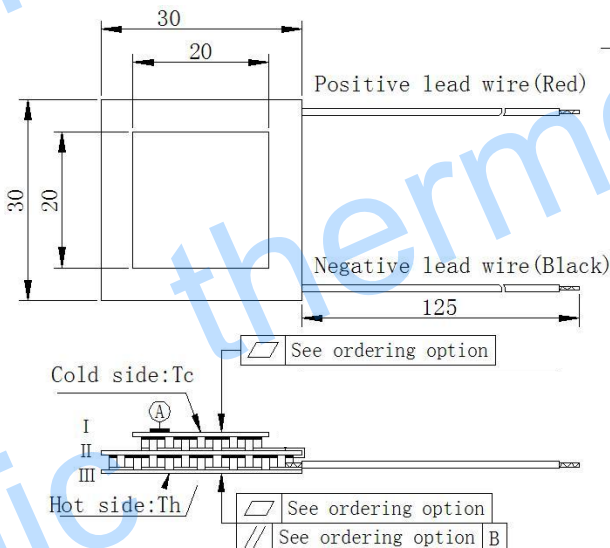
- Infrared (IR) Sensors
- CCD Sensor
- Gas Analyzers
- Calibration Equipment
- CPU cooler and scientific instrument
- Photonic and medical systems
- Guidance Systems

## Performance Specification Sheet

Th ( °C )	27	50	Hot side temperature at environment: dry air, N <sub>2</sub>
DT <sub>max</sub> ( °C )	92	103	Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side
U <sub>max</sub> (Voltage)	8.2	9.2	Voltage applied to the module at DT <sub>max</sub>
I <sub>max</sub> (Amps)	4.6	4.6	DC current through the modules at DT <sub>max</sub>
Q <sub>Cmax</sub> (Watts)	13.6	14.9	Cooling capacity at cold side of the module under DT=0 °C
AC resistance (Ohms)	1.5~1.85	1.66~2.1	The module resistance is tested under AC

## Geometric Characteristics

Dimensions in millimeters



## Sealing Option

Suffix	Sealant
NS	No sealing
SS	Silicone sealant
EPS	Epoxy
OS	other than above

## Ordering Option

Suffix	Thickness (mm)	Flatness/Parallelism (mm)	Lead wire length(mm) Standard/Optional length
TF	0: 6.9±0.15	0: 0.035/0.035	125±1/Specify
TF	1: 6.9±0.10	1: 0.025/0.025	125±1/Specify
TF	2: 6.9±0.05	2: 0.015/0.015	125±1/Specify

Eg. TF01: Thickness: 6.9±0.15(mm) and Flatness/ Parallelism (mm): 0.025/0.025

## Additional

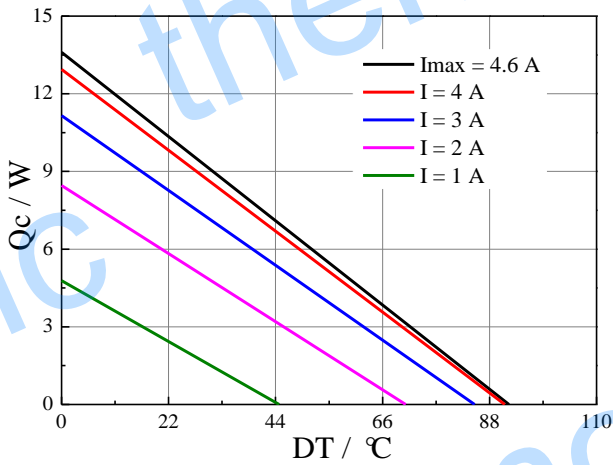
Ceramic material: Alumina (Al<sub>2</sub>O<sub>3</sub>, white 96%)

Solder tinning: Bismuth Tin (BiSn) M.P. 138 °C

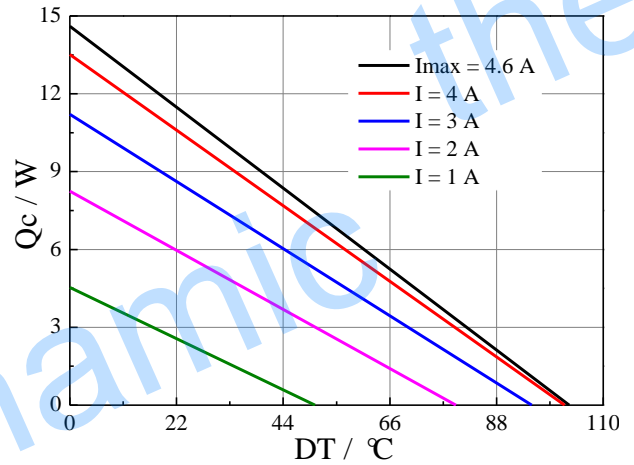
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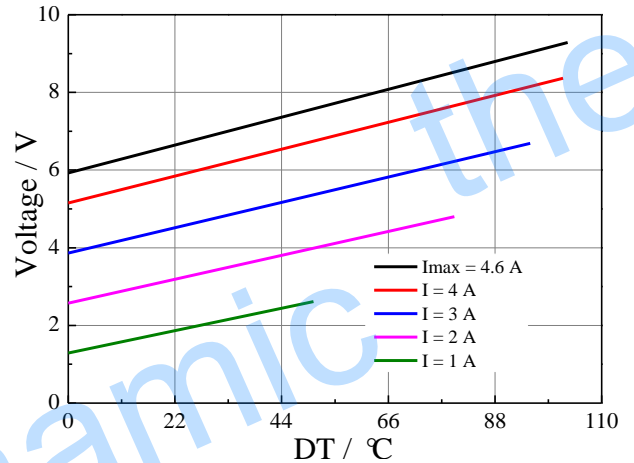
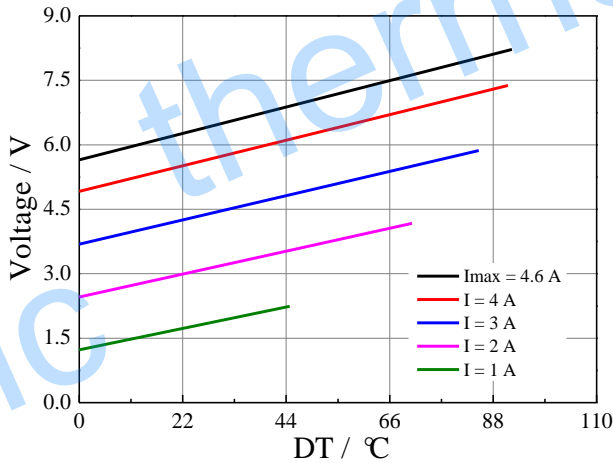
Performance Curves at  $T_h=27\text{ }^\circ\text{C}$



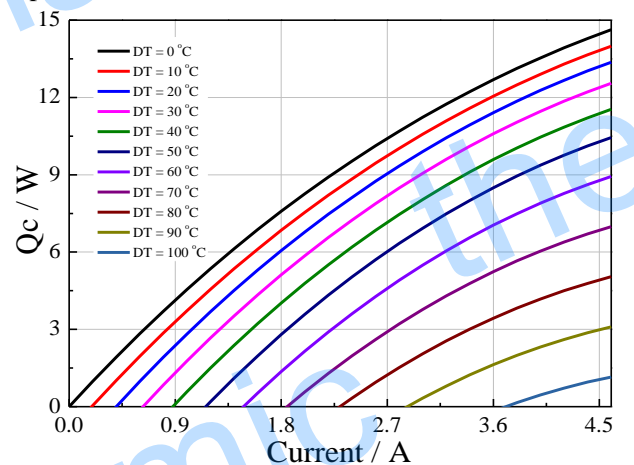
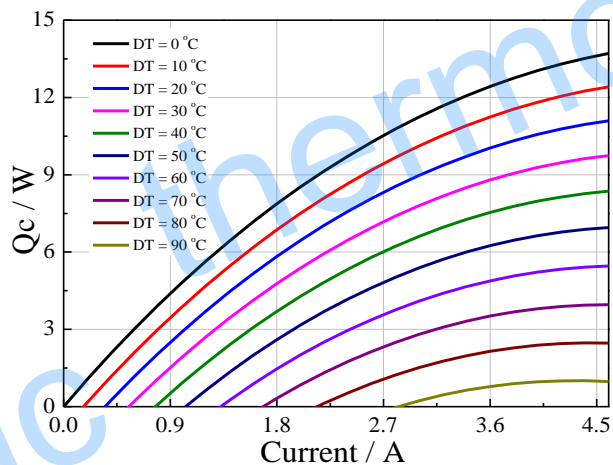
Performance Curves at  $T_h=50\text{ }^\circ\text{C}$



Standard Performance Graph  $Q_c = f(DT)$



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



Standard Performance Graph  $Q_c = f(V)$

## Operation Cautions

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