

Specification of Thermoelectric Module

TEC1-03103L

Description

The 31 couples, 24x24 mm size single module which is made of selected high performance ingot to achieve superior cooling performance and greater delta T up to 70, designed for superior 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

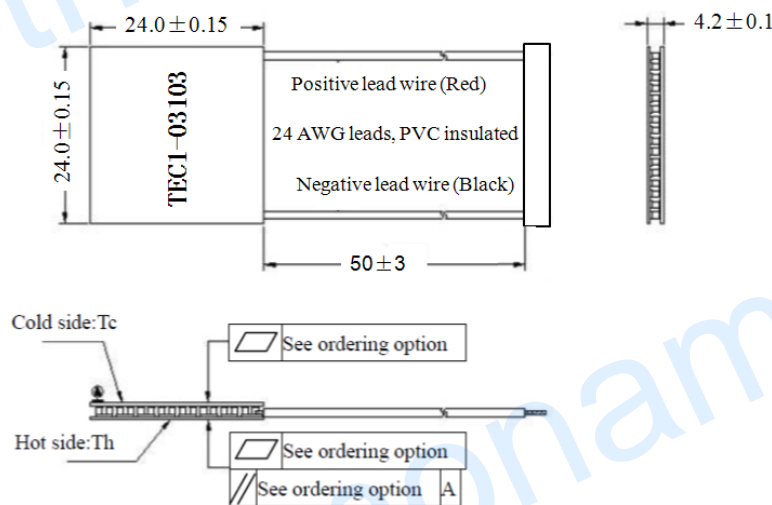
Application

- 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 ₂
DT _{max} (°C)	70	79	Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side
U _{max} (Voltage)	4.0	4.38	Voltage applied to the module at DT _{max}
I _{max} (amps)	4.0	4.0	DC current through the modules at DT _{max}
Q _{Cmax} (Watts)	9.8	11.0	Cooling capacity at cold side of the module under DT=0 °C
AC resistance (ohms)	0.78	0.84	The module resistance is tested under AC
Tolerance (%)	± 10		For thermal and electricity parameters

Geometric Characteristics Dimensions in millimeters



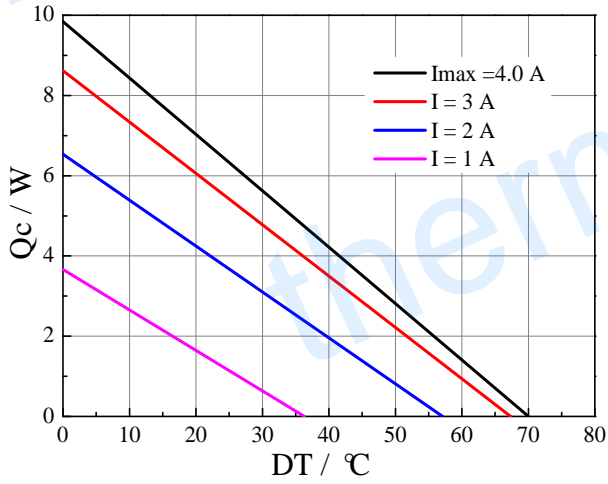
Additional

Ceramic material: Alumina (Al₂O₃, white 96%)
Solder tinning: Bismuth Tin (BiSn) M.P. 138 °C
Sealing: Silicone sealant

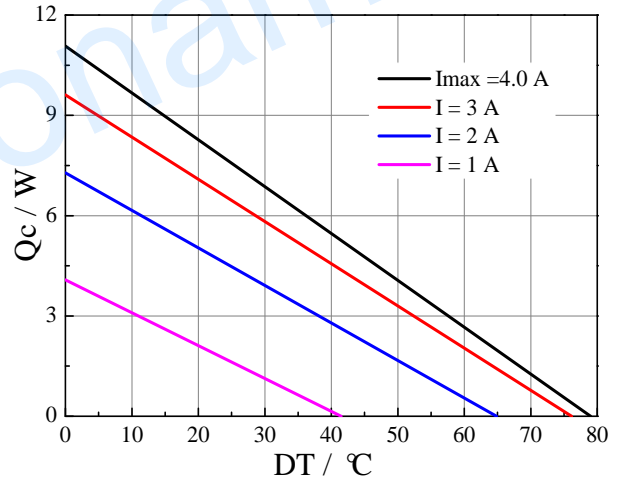
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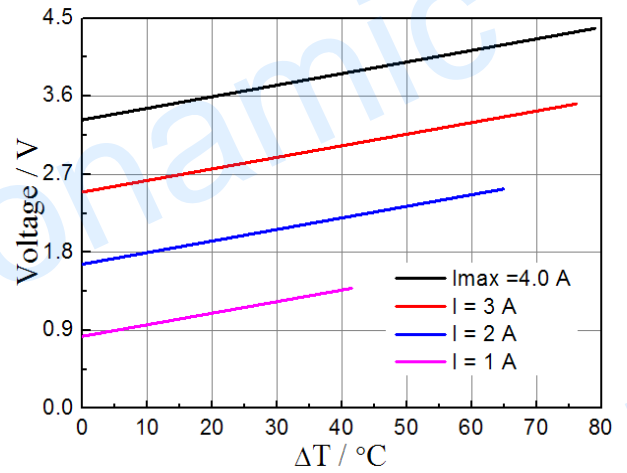
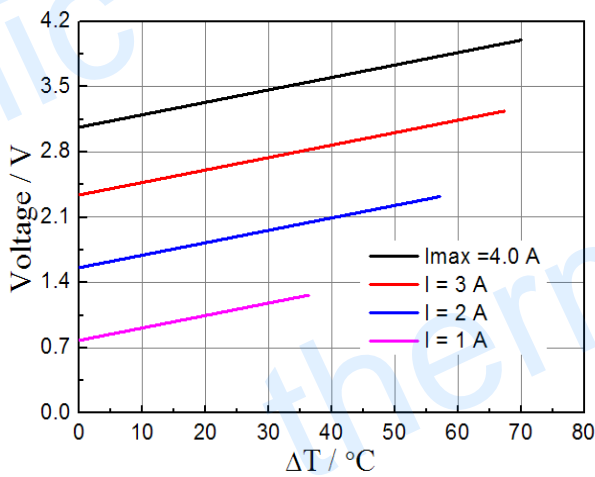
Performance Curves at $T_h=27\text{ }^\circ\text{C}$



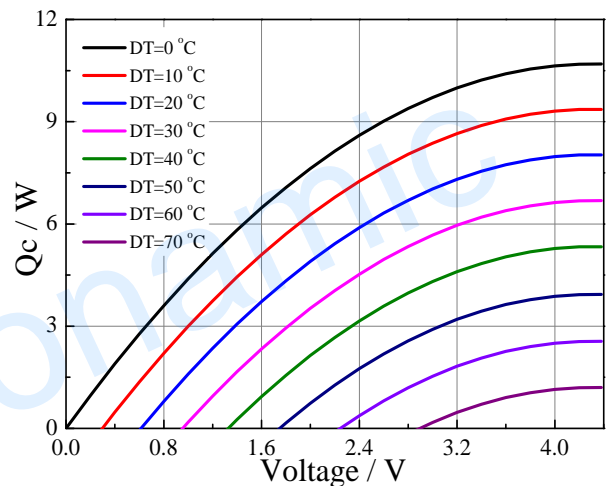
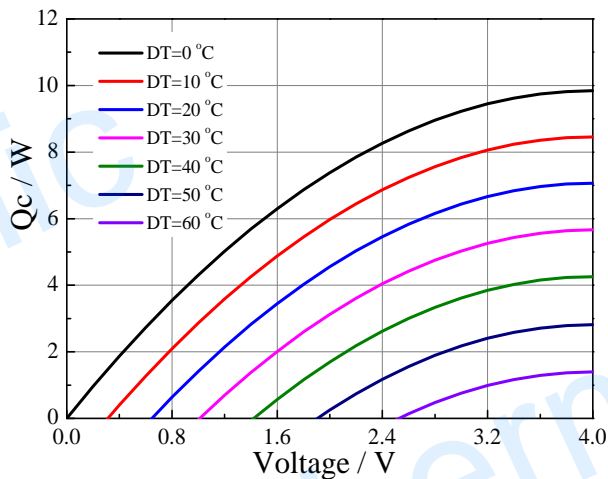
Performance Curves at $T_h=50\text{ }^\circ\text{C}$



Standard Performance Graph $Q_c = f(DT)$



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



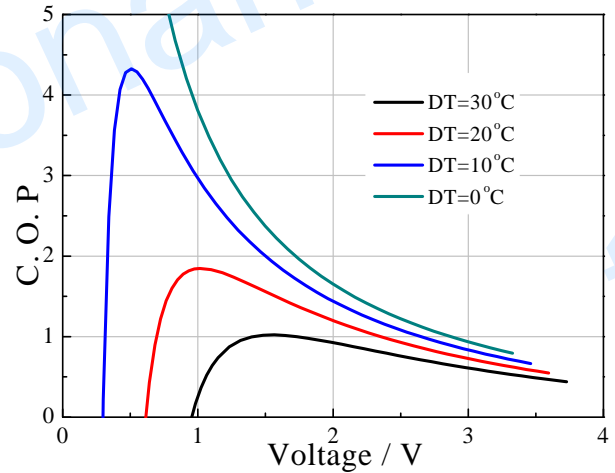
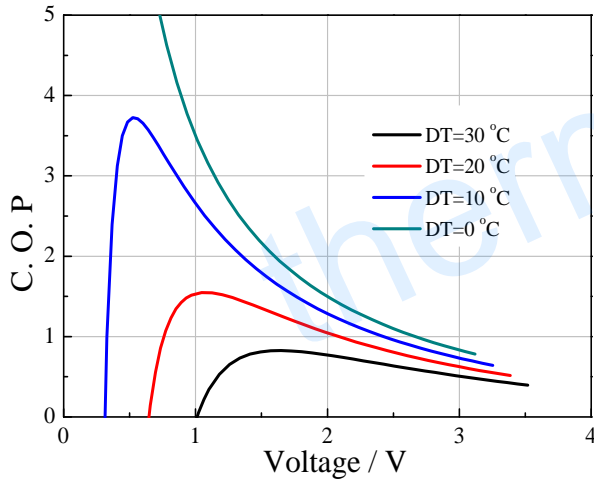
Standard Performance Graph $Q_c = f(V)$

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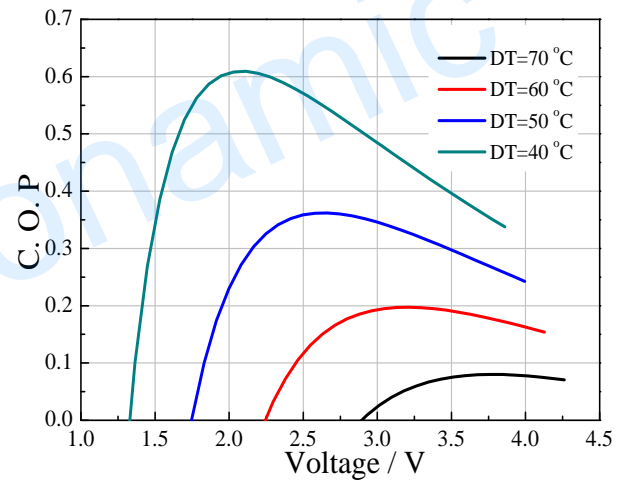
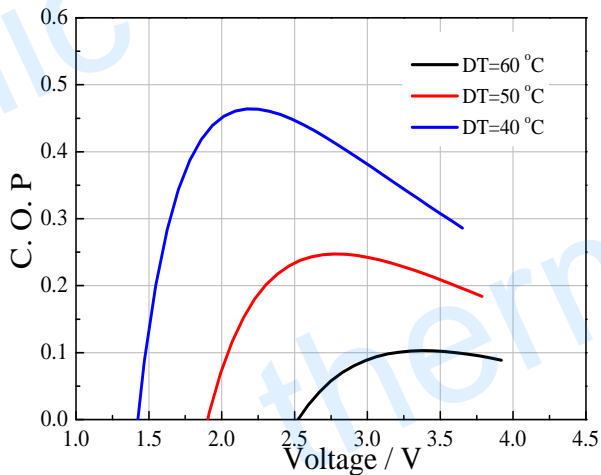
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Performance Curves at Th=27 °C

Performance Curves at Th=50 °C



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 ($V \times I$).

Operation Cautions

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