# imall

Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from, Europe, America and south Asia, supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts, Customers Priority, Honest Operation, and Considerate Service", our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip, ALPS, ROHM, Xilinx, Pulse, ON, Everlight and Freescale. Main products comprise IC, Modules, Potentiometer, IC Socket, Relay, Connector. Our parts cover such applications as commercial, industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

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### HiTemp ET Series ET19,23,F1N,0608,11-W2.25

**Thermoelectric Modules** 



The HiTemp ET Series of Thermoelectric Modules (TEMs) are designed to operate in high temperature environments.

This product line is available in multiple configurations and is ideal for applications that operate in temperatures above 80°C. Assembled with Bismuth Telluride semiconductor material, thermally conductive Aluminum Oxide ceramics and high temp solder construction, the ET Series is designed for higher current and larger heat-pumping applications.

#### FEATURES

- High-temperature operation
- Reliable solid state
- No sound or vibration
- Environmentally-friendly
- RoHS-compliant

#### **APPLICATIONS**

- Automotive cooling
- Telecom cooling
- Outdoor environments
- Medical heating/cooling

Hot Side Temperature (°C)	85	110
Qmax (W)	3.5	3.6
Delta Tmax (°C)	87	94
Imax (Amps)	1.9	1.9
Vmax (Volts)	3.4	3.6
Module Resistance (Ohms)	1.66	3.25

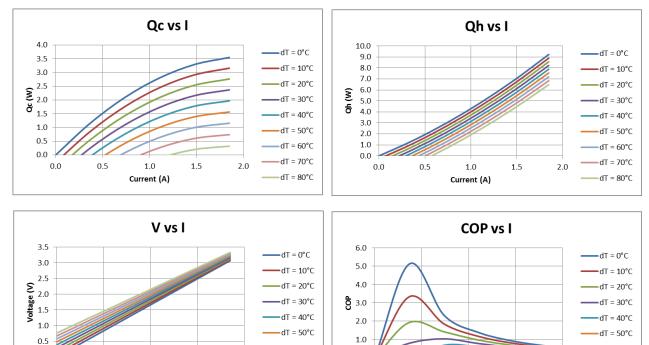
SUFFIX	THICKNESS (PRIOR TO THINNING)	FLATNESS & PARALLELISM	HOT FACE	COLD FACE	LEAD LENGTH
11	0.065" ±0.002"	0.002"/0.002"	Lapped	Lapped	2.25″

#### SEALING OPTIONS

SUFFIX	SEALANT	COLOR	TEMPERATURE RANGE	DESCRIPTION	
RT	RTV	Clear	-60 to +204 °C	Non-corrosive, silicone adhesive	
EP	Ероху	Black	-55 to +150 °C	Low density syntactic foam epoxy encapsulant	



### PERFORMANCE CURVES AT Th = 85° C



dT = 60°C

-dT = 70°C

-dT = 80°C

0.0

0.0

0.5

1.0

Current (A)

1.5

#### MECHANICAL DRAWING

0.5

1.0

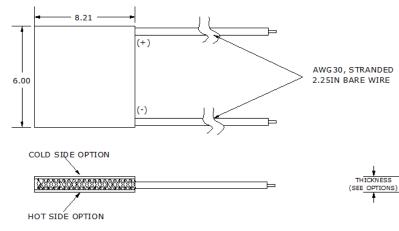
Current (A)

1.5

2.0

0.0

0.0



Ceramic Material: Alumina Nitride(AlN) Solder Construction: 232°C SbSn

### RoHS

Americas: +1.919.597.7300 Europe: +46.31.420530 Asia: +86.755.2714.1166 ets.sales@lairdtech.com www.lairdtech.com Laird warrants to the original end user customer of its products that its products are free from defects in material and workmanship. Subject to conditions and limitations Laird will, at its option, either repair or replace any part of its products that prove defective because of improper workmanship or materials. This limited warranty is in force for the useful lifetime of the original end product into which the Laird product is installed. Useful lifetime of the original end product may vary but is not to exceed five (5) years from the original date of the end product purchase.

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#### NOTES:

2.0

 Maximum Operating Temperature: 150°C

dT = 60°C

-dT = 70°C

-dT = 80°C

- Do not exceed Imax or Vmax when operating module
- Reference assembly guidelines for recommended installation