



marlow industries, inc.®
Subsidiary of II-VI INCORPORATED

TECHNICAL DATA SHEET



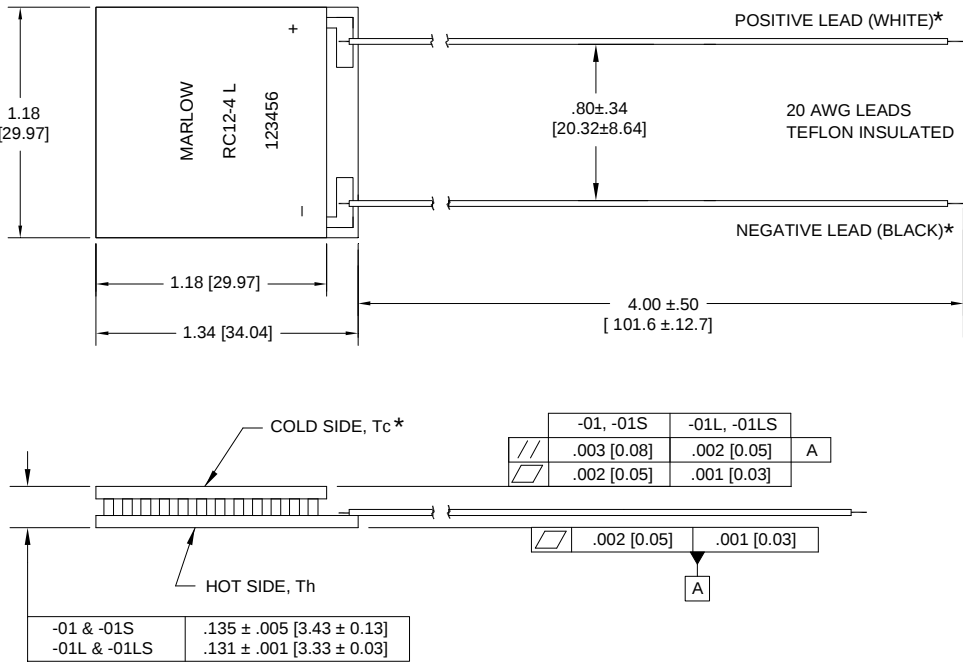
RC12-4

Single-Stage Thermoelectric Module
RoHS EU Compliant

TYPICAL PERFORMANCE VALUES

Hot Side Temperature (°C)	27°C	50°C
ΔT_{max} (°C-dry N ₂):	66	74
Q _{max} (watts):	36	39
I _{max} (amps):	3.7	3.7
V _{max} (vdc):	14.7	16.4
AC Resistance (ohms):	3.2	--
Device ZT	0.74	--

MECHANICAL CHARACTERISTICS



Ceramic Material: Alumina (AC)

Dimensions in [] are millimeters

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

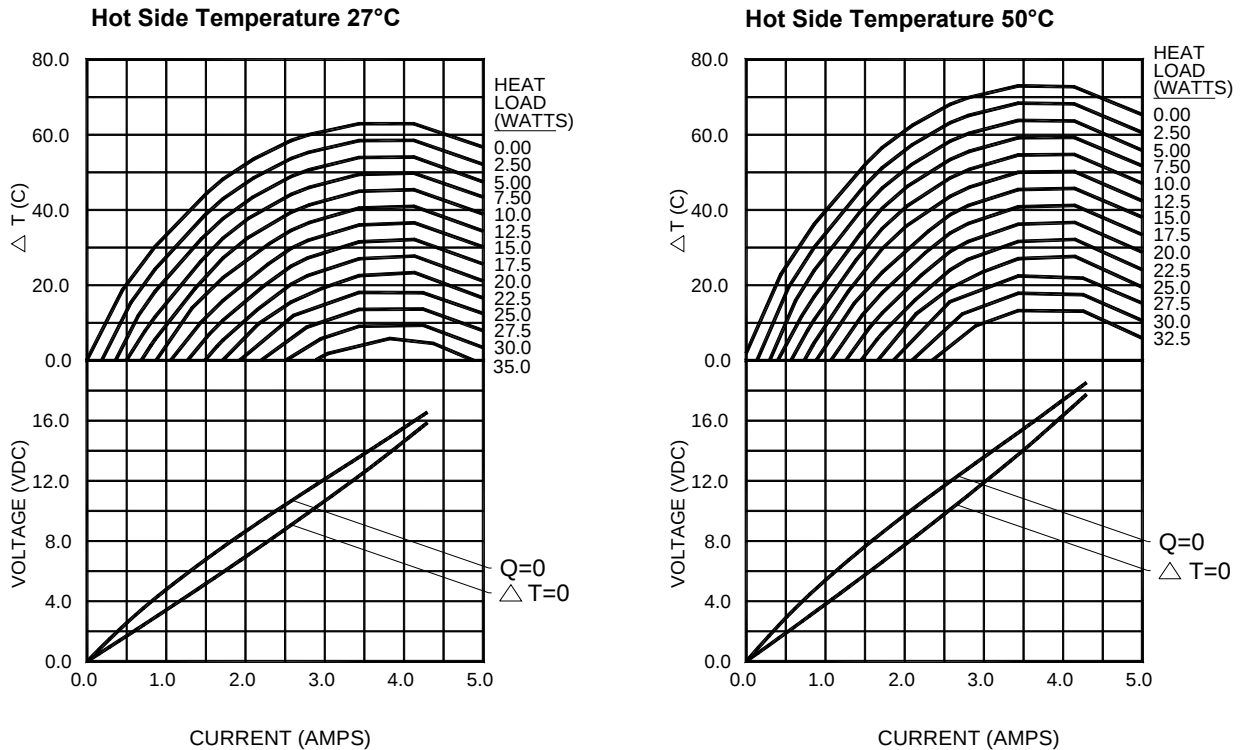
ORDERING OPTIONS

Model Number	Description
RC12-4-01	Base Model w/ leads
RC12-4-01L	Lapped Model
RC12-4-01S	Sealed Model
RC12-4-01LS	Lapped and Sealed Model

AVAILABLE MODIFICATIONS

Solid-state reliability.
Built with high temperature solder with the ability to withstand higher assembly processing temperatures for short periods of time (<160°C).
Superior nickel diffusion barriers on elements.
High strength for rugged environment.
Porched configuration for enhanced leadwire strength.
RTV sealing available (Optional).
Lapped option available for multiple module applications.

ENVIRONMENT: ONE ATMOSPHERE DRY NITROGEN



For performance information in a vacuum or with hot side temperatures other than 27°C or 50°C, consult one of our Applications Engineers.

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 when operating in cooling mode, 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 consult our website for distributor information.

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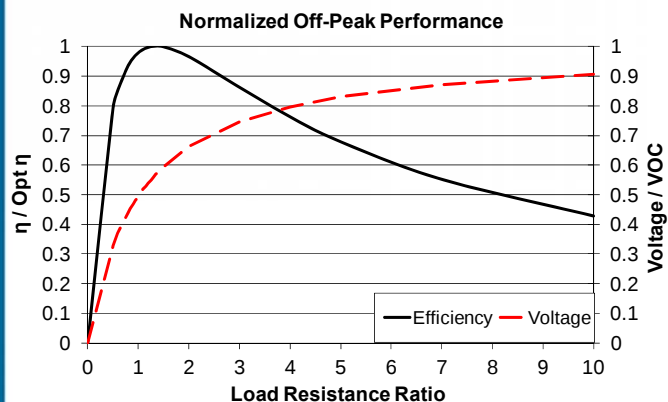
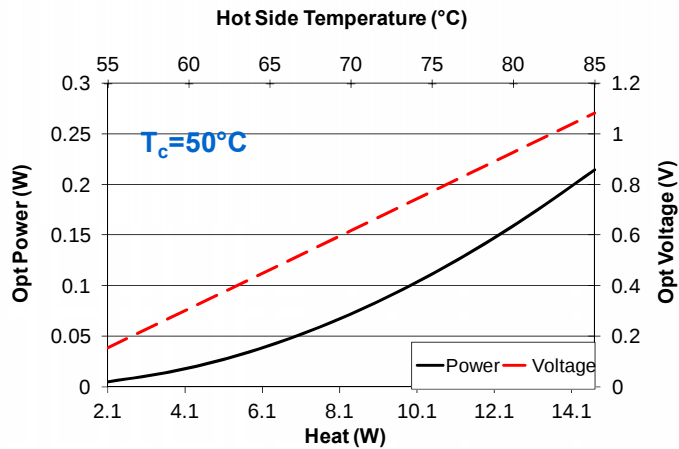
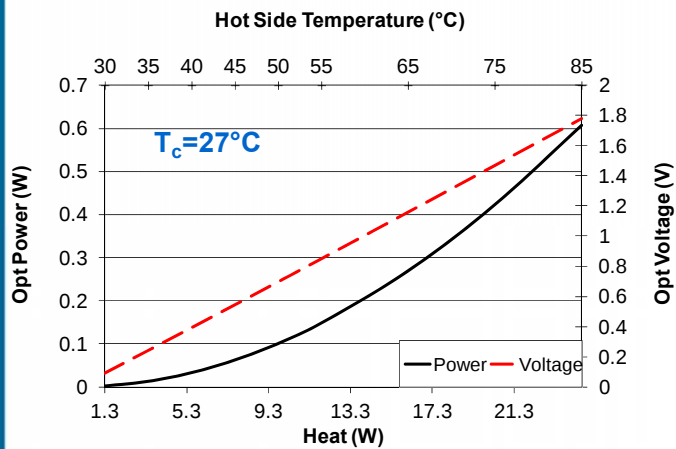
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POWER GENERATION PERFORMANCE CURVES



Hot Side Temperature (°C)	85	55	35
Cold Side Temperature (°C)	27	27	27
Optimum Efficiency, η (%)	2.47	1.25	0.36
Optimum Power (W)	0.608	0.148	0.012
Optimum Voltage (V)	1.778	0.848	0.239
Load Resistance for Opt η (Ω)	5.21	4.86	4.63
Open Circuit Voltage, VOC (V)	3.13	1.50	0.42
Short Circuit Current (A)	0.79	0.40	0.12
Thermal Resistance (°C/W)	2.36	2.36	2.35

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:

