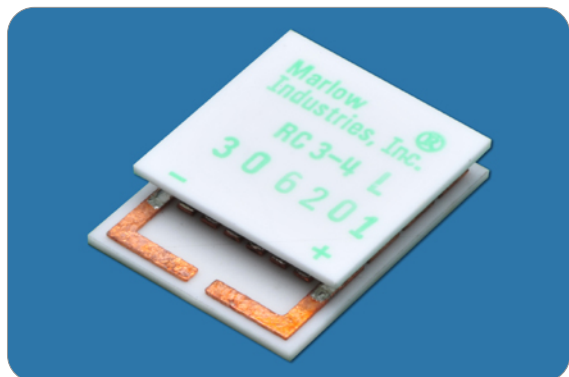




marlow industries, inc.®  
Subsidiary of II-VI INCORPORATED

# TECHNICAL DATA SHEET



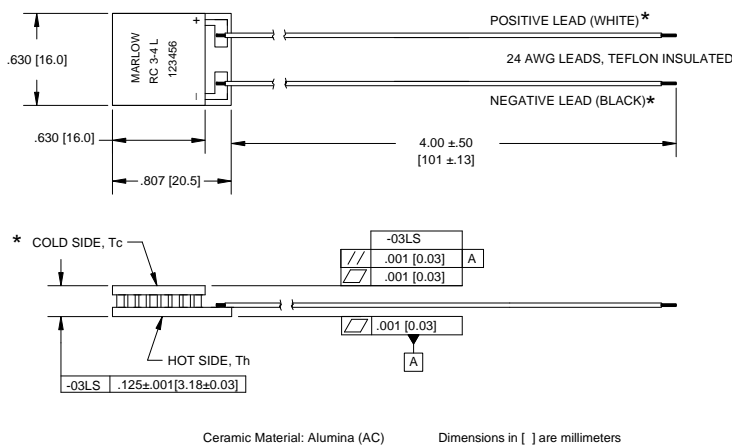
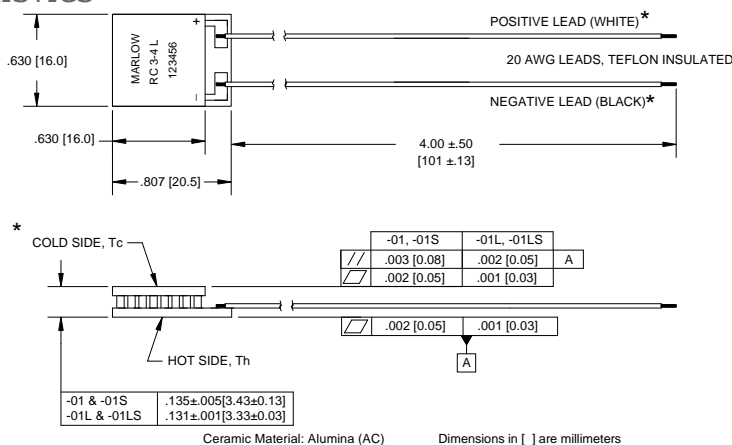
## RC3-4

Single-Stage Thermoelectric Module  
RoHS EU Compliant

### TYPICAL PERFORMANCE VALUES

|                                  |      |      |
|----------------------------------|------|------|
| Hot Side Temperature (°C)        | 27°C | 50°C |
| Δ Tmax (°C-dry N <sub>2</sub> ): | 65   | 73   |
| Qmax (watts):                    | 9    | 10   |
| Imax (amps):                     | 3.7  | 3.7  |
| Vmax (vdc):                      | 3.6  | 4.1  |
| AC Resistance (ohms):            | 0.8  | --   |
| Device ZT                        | 0.74 | --   |

### MECHANICAL CHARACTERISTICS



### -03LS

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

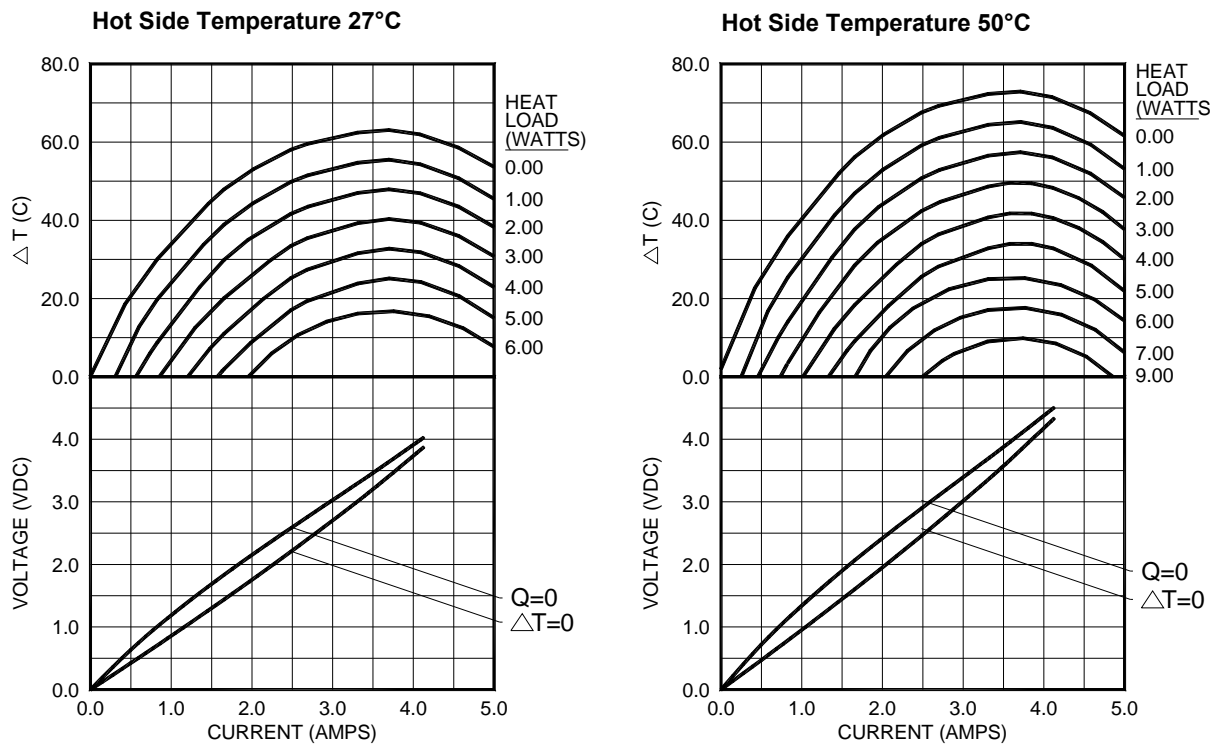
### ORDERING OPTIONS

| Model Number | Description             |
|--------------|-------------------------|
| RC3-4-01     | Base Model w/ leads     |
| RC3-4-01L    | Lapped Model            |
| RC3-4-01S    | Sealed Model            |
| RC3-4-01LS   | Lapped and Sealed Model |
| RC3-4-03LS   | 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/Epoxy 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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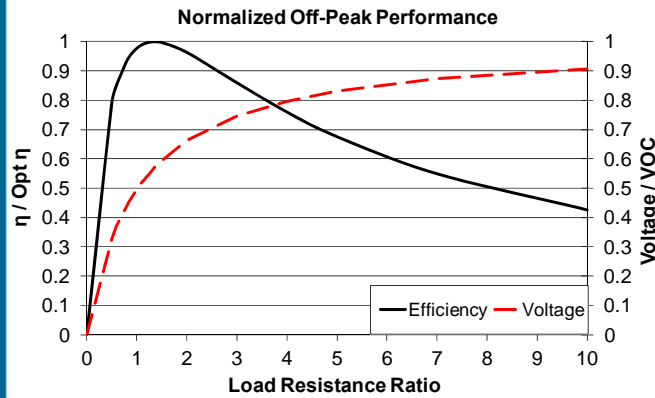
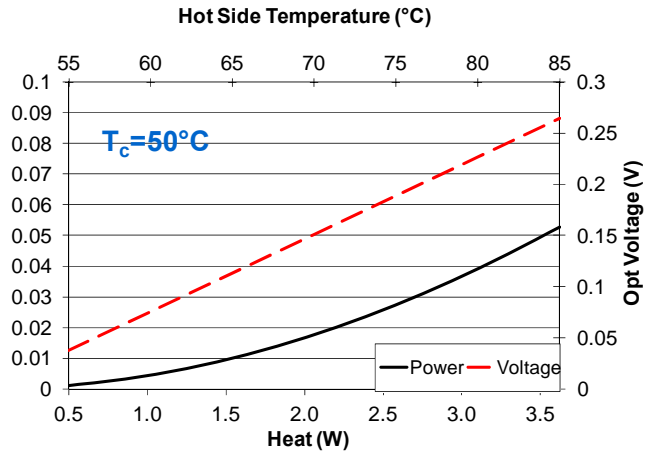
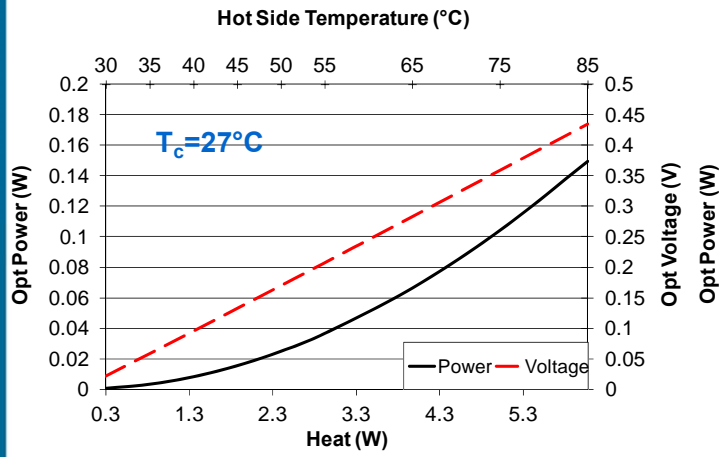
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POWER GENERATION PERFORMANCE CURVES



|   |       |       |       |
|---|-------|-------|-------|
| Hot Side Temperature (°C)                   | 85    | 55    | 35    |
| Cold Side Temperature (°C)                  | 27    | 27    | 27    |
| Optimum Efficiency, $\eta$ (%)              | 2.45  | 1.24  | 0.36  |
| Optimum Power (W)                           | 0.149 | 0.036 | 0.003 |
| Optimum Voltage (V)                         | 0.435 | 0.208 | 0.059 |
| Load Resistance for Opt $\eta$ ( $\Omega$ ) | 1.27  | 1.18  | 1.13  |
| Open Circuit Voltage, $V_{OC}$ (V)          | 0.77  | 0.37  | 0.10  |
| Short Circuit Current (A)                   | 0.79  | 0.41  | 0.12  |
| Thermal Resistance (°C/W)                   | 9.53  | 9.54  | 9.52  |

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:

