

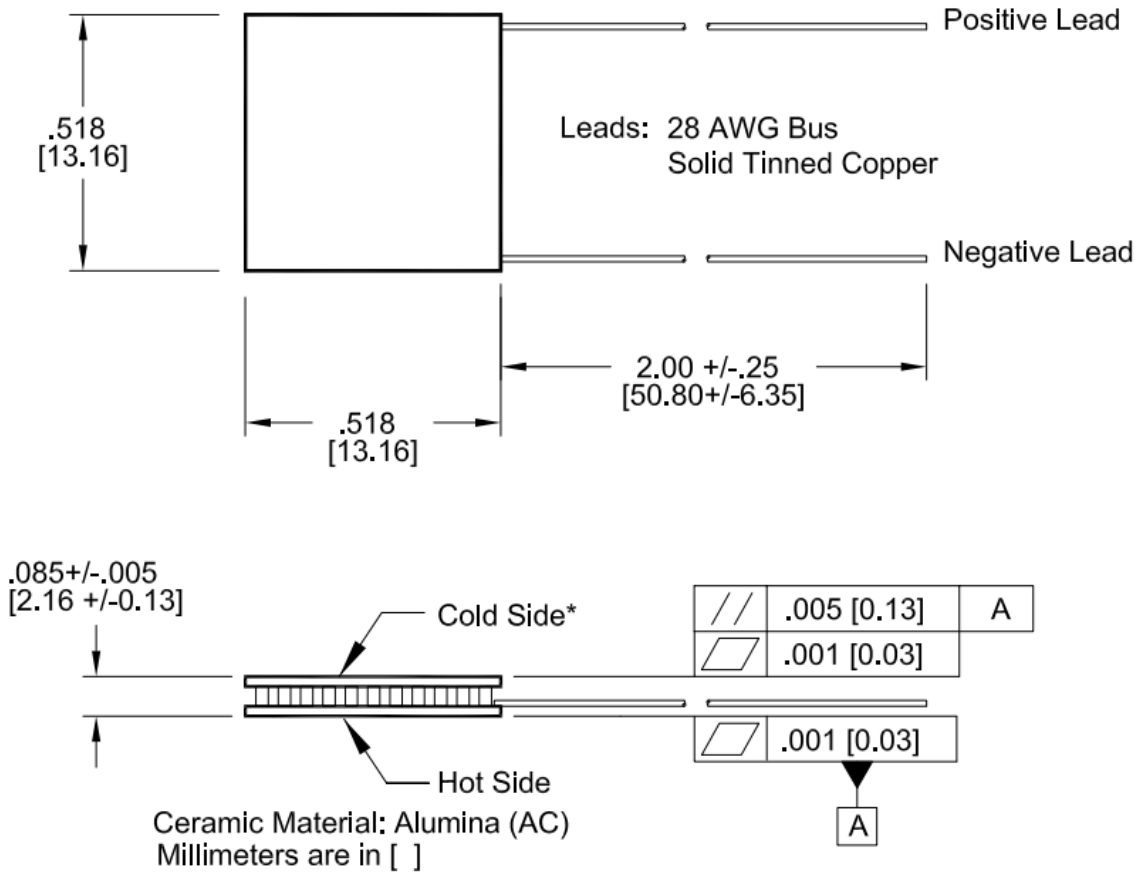
## NL1023T

Single-Stage Thermoelectric Cooler  
RoHS EU Compliant

### TYPICAL PERFORMANCE VALUES

Hot Side Temperature (°C)	27°C	50°C
Δ Tmax (°C-dry N <sub>2</sub> ):	64	73
Qmax (watts):	9.2	10.5
I <sub>max</sub> (amps):	1.8	1.8
V <sub>max</sub> (vdc):	8.0	9.0
AC Resistance (ohms):	3.86	--
Device ZT	0.77	--

### MECHANICAL CHARACTERISTICS



**\*NOTE:** Cold side, hot side, and positive and negative leads are valid only for thermoelectric cooling. For power generation, refer to page 3.

### ORDERING OPTIONS

Model Number	Description
NL1023T-01AC	Metallized, Both sides
NL1023T-02AC	Metallized, Hot Side only
NL1023T-03AC	No Metallization
NL1023T-04AC	Metallization and 138 °c Pretin Solder, Both Sides

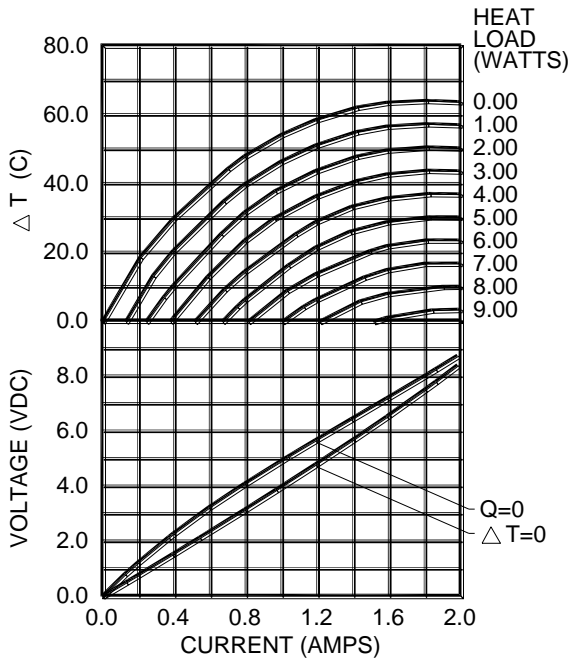
### PRODUCT FEATURES

Options:

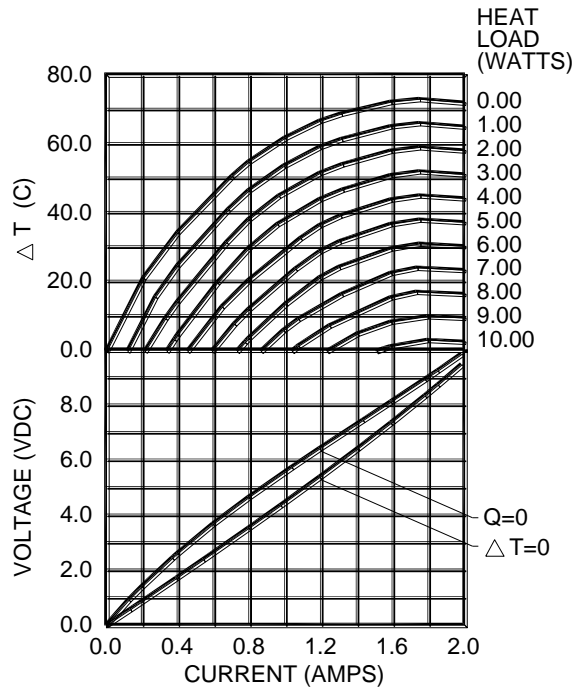
- Pretinned metallized ceramic surface(s) with 117°C solder.
- Thermistor mounted on edge of cold side ceramic. (Calibration available.)
- Elevated temperature burn-in with test data provided.

ENVIRONMENT: ONE ATMOSPHERE DRY NITROGEN

Hot Side Temperature 27°C



Hot Side Temperature 50°C



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.

Installation

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

Operation Cautions

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

CONTACT US:

For customer support or general questions please contact a local office below or visit our website at [www.marlow.com](http://www.marlow.com).

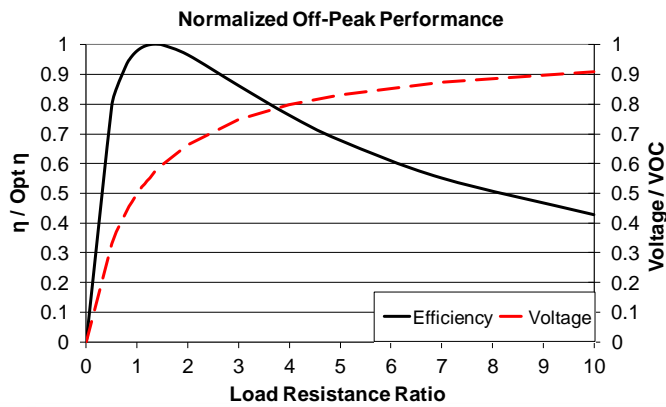
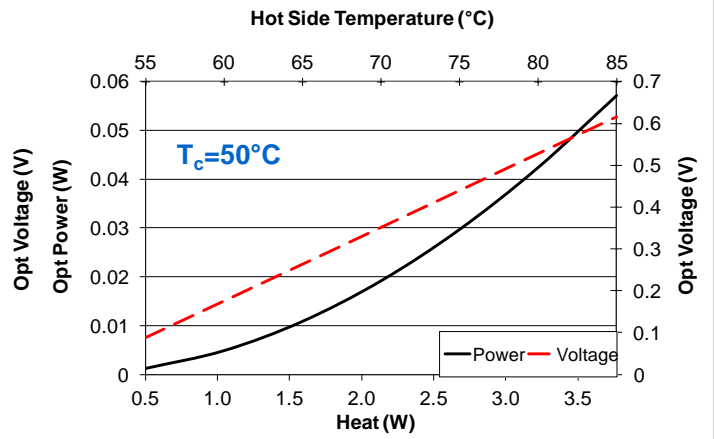
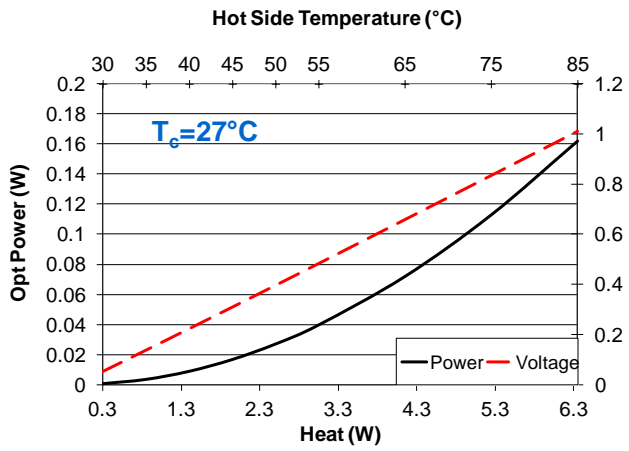
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POWER GENERATION PERFORMANCE CURVES



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)	0.162	0.039	0.003
Optimum Voltage (V)	1.011	0.482	0.136
Load Resistance for Opt $\eta$ ( $\Omega$ )	6.32	5.91	5.62
Open Circuit Voltage, $V_{OC}$ (V)	1.77	0.85	0.24
Short Circuit Current (A)	0.37	0.19	0.06
Thermal Resistance (°C/W)	9.09	9.09	9.06

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:

