

# Specification of Thermoelectric Module

## TEC2-199-199-08-T100-SS-TF00-AIO

### Description

The TEC2-199-199-08 is a multistage module designed for greater temperature differential cooling, good for cooling and heating up to 100 °C applications. It is a 199-199 couples module in size of 40 mm × 40 mm (top) / 40 mm × 40 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

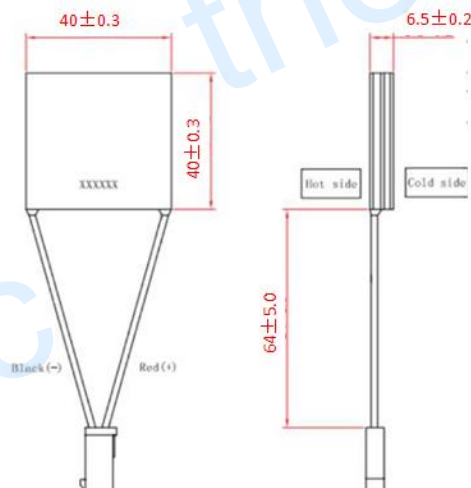
### Application

- 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)	90.2	101.3	Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side
U <sub>max</sub> (Voltage)	23.9	26.2	Voltage applied to the module at DT <sub>max</sub>
I <sub>max</sub> (amps)	8.0	8.0	DC current through the modules at DT <sub>max</sub>
Q <sub>Cmax</sub> (Watts)	77.4	83.2	Cooling capacity at cold side of the module under DT=0 °C
AC resistance (ohms)	2.95	3.15	The module resistance is tested under AC
Tolerance	10%		For thermal and electricity parameters

### Geometric Characteristics Dimensions in millimeters



### Manufacturing Options

#### A. Solder:

T100: BiSn (M.P.= 138°C)

#### B. Sealant:

SS: Silicone sealant

#### C. Ceramics:

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

#### D. Ceramics Surface Options:

Blank ceramics (not metalized)

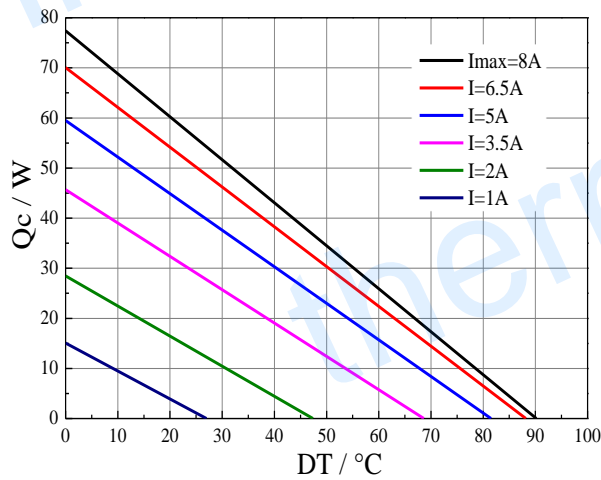
### Ordering Option

Suffix	Thickness (mm)	Flatness/ Parallelism (mm)	Lead wire length(mm) Standard/Optional length
TF	0:6.5± 0.2	0: Face II 0.10/0.10, Face III 0.13/0.13	64 ± 5 / Specify

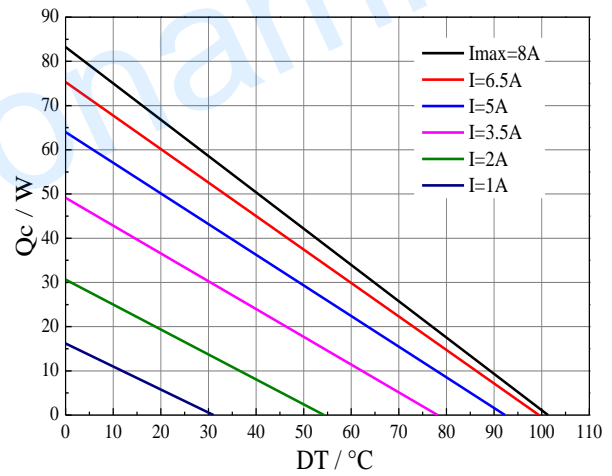
# Specification of Thermoelectric Module

TEC2-199-199-08-T100-SS-TF00-A10

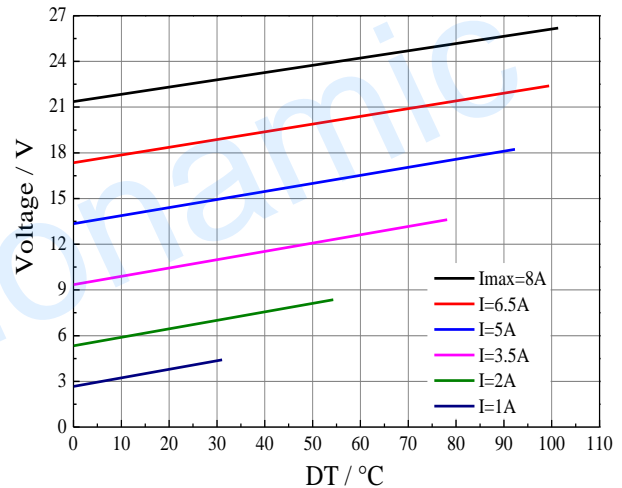
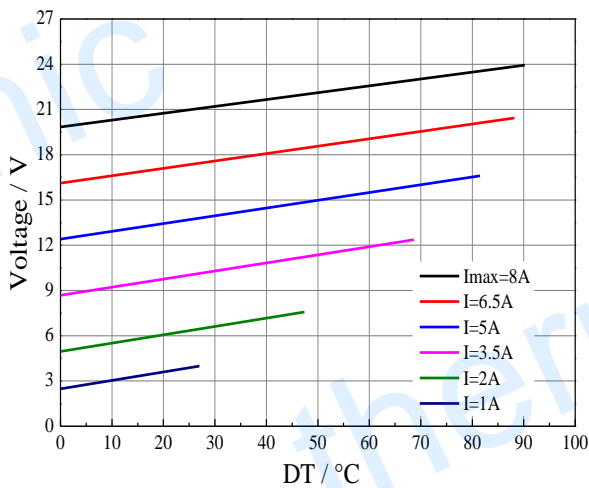
## Performance Curves at Th=27 °C



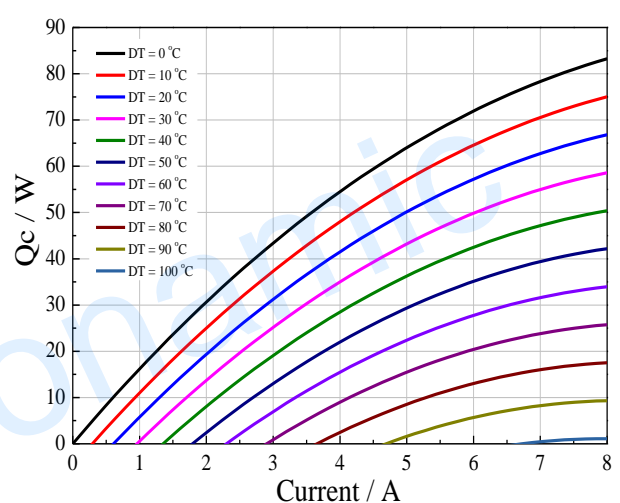
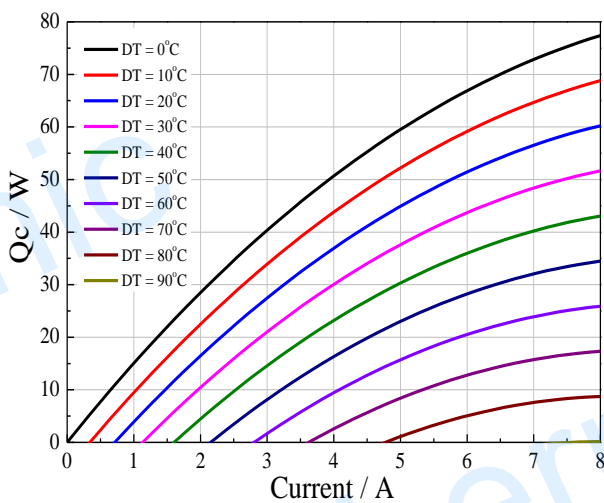
## Performance Curves at Th=50 °C



Standard Performance Graph  $Q_c = f(DT)$



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

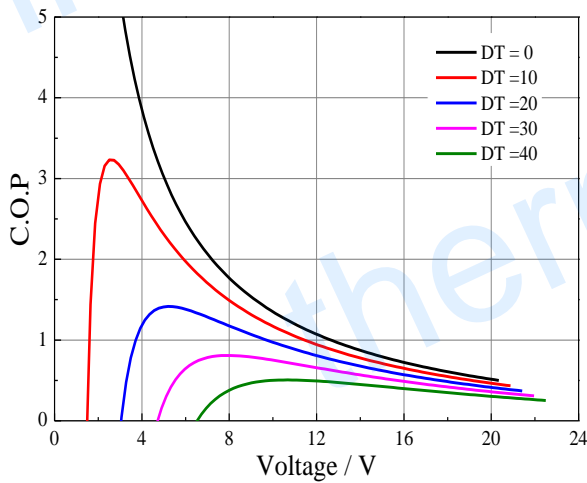


Standard Performance Graph  $Q_c = f(V)$

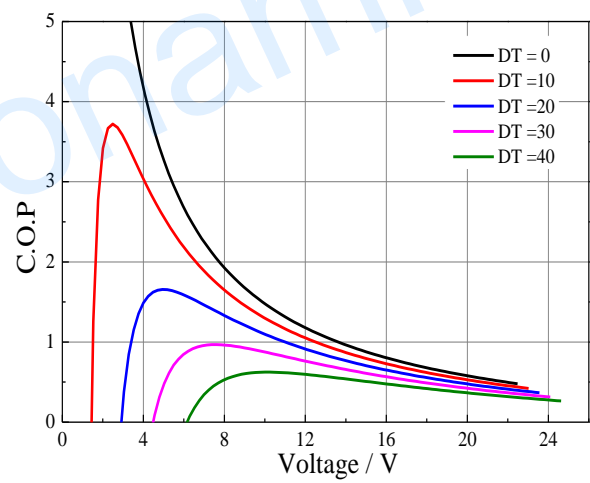
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TEC2-199-199-08-T100-SS-TF00-AIO

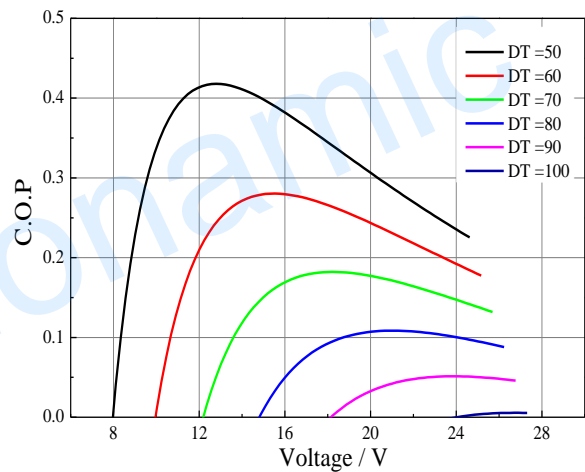
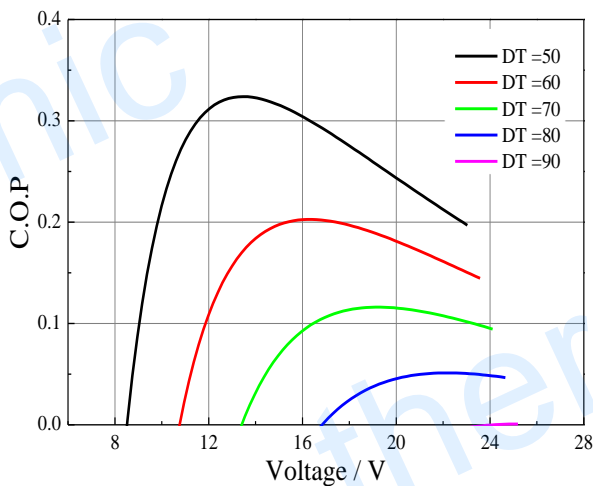
### Performance Curves at Th=27 °C



### Performance Curves at Th=50 °C



Standard Performance Graph COP = f(V) of DT ranged from 0 to 40 °C



Standard Performance Graph COP = f(V) of DT ranged from 50 to 90/100 °C

**Remark:** The coefficient of performance (COP) is the cooling power  $Q_c$ /Input power ( $V \times I$ ).

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