



# Technical Data Sheet for NL1022T

## Single-Stage Thermoelectric Module



### NOMINAL PERFORMANCE IN NITROGEN

Hot Side Temperature (°C)	27	50
$\Delta T_{max}$ (°C):	64	73
Q <sub>max</sub> (watts):	4.0	4.6
I <sub>max</sub> (amps):	1.8	1.8
V <sub>max</sub> (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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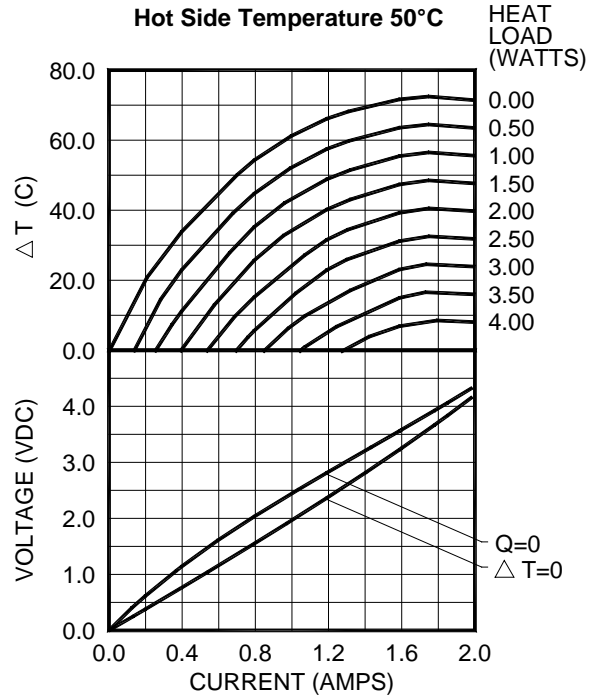
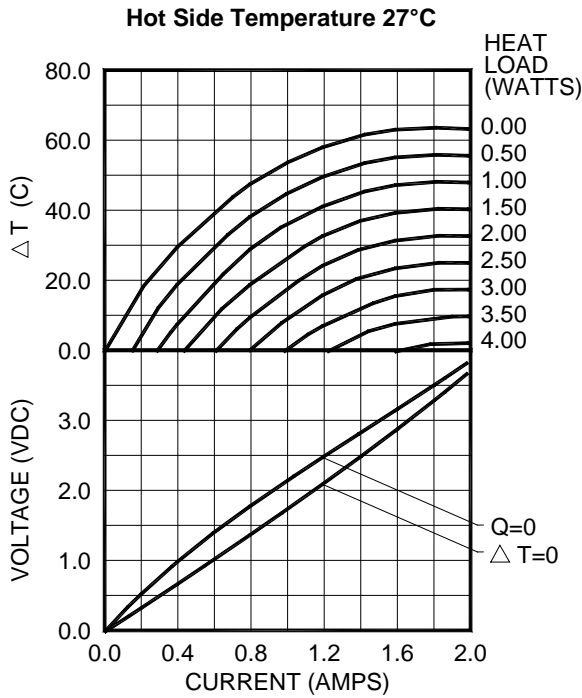
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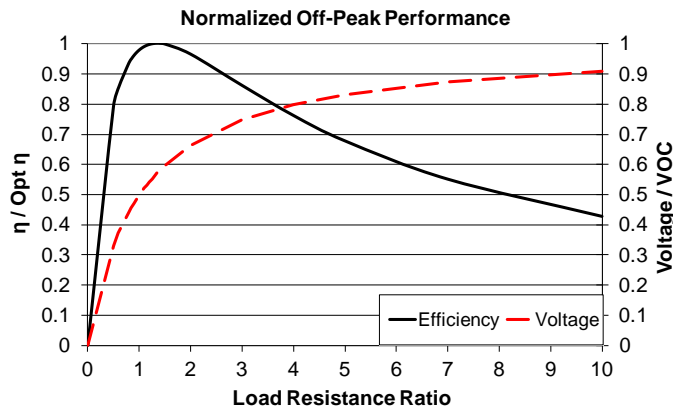
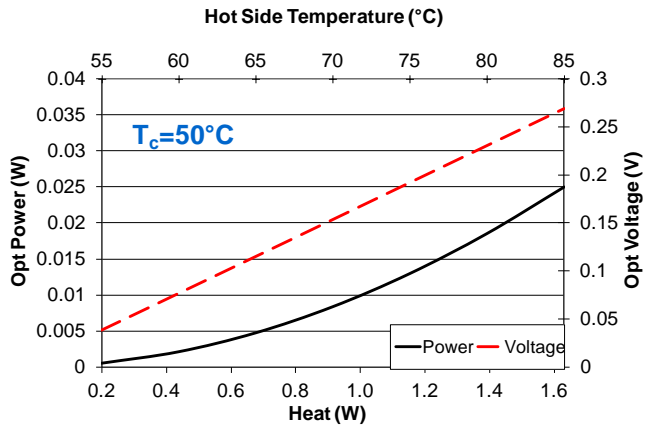
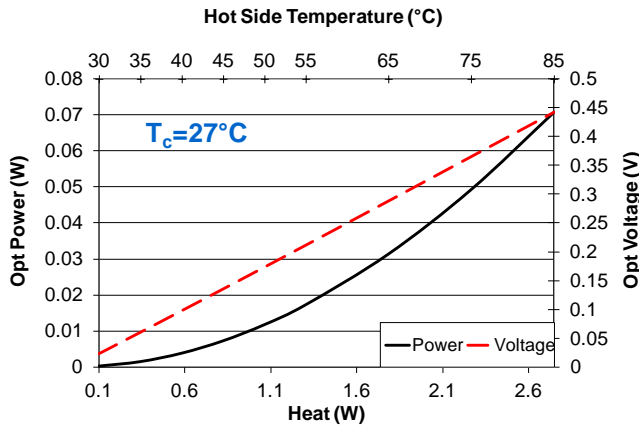


**ENVIRONMENT: ONE ATMOSPHERE DRY NITROGEN**

**TYPICAL PERFORMANCE CURVES**

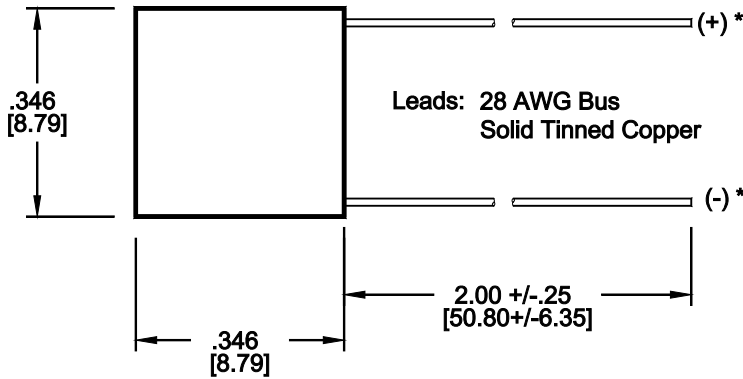


**POWER GENERATION PERFORMANCE CURVES**



Hot Side Temperature (°C)	85	55	35
Cold Side Temperature (°C)	27	27	27
Optimum Efficiency, $\eta$ (%)	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 $\eta$ ( $\Omega$ )	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

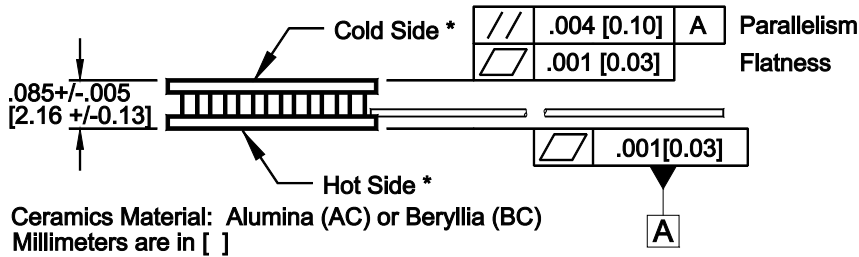
For performance information in a vacuum or with hot side temperatures other than 27°C or 50°C, contact one of our Applications Engineers at 877-627-5691.



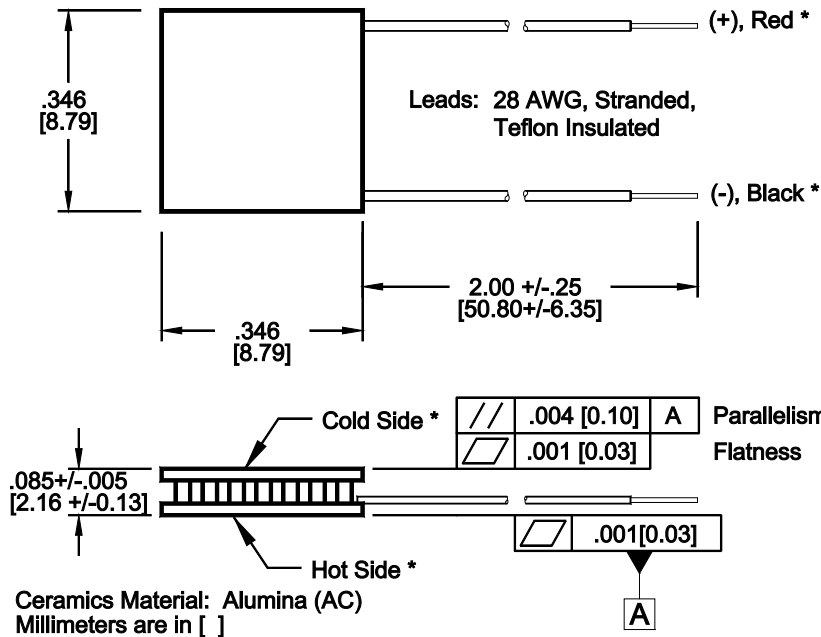
**Beryllium Oxide Handling Precautions**

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.

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-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](http://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:

