

## Specification of Thermoelectric Module

### TEC1-12730L1T100

#### Description

The 127 couples, 62 mm × 62 mm size single stage module which is made of selected high performance ingot to achieve superior cooling performance and 70 °C or larger delta T max, is designed for superior cooling and heating applications. Beyond the standard below, 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

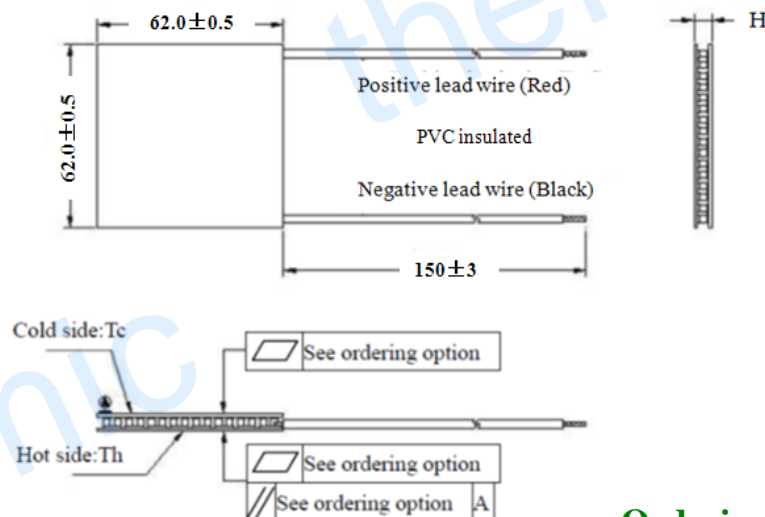
#### Application

- 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 )	70	79	Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side
U <sub>max</sub> (Voltage)	15.7	17.0	Voltage applied to the module at DT <sub>max</sub>
I <sub>max</sub> (Amps)	30	30	DC current through the modules at DT <sub>max</sub>
Q <sub>Cmax</sub> (Watts)	305	328	Cooling capacity at cold side of the module under DT=0 °C
AC resistance (Ohms)	0.41	0.44	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 (T<sub>melt</sub>=138 °C)

##### B. Sealant:

SS: Silicone sealant

##### C. Ceramics:

AlO: Al<sub>2</sub>O<sub>3</sub>, white 96%

##### D. Ceramics Surface:

Blank ceramics (not metalized)

#### Ordering Option

Suffix	Thickness H / (mm)	Flatness/ Parallelism (mm)	Lead wire length(mm) Standard/Optional length
TF	0:3.8±0.15	0:0.15/0.15	120±3/Specify
TF	1:3.8±0.10	1:0.10/0.10	120±3/Specify

Creative technology with fine manufacturing processes provides you the reliable and quality products

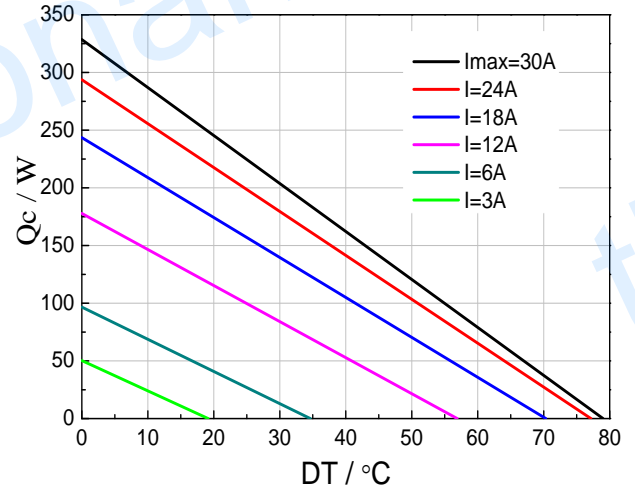
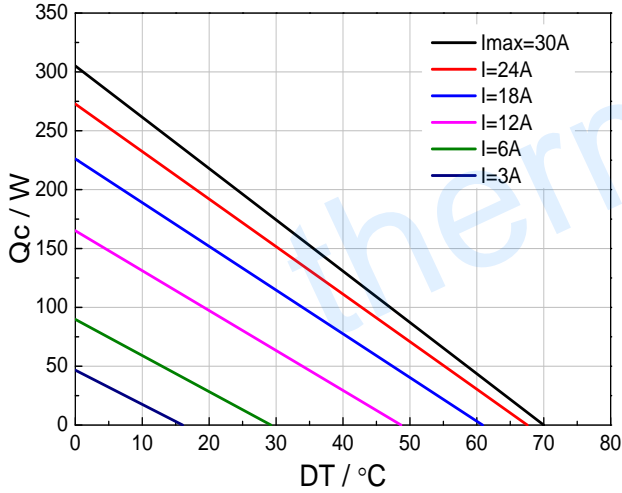
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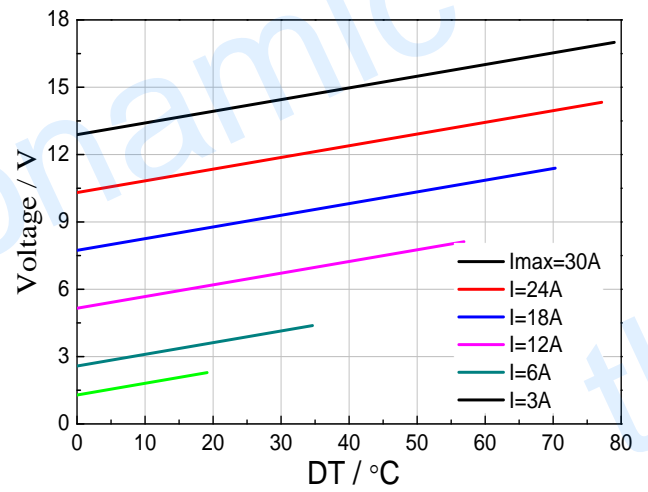
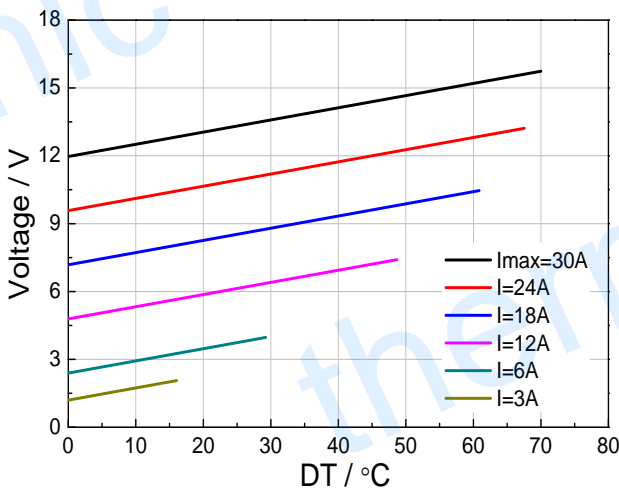
## TEC1-12730L1T100

### Performance Curves at Th=27 °C

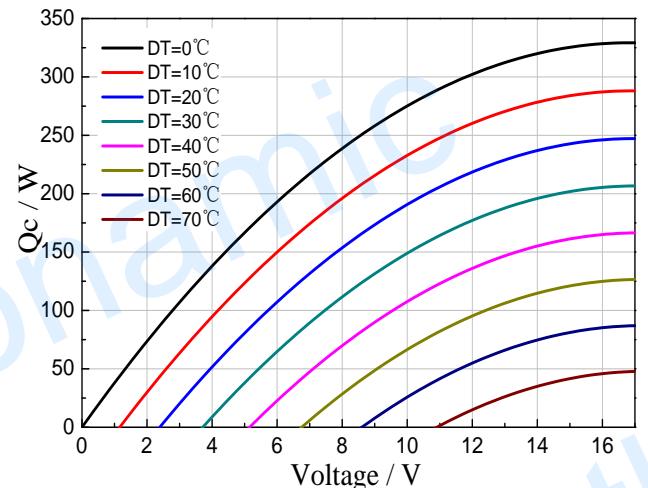
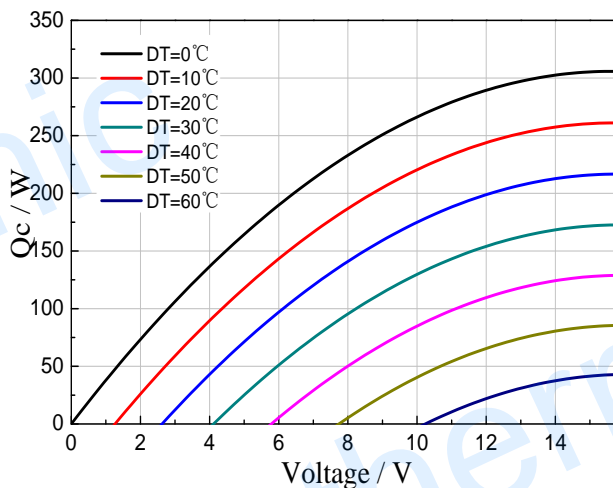
### Performance Curves at Th=50 °C



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



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

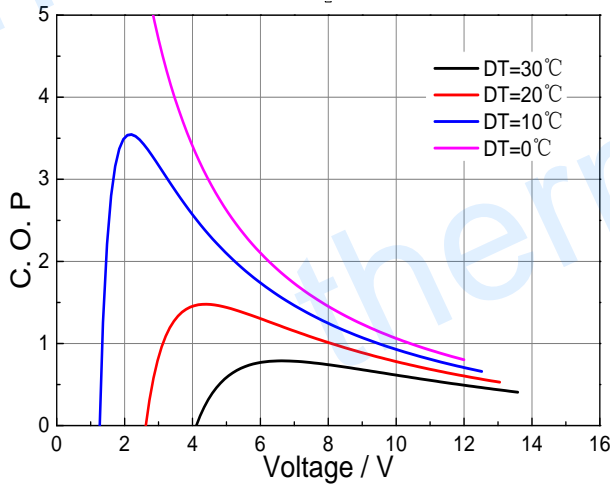


Standard Performance Graph  $Q_c = f(V)$

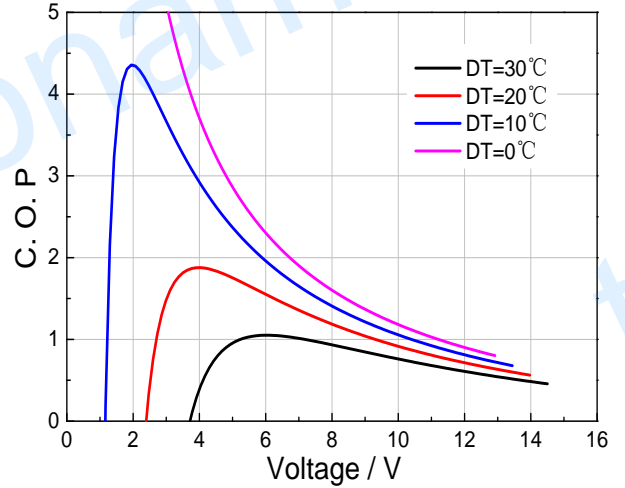
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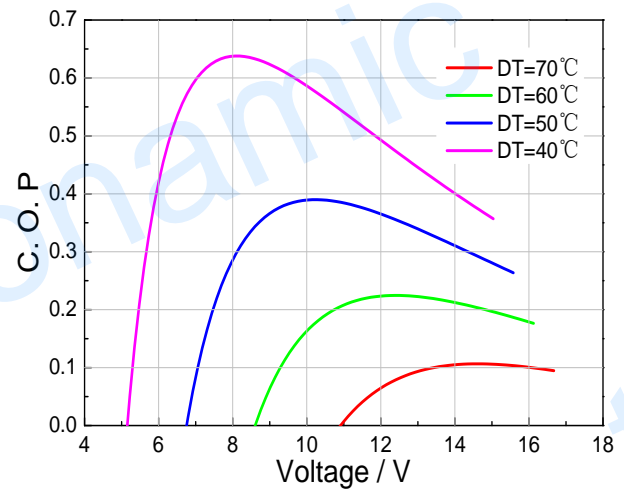
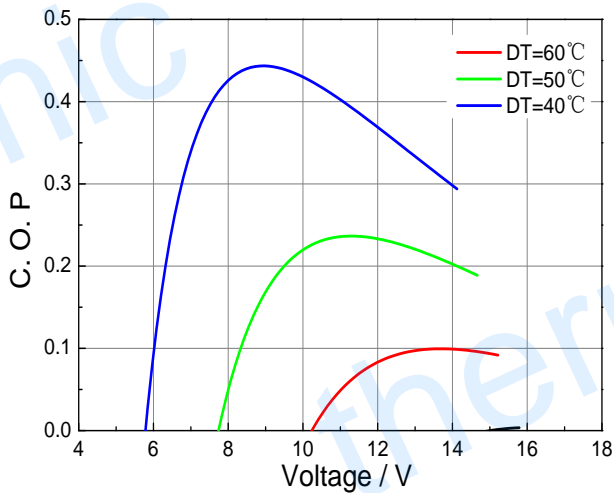
#### Performance Curves at Th=27 °C



#### Performance Curves at Th=50 °C



Standard Performance Graph COP = f(V) of  $\Delta T$  ranged from 0 to 30 °C



Standard Performance Graph COP = f(V) of  $\Delta T$  ranged from 40 to 60/70 °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
- Operation below  $I_{max}$  or  $V_{max}$
- Work under DC