



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!



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Technical Data Sheet for NL1022T

Single-Stage Thermoelectric Module



NOMINAL PERFORMANCE IN NITROGEN

| | | |
|---------------------------|------|-----|
| Hot Side Temperature (°C) | 27 | 50 |
| ΔT_{max} (°C): | 64 | 73 |
| Q _{max} (watts): | 4.0 | 4.6 |
| I _{max} (amps): | 1.8 | 1.8 |
| V _{max} (vdc): | 3.5 | 4.0 |
| AC Resistance (ohms): | 1.70 | -- |
| Device ZT | 0.77 | -- |

PRODUCT FEATURES

- RoHS EU Compliant
- Pretinned metallized ceramic surface(s) with 117°C solder.
- Thermistor mounted on edge of cold side ceramic. (Calibration available.)
- Elevated temperature burn-in with test data provided.

ORDERING OPTIONS

| Model Number | Description |
|--------------|---|
| NL1022T-01 | Both Surfaces are Metallized, Buss Wires |
| NL1022T-02 | Hot Side Exterior is Metallized, Buss Wires |
| NL1022T-03 | No Metallization, Buss Wires |
| NL1022T-04 | No Metallization, RTV Sealed, Buss Wires |
| NL1022T-05AC | No Metallization, RTV Sealed, Insulated Wires, Alumina Only |

OPERATION CAUTIONS

For maximum reliability, storage and operation below 85°C in a non-condensing environment is recommended. To minimize thermal stress when operating in cooling mode, use linear/proportional temperature control or a similar method rather than an ON/OFF method.

INSTALLATION

Recommended mounting methods: Bonding with thermal epoxy or soldering with metallized ceramics. For additional information, please refer to our TEM Installation Guide.

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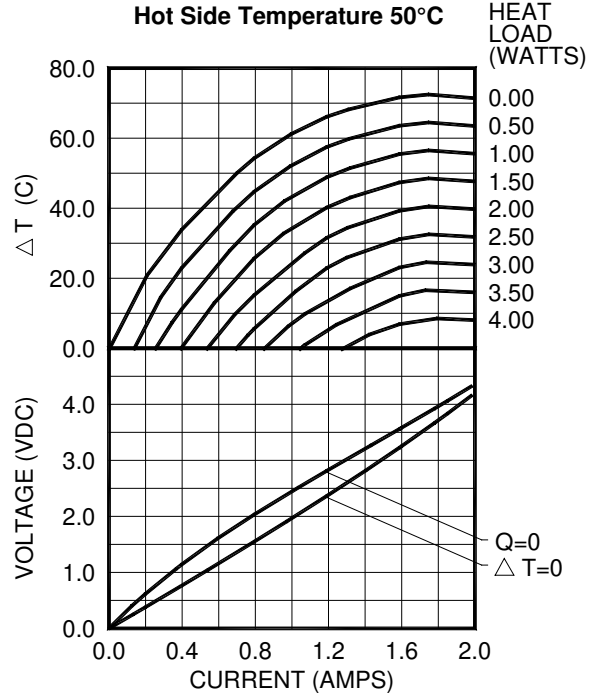
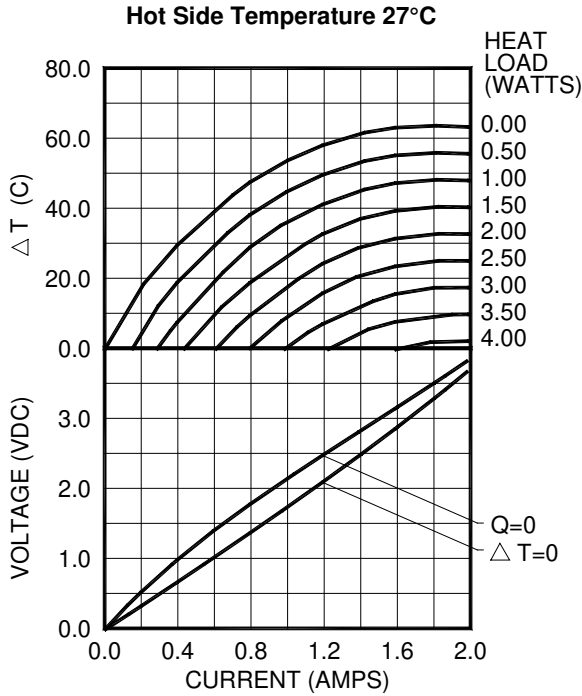
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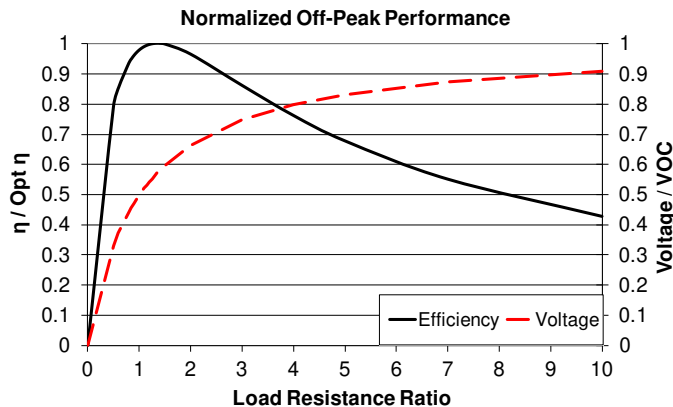
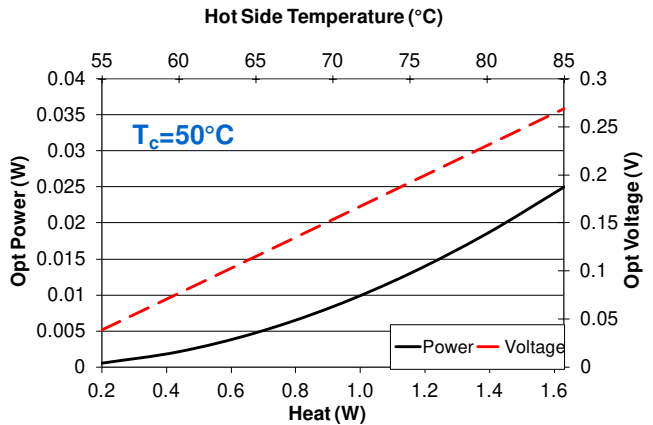
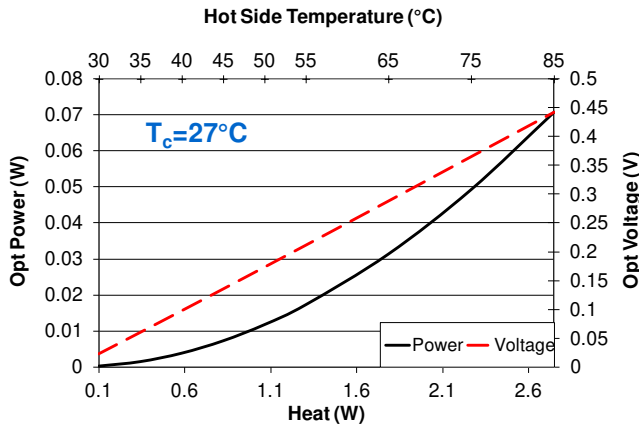


ENVIRONMENT: ONE ATMOSPHERE DRY NITROGEN

TYPICAL PERFORMANCE CURVES

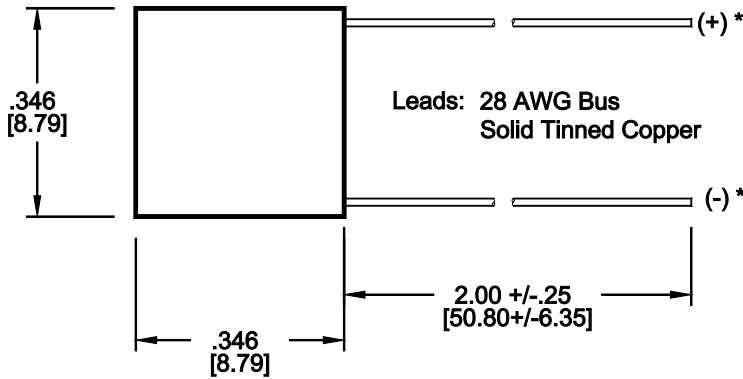
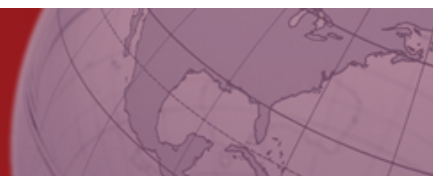


POWER GENERATION PERFORMANCE CURVES

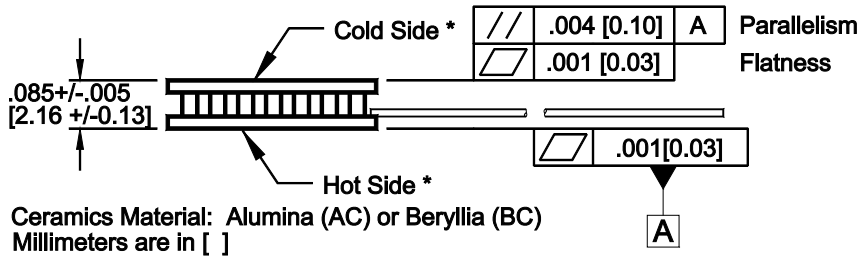


| | | | |
|---|-------|-------|-------|
| Hot Side Temperature (°C) | 85 | 55 | 35 |
| Cold Side Temperature (°C) | 27 | 27 | 27 |
| Optimum Efficiency, η (%) | 2.53 | 1.28 | 0.37 |
| Optimum Power (W) | 0.071 | 0.017 | 0.001 |
| Optimum Voltage (V) | 0.442 | 0.211 | 0.059 |
| Load Resistance for Opt η (Ω) | 2.76 | 2.58 | 2.45 |
| Open Circuit Voltage, VOC (V) | 0.77 | 0.37 | 0.10 |
| Short Circuit Current (A) | 0.37 | 0.19 | 0.06 |
| Thermal Resistance (°C/W) | 20.77 | 20.77 | 20.72 |

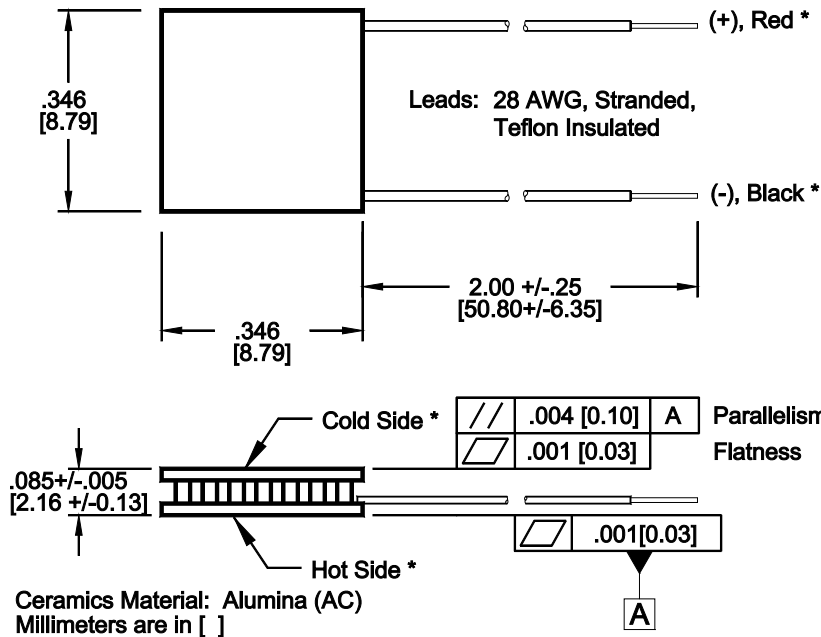
For performance information in a vacuum or with hot side temperatures other than 27°C or 50°C, contact one of our Applications Engineers at 877-627-5691.



Beryllium Oxide Handling Precautions
 Beryllium oxide can be toxic only when dust, mist, or fumes containing particles small enough to enter the lungs are inhaled. For the user, precautions required are to avoid grinding, machining or pulverizing the material by mechanical, thermal, or chemical processing.
 marlow industries, inc.



-01, -02, -03, -04



-05AC

***NOTE:** Cold side, Hot Side, and positive and negative leads are valid only for thermoelectric cooling. For power generation, refer to page 4.

For customer support or general questions please contact a local office or visit our website at www.marlow.com.
 Marlow reserves the right to make product changes without notice.



Power Generation performance information is given in a nitrogen environment and cold side temperatures of 27°C and 50°C. Module temperature does not include thermal resistance of heat sinks. For performance information in vacuum, other cold side temperatures, or specific heat sinks, consult one of our applications engineers.

TYPICAL POWER GENERATION CONFIGURATION

EXAMPLE:

