

# Specification of Thermoelectric Module

## TEC1-12706

### Description

The 127 couples, 40mmx40mm size module is a single stage module which is designed for cooling and heating up to 100°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

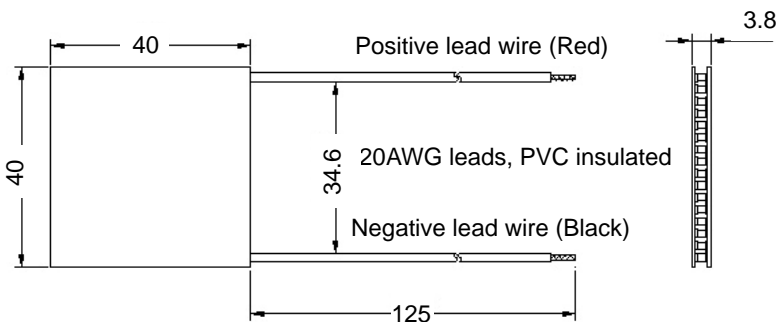
### Application

- 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

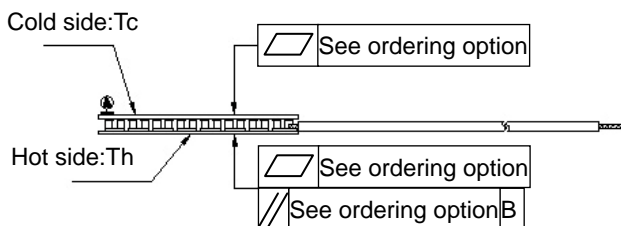
Th(°C)	27	50	Hot side temperature at environment: dry air, N <sub>2</sub>
DT <sub>max</sub> (°C)	68	76	Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side
U <sub>max</sub> (Voltage)	15.0	16.8	Voltage applied to the module at DT <sub>max</sub>
I <sub>max</sub> (amps)	6.4	6.4	DC current through the modules at DT <sub>max</sub>
Q <sub>Cmax</sub> (Watts)	65.0	71.3	Cooling capacity at cold side of the module under DT=0°C
AC resistance(ohms)	2.00	2.23	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	Customer specify sealing other than above



### Ordering Option

Suffix	Thickness (mm)	Flatness/Parallelism (mm)	Lead wire length(mm) Standard/Optional length
TF	0:3.8±0.1	0:0.035/0.035	125±1/Specify
TF	1:3.8±0.05	1:0.025/0.025	125±1/Specify
TF	2:3.8±0.03	2:0.015/0.015	125±1/Specify
Eg. TF01: Thickness 3.8±0.1(mm) and Flatness 0.025/0.025(mm)			

### Additional

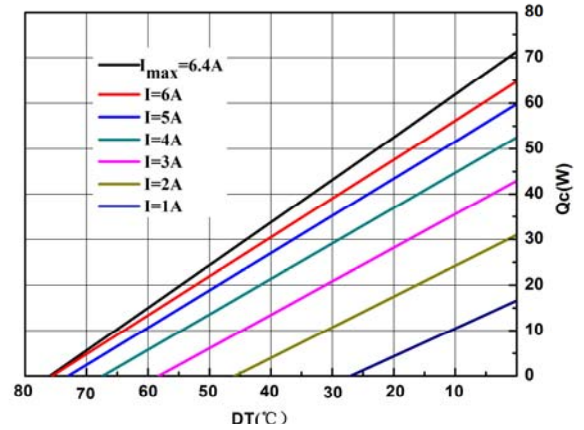
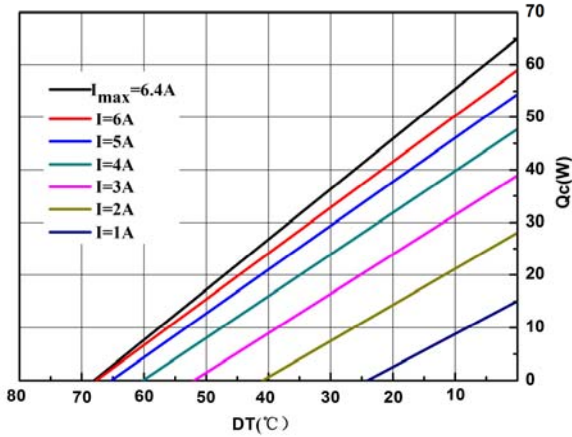
Ceramic material: Alumina (Al<sub>2</sub>O<sub>3</sub>, white 96%)  
Solder tinning: Bismuth Tin (BiSn) M.P. 138°C

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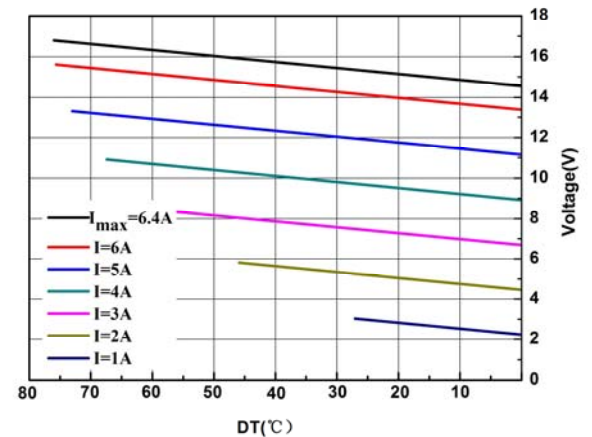
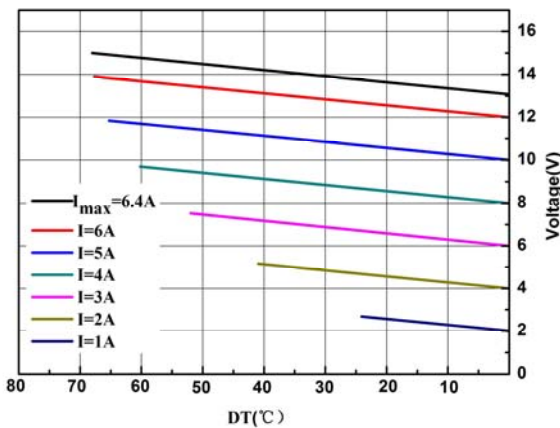
## Performance Curves at $T_h=27^\circ\text{C}$

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



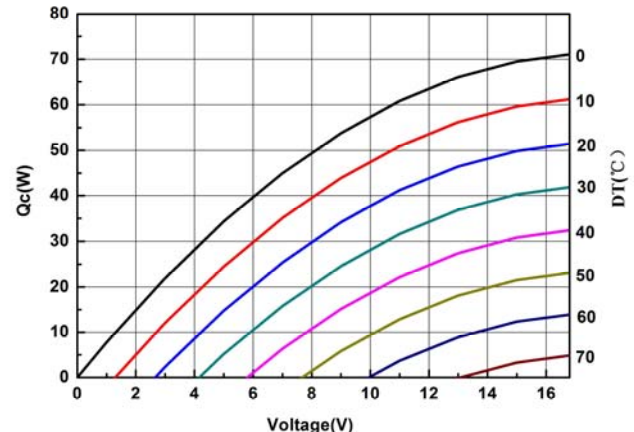
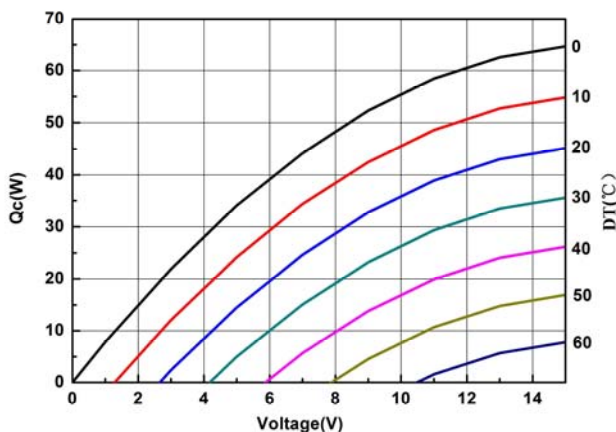
The chart for  $Q_c$  Vs  $DT$  under various currents

The chart for  $Q_c$  Vs  $DT$  under various currents



The chart for Voltage Vs  $DT$  under various currents

The chart for Voltage Vs  $DT$  under various currents



The chart for  $Q_c$  Vs Voltage under various  $DT$

The chart for  $Q_c$  Vs Voltage under various  $DT$

## 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 below  $I_{max}$  or  $V_{max}$
- Operation or storage module below  $100^\circ\text{C}$