Datasheet

Item no. 189115

TRU COMPONENTS

Specification of Thermoelectric Module

TEC1-12706

Description

The 127 couples, 40 mm × 40 mm size single stage module is made of selected high performance ingot to achieve superior cooling performance and greater delta T up to 70 °C, designed for superior cooling and heating up to 100 ℃ requirement. 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

● High effective cooling and efficiency.

● 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

● Photonic and medical systems

Peformance Specification Sheet

Th(℃)	27	50	Hot side temperature at environment: dry air, N_2
DT_{max}(℃)	70	79	Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side
U_{max}(Voltage)	16.0	17.2	Voltage applied to the module at DT_{max}
I_{max}(amps)	6.1	6.1	DC current through the modules at DT_{max}
Q_{Cmax}(Watts)	61.4	66.7	Cooling capacity at cold side of the module under DT=0 ℃
AC resistance(ohms)	2.0	2.2	The module resistance is tested under AC
Tolerance (%)	± 10		For thermal and electricity parameters

Geometric Characteristics Dimensions in millimeters
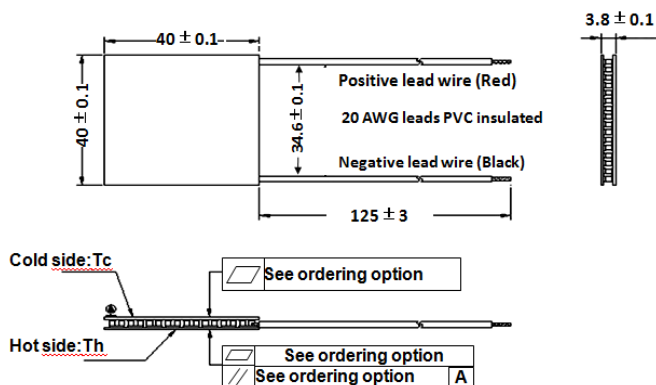
Sealing Option

A. Solder:

1. T100: BiSn (Tmelt = 138 °C)

B. Sealant:

1. NS: No sealing (Standard)

2. SS: Silicone sealant

3. EPS: Epoxy sealant

4. Customer specify sealing

   other than above

C. Ceramics:

1. Alumina (Al_2O_3, white 96%)

2. Aluminum Nitride (AlN)

D. Ceramics Surface Options:

1. Blank ceramics (not metallized)

2. Metallized (Au plating)

Ordering Option

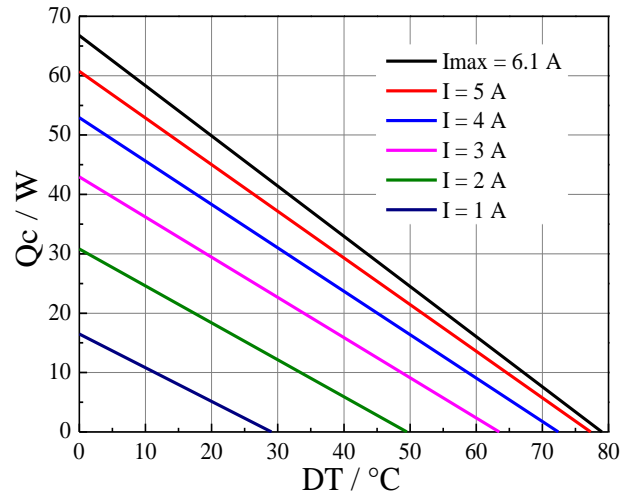| Suffix	Thickness (mm)	Flatness/ Parallelism (mm)	Lead wire length(mm) Standard/Optional length
TF	0:3.8±0.1	0:0.035/0.035	125±3/Specify
TF	1:3.8±0.05	1:0.025/0.025	125±3/Specify
TF	2:3.8±0.025	2:0.015/0.015	125±3/Specify
Eg. TF01: Thickness 3.8 ± 0.1 (mm) and Flatness 0.025 / 0.025 (mm)			

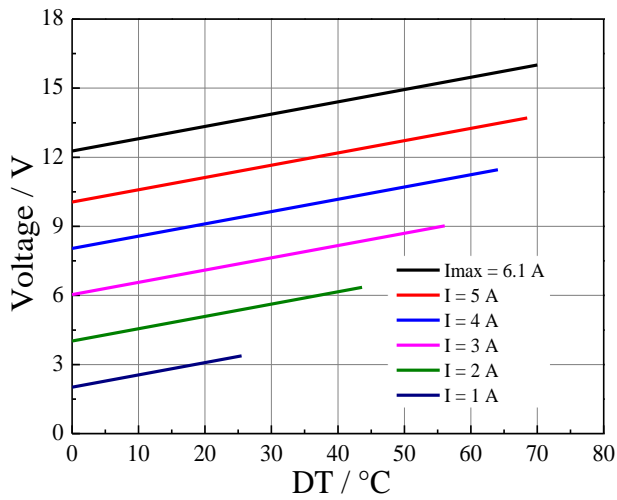TRU COMPONENTS

TEC1-12706

Performance Curves at Th=27 ºC
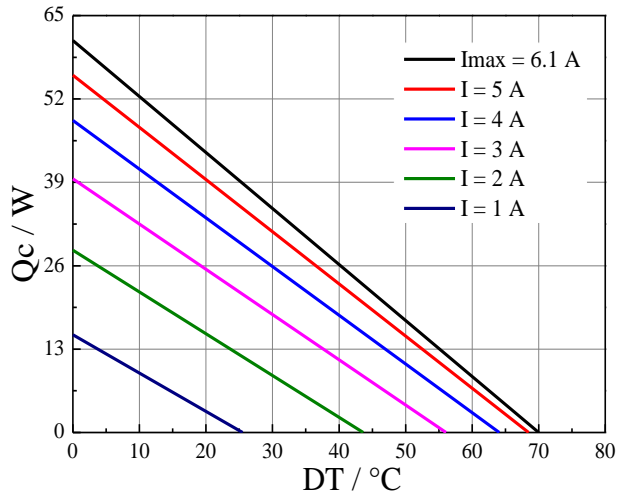
Standard Performance Graph Qc= f(DT)

Performance Curves at Th=50 ºC

Standard Performance Graph V= f(ΔT)
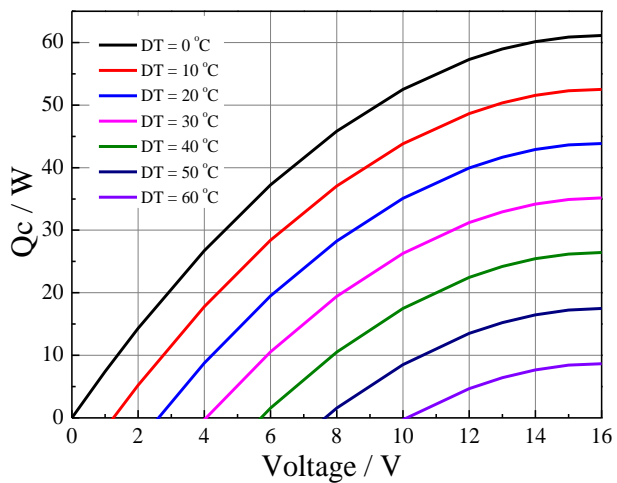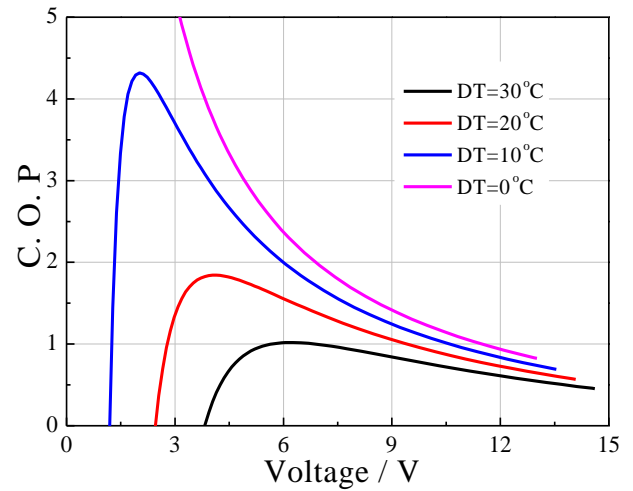
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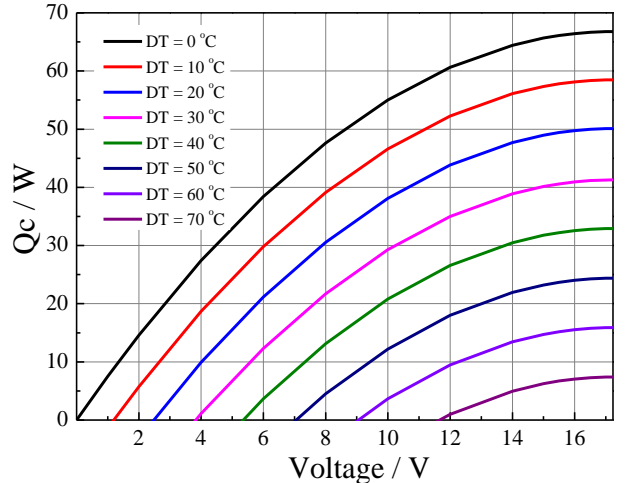
Specification of Thermoelectric Module

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Performance Curves at Th=27 ºC
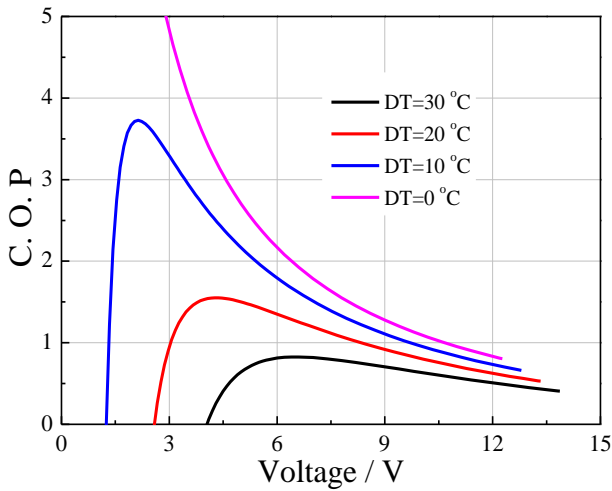
Performance Curves at Th=50 ºC

Standard Performance Graph COP = f(V) of ΔT ranged from 0 to 30 ˚C
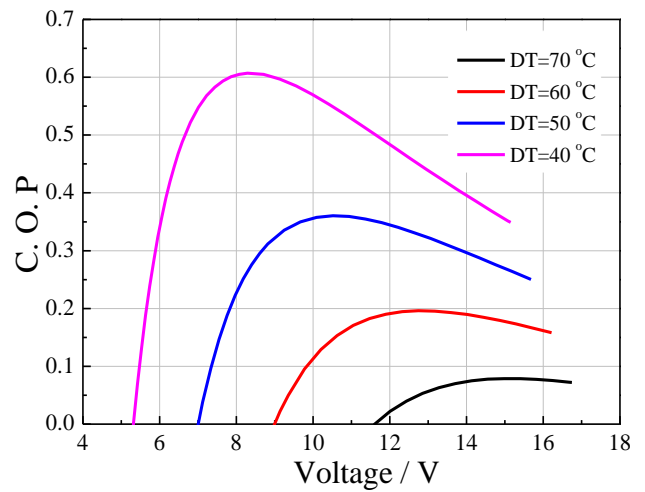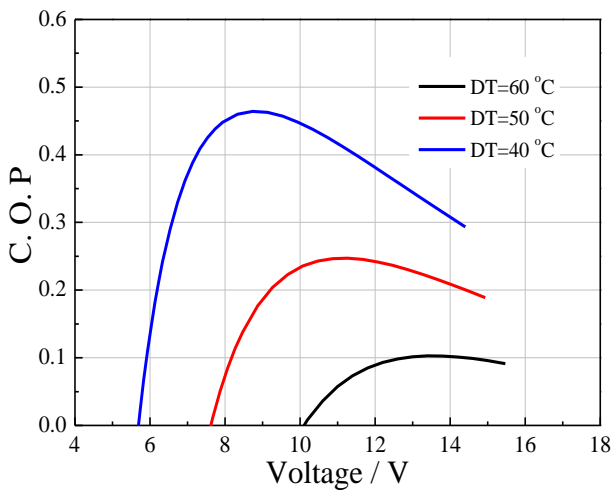
Standard Performance Graph COP = f(V) of ΔT ranged from 40 to 60/70 ˚C

Remark: The coefficient of performance (COP) is the cooling power Q_c/Input power (V × I).

Operation Cautions

● Cold side of the module sticked on the object being cooled

● Hot side of the module mounted on a heat radiator

●Storage module below 100 ℃

● Operation below I_{max} or V_{max}

● Work under DC