

# Multistage Series MS3-119-14-15

## Thermoelectric Modules



The MS Series of thermoelectric modules (TEMs) are designed to reach cool down temperatures that are not achievable with single stage TEMs.

This product line is available in numerous heat pumping capacities, geometric shapes and temperature differentials. Assembled with Bismuth Telluride semiconductor material and thermally conductive Aluminum Oxide ceramics, the MS Series is designed for higher current and lower heat-pumping applications.

Americas: +1.919.597.7300  
Europe: +46.31.420530  
Asia: +86.755.2714.1166  
ets.sales@lairdtech.com  
[www.lairdtech.com](http://www.lairdtech.com)

### FEATURES

- High temperature differential
- Precise temperature control
- Reliable solid state operation
- Environmentally friendly
- DC operation
- RoHS compliant

### APPLICATIONS

- CCD cameras
- Electron microscope
- Calibration equipment
- Photonics laser systems
- Gas analyzers
- Infrared (IR) sensors
- Guidance systems

### SPECIFICATIONS

#### TECHNICAL

|                           |      |
|---------------------------|------|
| Hot Side Temperature (°C) | 25°C |
| Qmax (Watts)              | 7.5  |
| Delta Tmax (°C)           | 100  |
| Imax (Amps)               | 3.9  |
| Vmax (Volts)              | 8.1  |

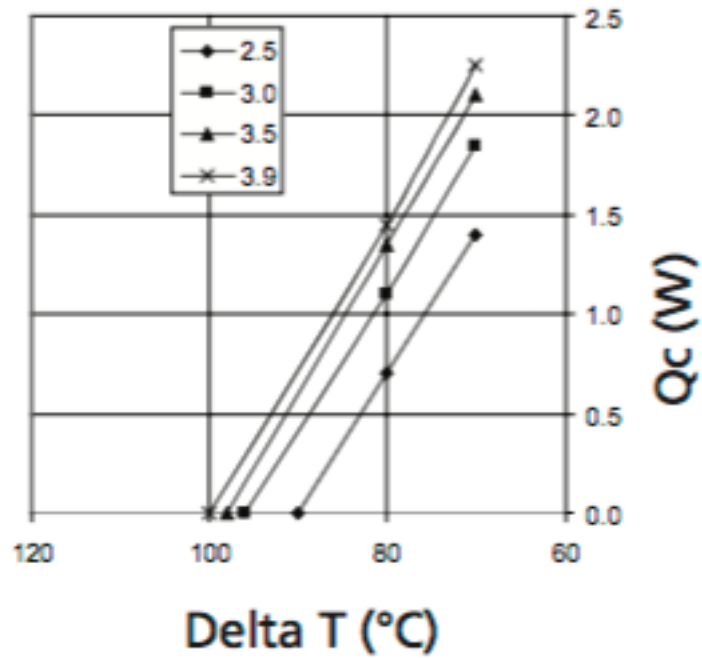
| SUFFIX | THICKNESS<br>(PRIOR TO<br>TINNING) | FLATNESS &<br>PARALLELISM | HOT FACE   | COLD FACE  | LEAD LENGTH |
|--------|------------------------------------|---------------------------|------------|------------|-------------|
| 00     | 0.417"±0.008"                      | 0.001"/0.004"             | Metallized | Metallized | 7.87"       |
| 11     | 0.409"±0.008"                      | 0.001"/0.002"             | Lapped     | Lapped     | 7.87"       |
| 22     | 0.417"±0.008"                      | 0.001"/0.004"             | Pre-tinned | Pre-tinned | 7.87"       |

### SEALING OPTIONS

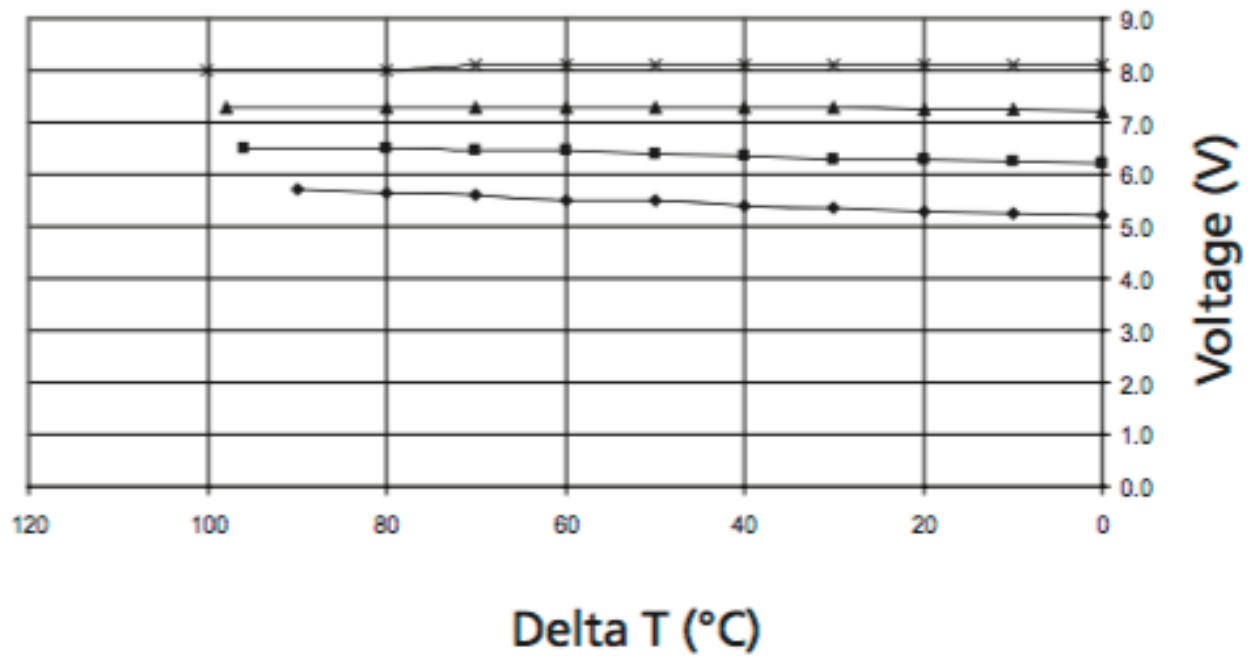
| SUFFIX | SEALANT | COLOR | TEMP RANGE    | DESCRIPTION                                  |
|--------|---------|-------|---------------|----------------------------------------------|
| RT     | RTV     | White | -60 to 204 °C | Non-corrosive, silicone adhesive             |
| EP     | Epoxy   | Black | -55 to 150 °C | Low density syntactic foam epoxy encapsulant |

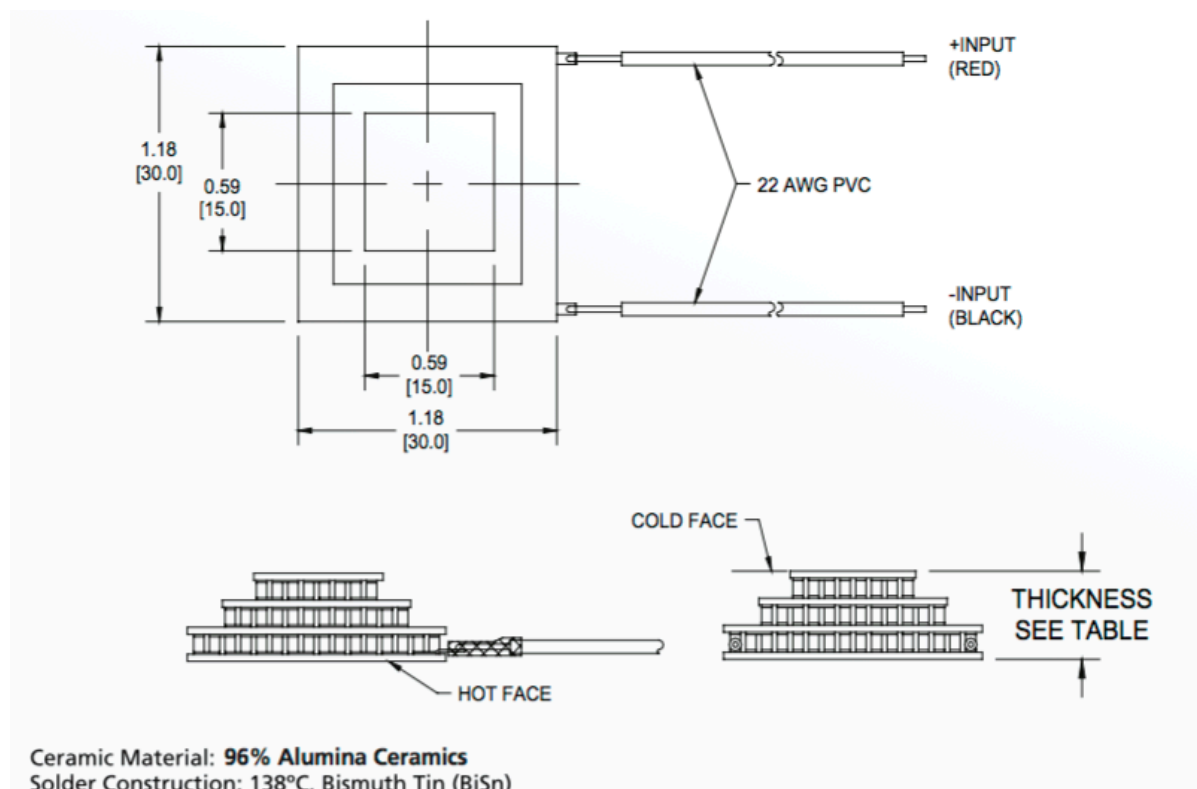
Performance Curves at  $T_h = 25^\circ\text{C}$

THERMO



ELECTRIC





## NOTES

1. Max operating temperature: 80°C
2. Do not exceed I<sub>max</sub> or V<sub>max</sub> when operating module
3. Reference assembly guidelines for recommended installation
4. Solder tinning also available on metallized ceramics

Laird-ETS-MS3-119-14-15-Data-Sheet-082216

Any information furnished by Laird Technologies, Inc. and its agents is believed to be accurate and reliable. All specifications are subject to change without notice. Responsibility for the use and application of Laird Technologies materials rests with the end user. Laird Technologies makes no warranties as to the fitness, merchantability, suitability or non-infringement of any Laird Technologies materials or products for any specific or general uses. Laird Technologies shall not be liable for incidental or consequential damages of any kind. All Laird Technologies products are sold pursuant to the Laird Technologies' Terms and Conditions of sale in effect from time to time, a copy of which will be furnished upon request. © Copyright 2016 Laird Technologies, Inc. All Rights Reserved. Laird, Laird Technologies, the Laird Technologies Logo, and other marks are trademarks or registered trademarks of Laird Technologies, Inc. or an affiliate company thereof. Other product or service names may be the property of third parties. Nothing herein provides a license under any Laird Technologies or any third party intellectual property rights.