Specification of Thermoelectric Module

TEC3-119-71-35-20CH3.8N4

Description

The TEC3-119-71-35-20CH3.8N4 is a multistage module designed for greater temperature differential cooling, good for cooling and heating up to 100 ºC applications. It is a 119-71-35 couples module in size of 20mm×40mm (top)/60mm ×60mm (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

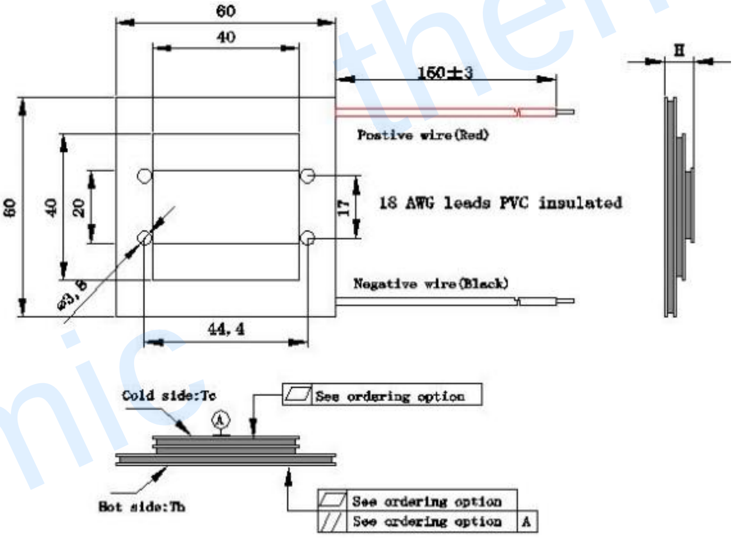
Application

- Infrared (IR) Sensors
- CCD Sensor
- Gas Analyzers
- Calibration Equipment
- CPU cooler and scientific instrument
- Photonic and medical systems
- Guidance Systems

Performance Specification Sheet

Th (ºC)	27	50	Hot side temperature at environment: dry air, N_2
DT_{max} (ºC)	101	113	Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side
U_{max} (Voltage)	14.2	15.4	Voltage applied to the module at DT_{max}
I_{max} (Amps)	20	20	DC current through the modules at DT_{max}
Q_{Cmax} (Watts)	73.7	79.4	Cooling capacity at cold side of the module under DT=0 ºC
AC resistance (Ohms)	0.6	0.65	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=138ºC)
2. T200: CuAgSn (Tmelt = 217°C)
3. T240: SbSn (Tmelt = 240°C)

B. Sealant:

1. NS: No sealing (Standard)
2. SS: Silicone sealant
3. EPS: Epoxy sealant

C. Ceramics:

1. Alumina (Al_2O_3, white 96%)
2. Aluminum Nitride (AlN)

D. Ceramics Surface Options:

1. Blank ceramics (not metalized)
2. Metalized

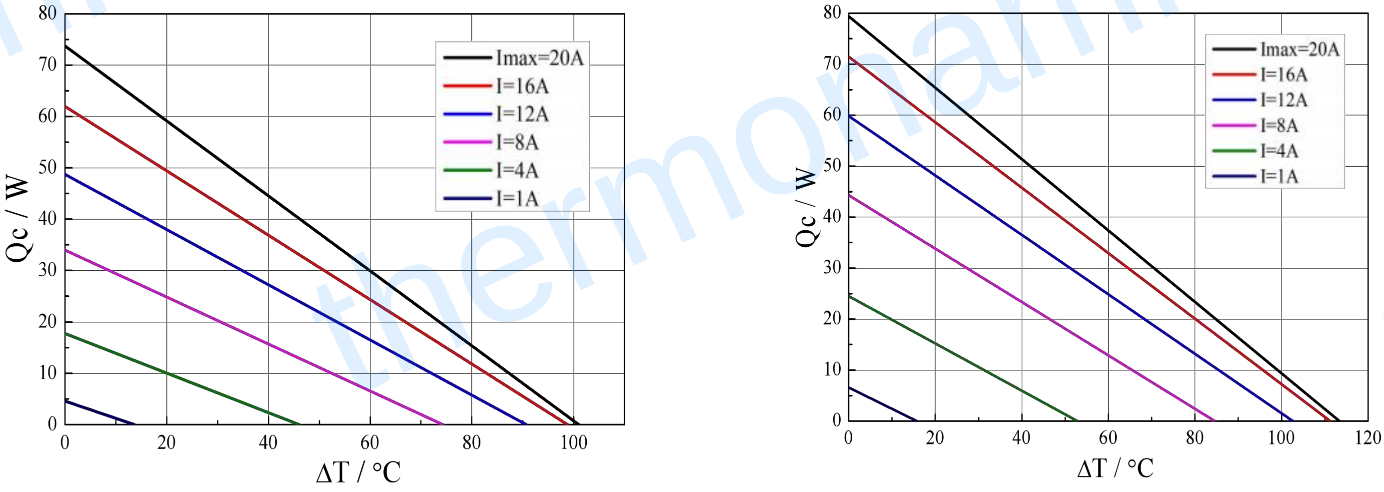
Ordering Option

Suffix	Thickness H (mm)	Flatness/ Parallelism (mm)	Lead wire length(mm) Standard/Optional length
TF	0: 7.6±0.3	0: 0.12/0.12	150±3/Specify
TF	1: 7.6±0. 15	1:0.06/0.06	150±3/Specify
Eg. TF01: Thickness 7.6±0.3(mm) and Flatness/ Parallelism (mm)：0.06/0.06			

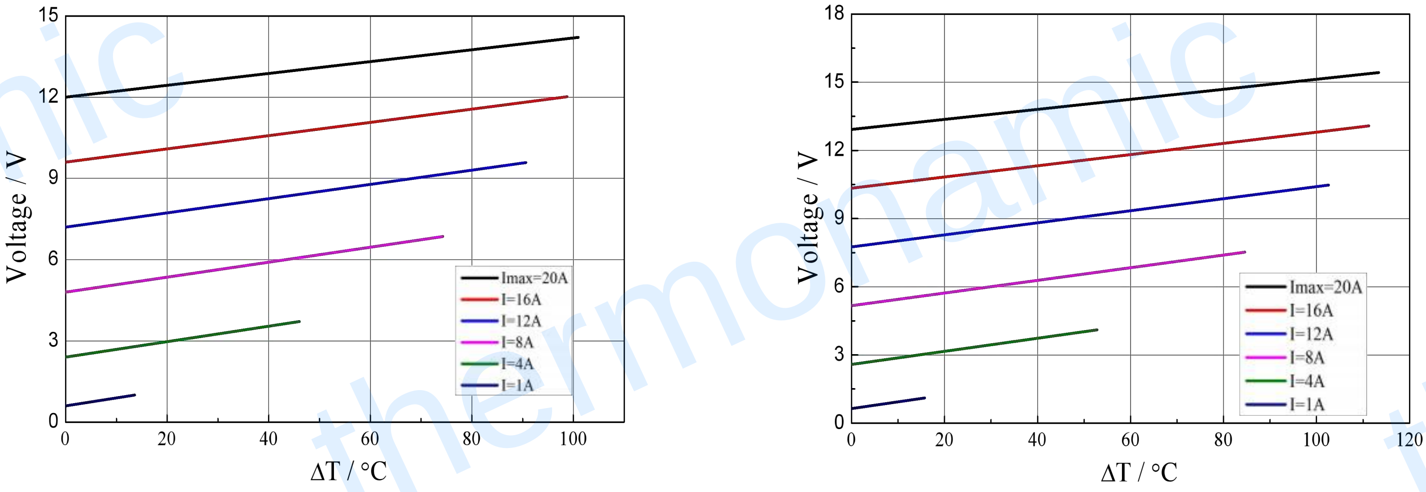
Specification of Thermoelectric Module

TEC3-119-71-35-20CH3.8N4

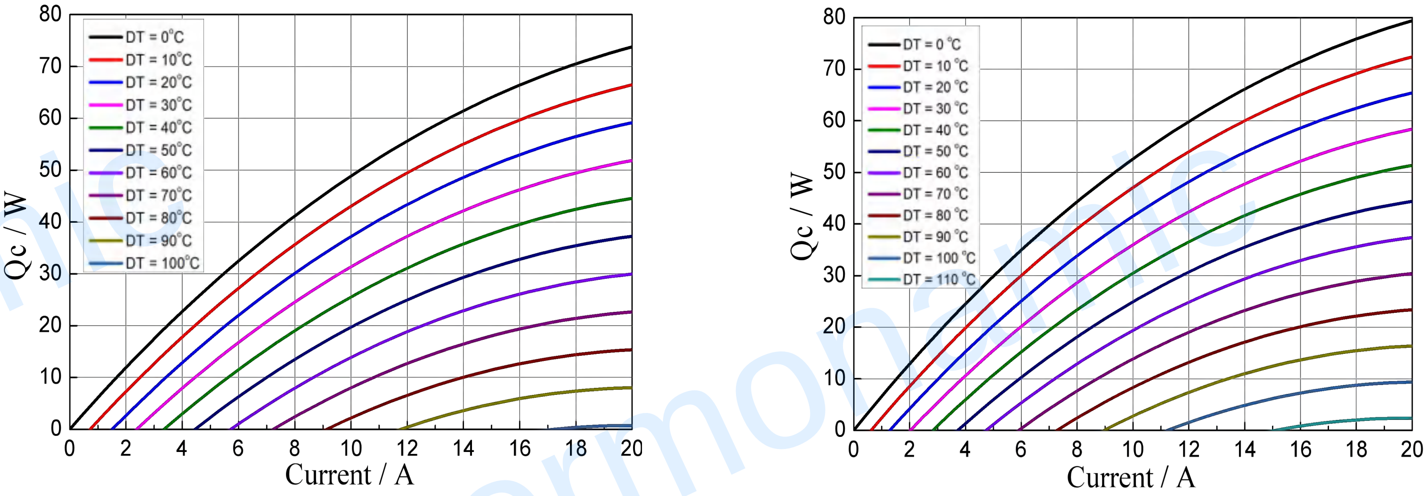
Performance Curves at Th=27 ºC   Performance Curves at Th=50 ºC



Standard Performance Graph Qc= f(DT)



Standard Performance Graph V= f(DT)

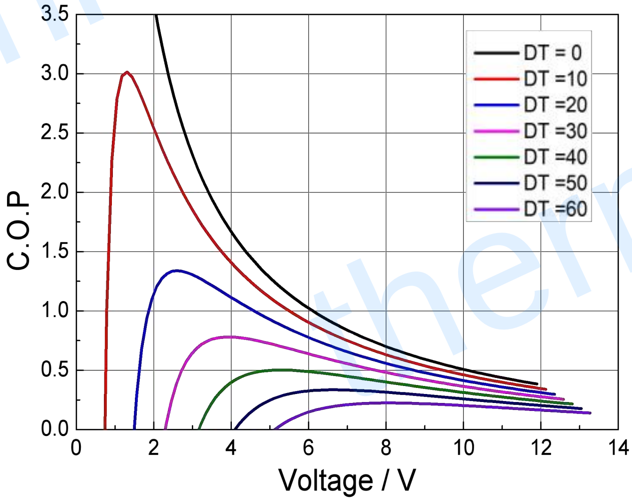


Standard Performance Graph Qc= f(I)

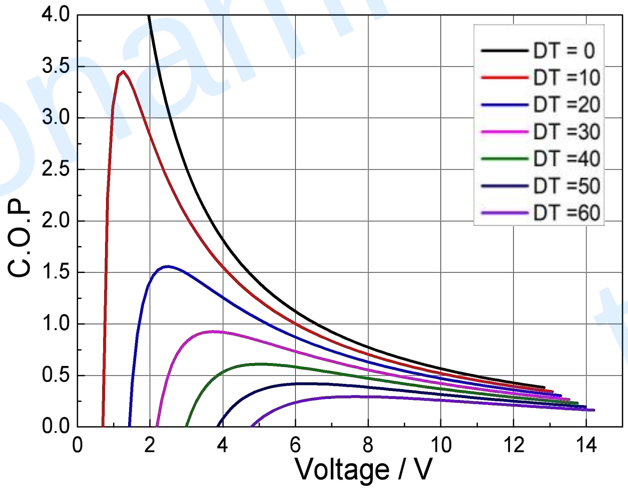
Specification of Thermoelectric Module

TEC3-119-71-35-20CH3.8N4

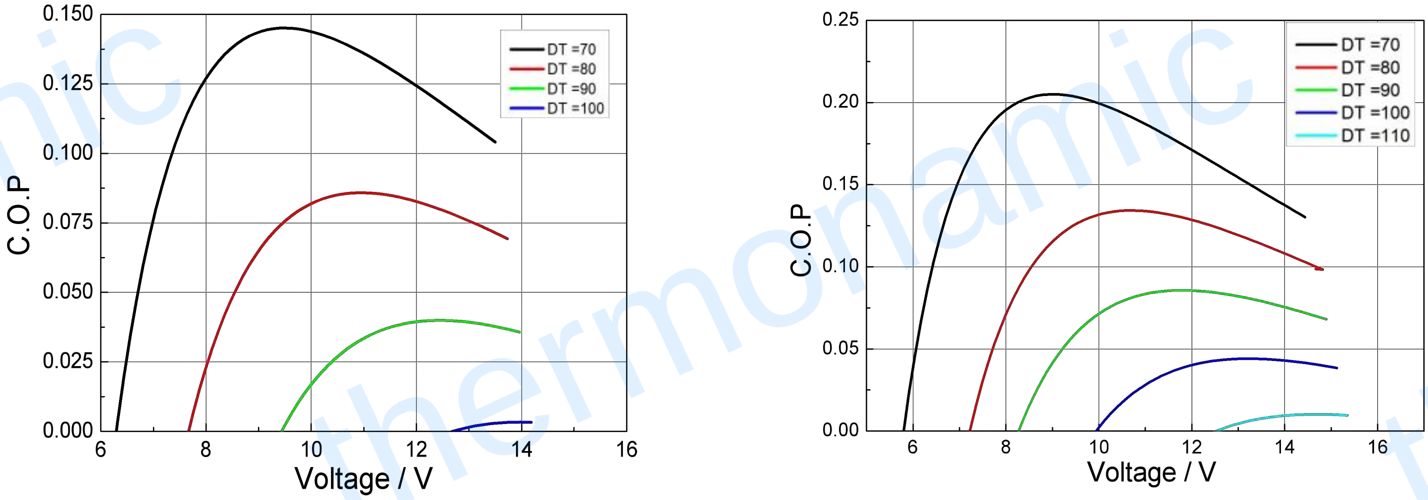
Performance Curves at Th=27 ºC



Performance Curves at Th=50 ºC



Standard Performance Graph COP = f(V) of DT ranged from 0 to 60 ˚C



Standard Performance Graph COP = f(V) of DT ranged from 70 to 100/110 ˚C

Remark: The coefficient of performance (COP) is the cooling power Qc/Input power (V × 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 or storage module below 100 ºC
- Operation below I_{max} or V_{max}
- Work under DC

Note: All specifications subject to change without notice.