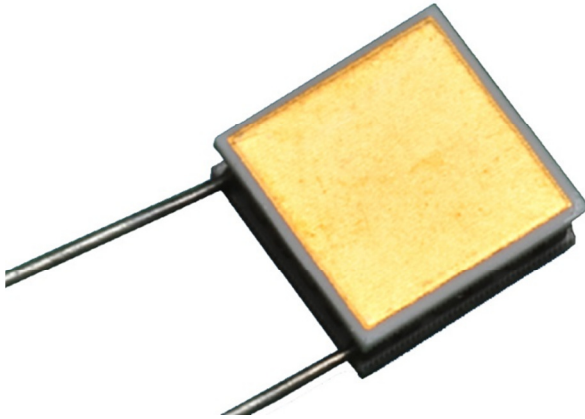




Technical Data Sheet for NL1013T

Single-Stage Thermoelectric Module



NOMINAL PERFORMANCE IN VACUUM

Hot Side Temperature (°C)	27	50
ΔT_{max} (°C):	61	69
Q _{max} (watts):	4.8	5.4
I _{max} (amps):	1.0	1.0
V _{max} (vdc):	8.5	9.6
AC Resistance (ohms):	7.42	--
Device ZT	0.77	--

PRODUCT FEATURES

- RoHS EU Compliant
- Rated operating temperature of 85°C.
- Maximum processing temperature of 220°C.
- Ceramic Material: Aluminum Oxide
- Metallized Exterior Surfaces are Au flash, suitable for soldering.
- RTV Sealing options available.

ORDERING OPTIONS

Model Number	Description
NL1013T-01AC	TEM, Top and Base Metallized Exterior
NL1013T-02AC	TEM, Base Metallized Exterior
NL1013T-03AC	TEM, No Metallized Exterior
NL1013T-04AC	TEM, No Metallized Exterior, RTV Sealed, Special Wires

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.

INSTALLATION

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

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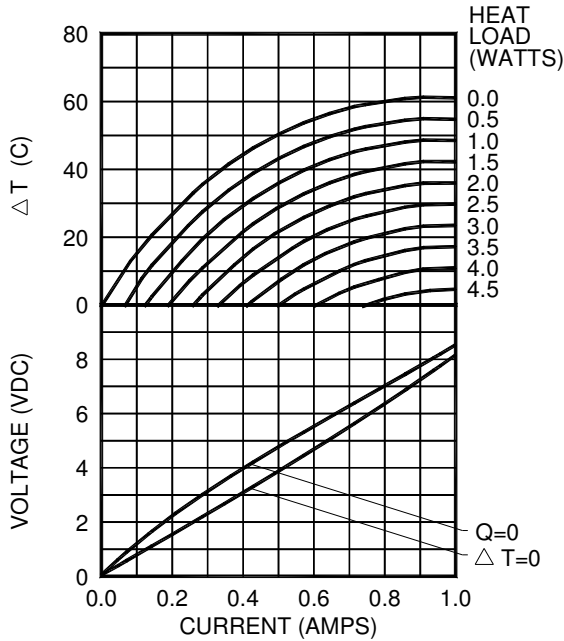
II-VI Singapore Pte., Ltd.
(65) 6481 8215 (tel)
info@ii-vi.com.sg

Marlow Industries China, II-VI
Technologies Beijing
86-10-643 98226
info@iivibj.com

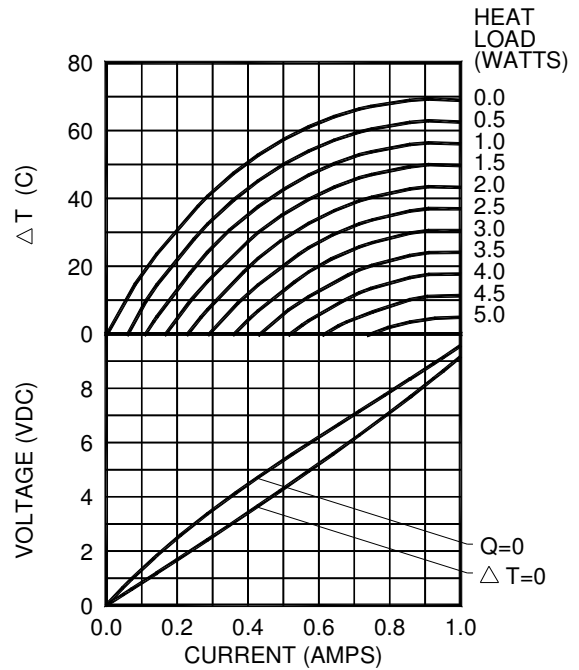


ENVIRONMENT: 10⁻⁵ TORR VACUUM

Hot Side Temperature: 27°C

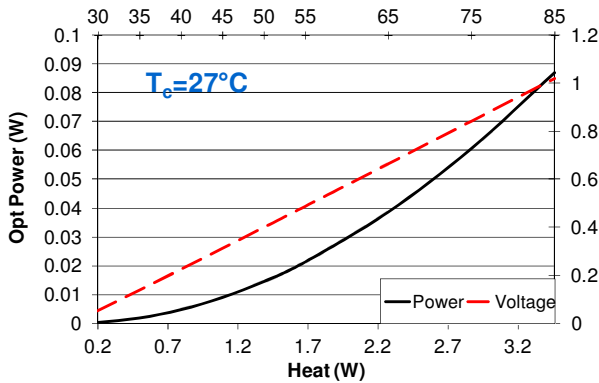


Hot Side Temperature: 50°C

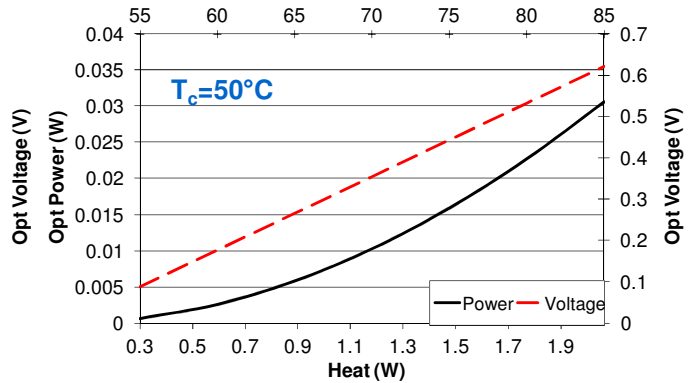


POWER GENERATION PERFORMANCE CURVES

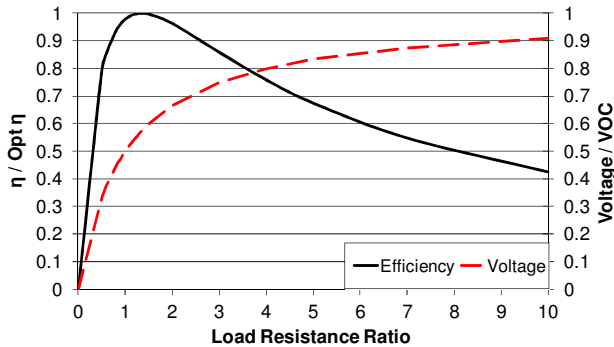
Hot Side Temperature (°C)



Hot Side Temperature (°C)



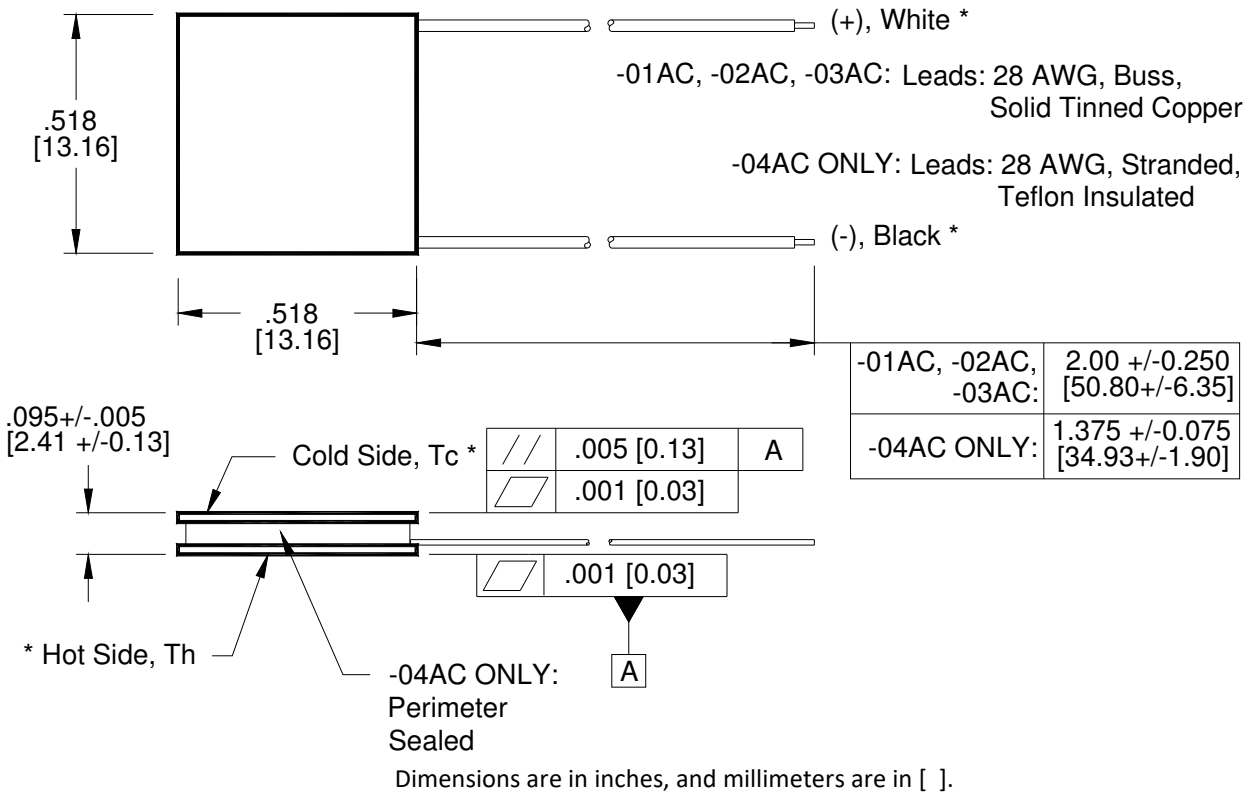
Normalized Off-Peak Performance



Hot Side Temperature (°C)	85	55	35
Cold Side Temperature (°C)	27	27	27
Optimum Efficiency, η (%)	2.52	1.28	0.37
Optimum Power (W)	0.087	0.021	0.002
Optimum Voltage (V)	1.021	0.487	0.138
Load Resistance for Opt η (Ω)	12.00	11.20	10.65
Open Circuit Voltage, V_{OC} (V)	1.79	0.85	0.24
Short Circuit Current (A)	0.20	0.10	0.03
Thermal Resistance (°C/W)	16.86	16.88	16.85



MECHANICAL CHARACTERISTICS



***NOTE: Cold side, hot side, positive leads, and negative leads are valid only for thermoelectric cooling. For power generation, see below.**

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:

