

Specification of Thermoelectric Module

TES2-127-71-25S

Description

The TES2-127-71-25S is a multistage module designed for greater temperature differential cooling, good for cooling and heating up to 100 °C applications. It is a 127-71 couples module in size of 22.6 mm × 22.6 mm (top)/29.7 mm × 29.7 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

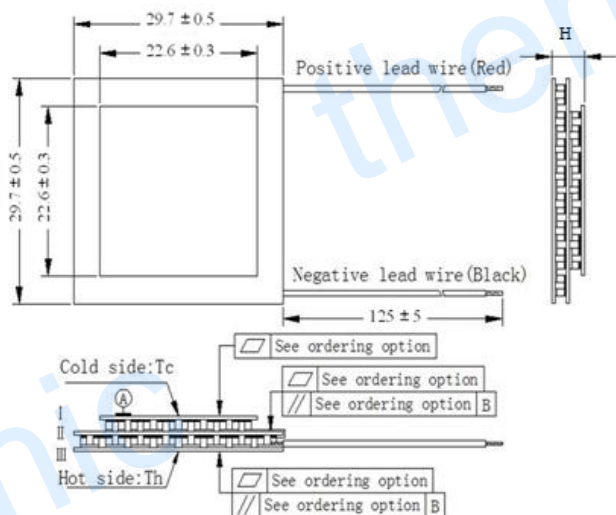
Application

- 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 ₂
DT _{max} (°C)	90	100	Temperature Difference between cold and hot side of the module when cooling capacity is zero at cold side
U _{max} (Voltage)	14.6	16.6	Voltage applied to the module at DT _{max}
I _{max} (Amps)	3.2	3.2	DC current through the modules at DT _{max}
Q _{Cmax} (Watts)	21.6	23.7	Cooling capacity at cold side of the module under DT=0 °C
AC resistance (Ohms)	4.3	4.75	The module resistance is tested under AC
Tolerance (%)	± 10		For thermal and electricity parameters

Geometric Characteristics Dimensions in millimeters



Ordering Option

Suffix	Thickness (mm)	Flatness/ Parallelism (mm)	Lead wire length(mm) Standard/Optional length
TF	0: 5.8 ± 0.3	0: Face II 0.10/0.10, Face III 0.15/0.15	125 ± 5 / Specify
TF	1: 5.8 ± 0.2	1: Face II 0.08/0.08, Face III 0.10/0.10	125 ± 5 / Specify
TF	2: 5.8 ± 0.1	2: Face II 0.05/0.05, Face III 0.08/0.08	125 ± 5 / Specify

Eq. TF01: Thickness 5.8 ± 0.3(mm) and Flatness Face II 0.08/0.08, Face III 0.10/0.10

Manufacturing Options

A. Solder:

1. T100: BiSn (T_{melt}=138 °C)
2. T200: CuSn (T_{melt} = 227 °C)

B. Sealant:

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

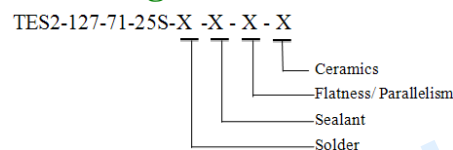
C. Ceramics:

1. Alumina (Al₂O₃, white 96%)
2. Aluminum Nitride (AlN)

D. Ceramics Surface Options:

1. Blank ceramics (not metallized)
2. Metallized (Au plating)

Naming for the Module



TES2-127-71-25S-T100 - NS - TF00 - AIO

T100: Solder, BiSn (Melting Point=138 °C)

NS: No sealing

AIO: Alumina white 96%

TF01: Thickness ± 0.3(mm) and Flatness/Parallelism 0.1/0.1mm

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

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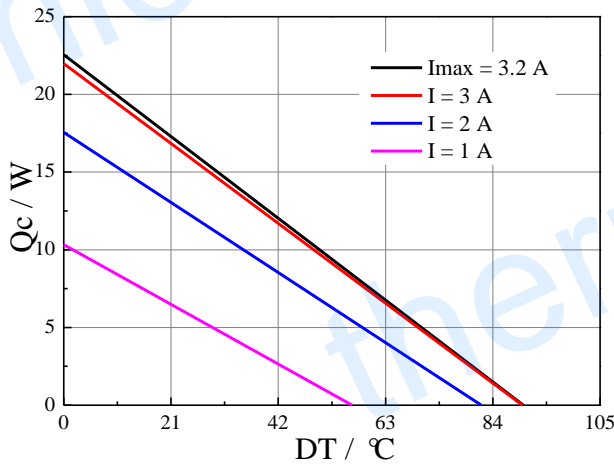
Email: sales@thermonamic.com.cn

Web Site: www.thermonamic.com.cn

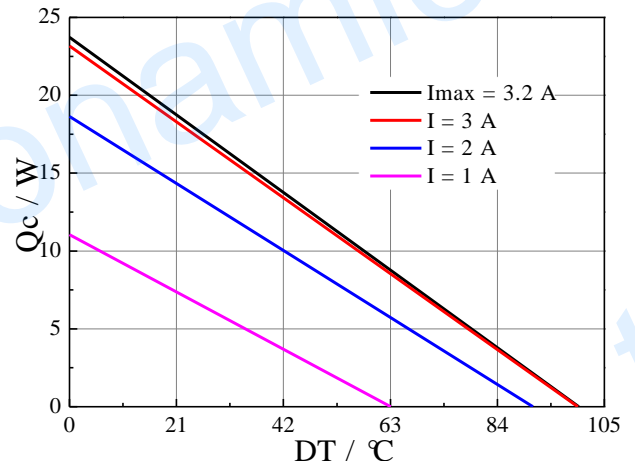
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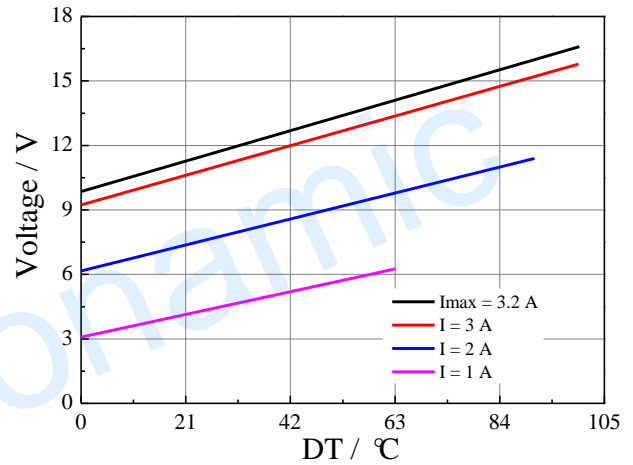
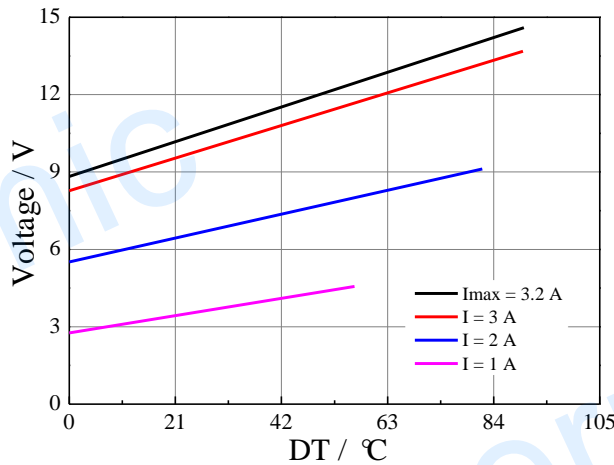
Performance Curves at Th=27 °C



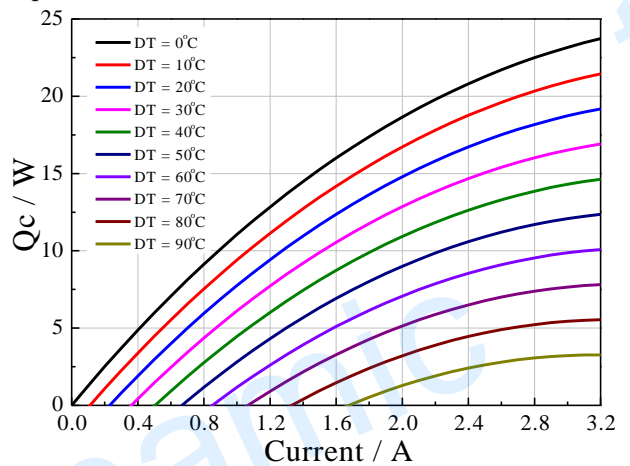
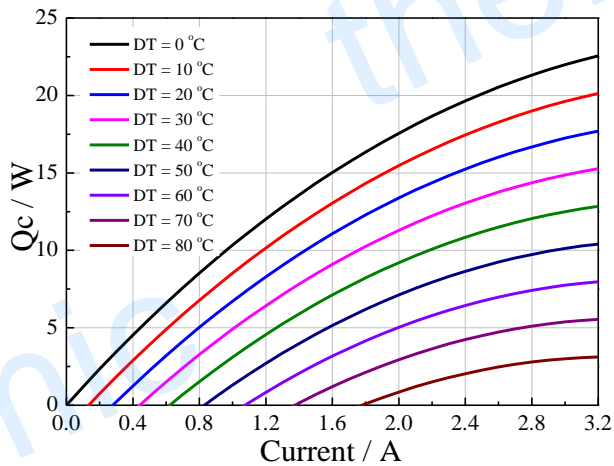
Performance Curves at Th=50 °C



Standard Performance Graph $Q_c = f(DT)$



Standard Performance Graph $V = f(DT)$



Standard Performance Graph $Q_c = f(V)$

Operation Cautions

- Cold side of the module stuck 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