

**DESCRIPTION**

The GC4300 series are high speed (anode base) NIP diodes made with high resistivity reverse epitaxial silicon material. These diodes are passivated with silicon dioxide for high stability and reliability and have been proven by thousands of device hours in high reliability systems.

The NIP diode is used when negative bias current is available for forward conduction and will operate with as little as -10 mA bias. These diodes have somewhat faster speeds as compared with similar PIN diodes.

These devices can withstand storage temperatures from -65°C to +200°C and will operate over the range from -55°C to +150°C. All devices meet or exceed military environmental specifications of MIL-PRF-19500.

This series of diodes meets RoHS requirements per EU Directive 2002/95/EC. The standard terminal finish is gold unless otherwise specified. Consult the factory if you have special requirements.

**APPLICATIONS**

The GC4300 series can be used in RF circuits as an on/off element, as a switch, or as a current controlled resistor in attenuators extending over the frequency range from UHF through Ku band.

Switch applications include high speed switches (ECM systems), TR witches, channel or antenna selection switches (telecommunications), duplexers (radar) and digital phase shifters (phased arrays).

The GC4300 series are also used as passive and active limiters for low to moderate RF power levels.

Attenuator type applications include amplitude modulators, AGC attenuators, power levelers and level set attenuators.

**KEY FEATURES**

- Available as packaged devices or as chips for hybrid applications
- Low Loss
- Suitable for applications to 18Ghz
- High Speed
- Low Insertion Loss
- High Isolation
- Reverse Polarity for Applications with special Bias Considerations
- RoHS Compliant <sup>1</sup>


**APPLICATIONS/BENEFITS**

- RF / Microwave Switching
- Duplexers
- Digital Phase Shifting
- Phased Array Radar

**ABSOLUTE MAXIMUM RATINGS AT 25° C  
(UNLESS OTHERWISE SPECIFIED)**

| Rating                                                 | Symbol    | Value       | Unit |
|--------------------------------------------------------|-----------|-------------|------|
| Maximum Leakage Current<br>@80% of Minimum Rated $V_B$ | $I_R$     | 0.5         | uA   |
| Storage Temperature                                    | $T_{STG}$ | -65 to +200 | °C   |
| Operating Temperature                                  | $T_{OP}$  | -55 to +150 | °C   |

**IMPORTANT:** For the most current data, consult our website: [www.MICROSEMI.com](http://www.MICROSEMI.com)  
 Specifications are subject to change, consult the factory for further information.

 These devices are ESD sensitive and must be handled using ESD precautions.

<sup>1</sup> These devices are supplied with gold plated terminations.

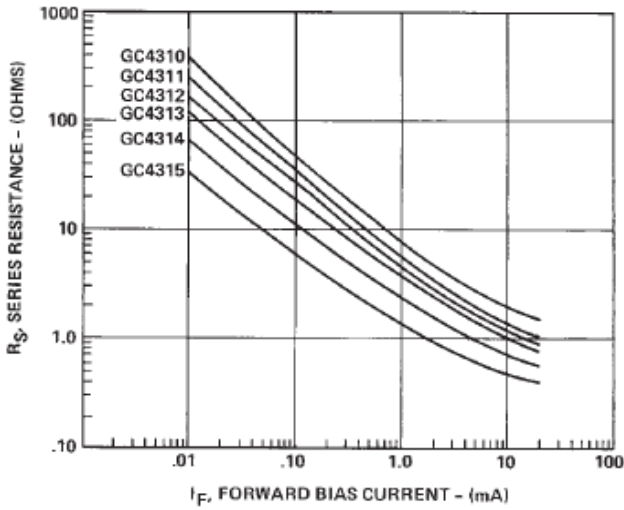
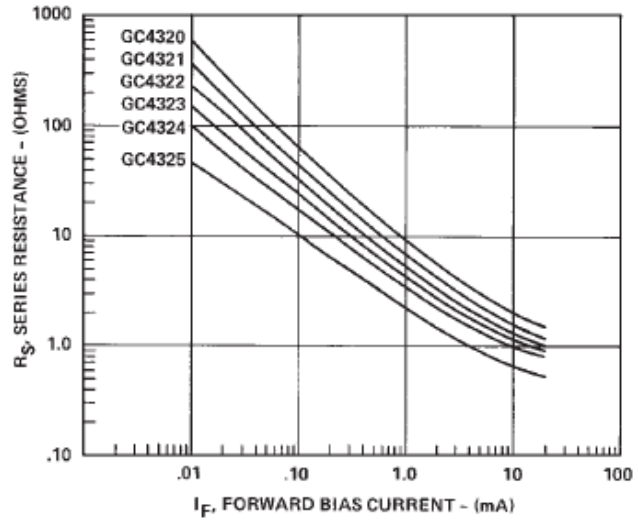
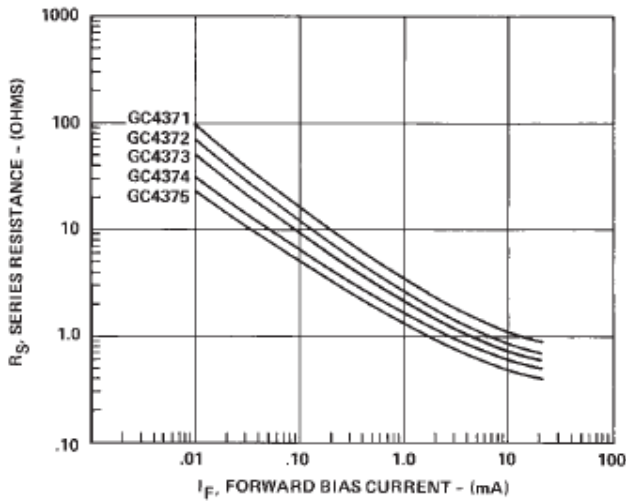
**DEVICE ELECTRICAL PARAMETERS @ 25°C (unless otherwise specified)**

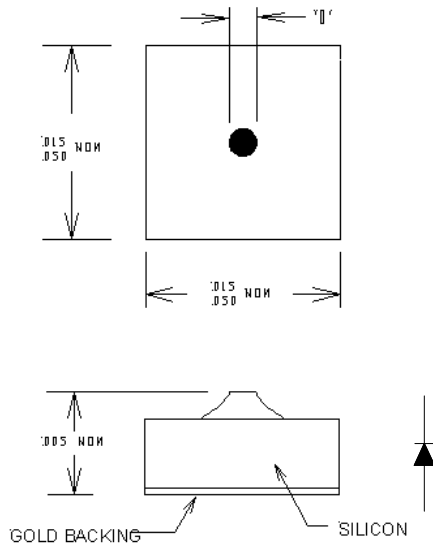
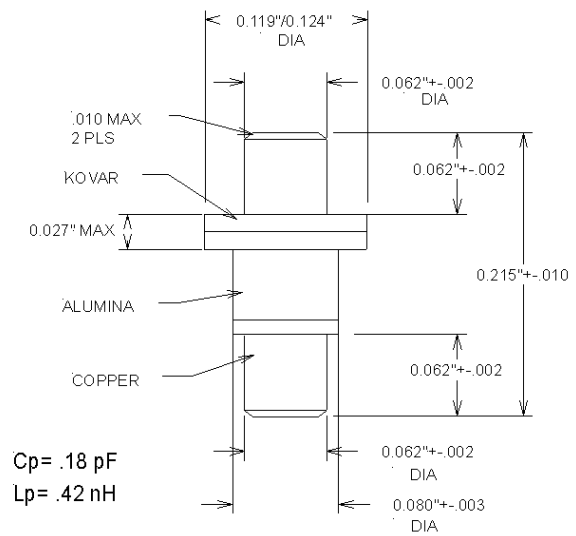
| <b>Model Number</b> <sup>1</sup> | <b>V<sub>B</sub>(V)</b><br>I <sub>R</sub> =10μA<br><b>(Min)</b> | <b>C<sub>J</sub>(pF)</b> <sup>2</sup><br>@V <sub>R</sub> =10V<br><b>(Max)</b> | <b>R<sub>S</sub>(Ω)</b> <sup>3</sup><br>@20 mA<br><b>(Max)</b> | <b>T<sub>L</sub>(nS)</b><br>I <sub>R</sub> =6mA/I <sub>F</sub> =10mA<br><b>(Typ)</b> | <b>Thermal Resistance</b><br><b>θ (°C/W)</b><br><b>(Max)</b> |
|----------------------------------|-----------------------------------------------------------------|-------------------------------------------------------------------------------|----------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------|
| GC4371                           | 70                                                              | 0.1                                                                           | 0.9                                                            | 70                                                                                   | 70                                                           |
| GC4372                           | 70                                                              | 0.2                                                                           | 0.7                                                            | 70                                                                                   | 70                                                           |
| GC4373                           | 70                                                              | 0.3                                                                           | 0.6                                                            | 70                                                                                   | 60                                                           |
| GC4374                           | 70                                                              | 0.4                                                                           | 0.5                                                            | 70                                                                                   | 50                                                           |
| GC4375                           | 70                                                              | 0.5                                                                           | 0.4                                                            | 70                                                                                   | 40                                                           |
| GC4310                           | 100                                                             | 0.06                                                                          | 1.5                                                            | 170                                                                                  | 80                                                           |
| GC4311                           | 100                                                             | 0.1                                                                           | 1                                                              | 170                                                                                  | 70                                                           |
| GC4312                           | 100                                                             | 0.2                                                                           | 0.9                                                            | 170                                                                                  | 70                                                           |
| GC4313                           | 100                                                             | 0.3                                                                           | 0.8                                                            | 170                                                                                  | 60                                                           |
| GC4314                           | 100                                                             | 0.4                                                                           | 0.6                                                            | 170                                                                                  | 50                                                           |
| GC4315                           | 100                                                             | 0.5                                                                           | 0.4                                                            | 170                                                                                  | 40                                                           |
| GC4320                           | 200                                                             | 0.06                                                                          | 1.5                                                            | 200                                                                                  | 80                                                           |
| GC4321                           | 200                                                             | 0.1                                                                           | 1.2                                                            | 200                                                                                  | 70                                                           |
| GC4322                           | 200                                                             | 0.2                                                                           | 1                                                              | 200                                                                                  | 70                                                           |
| GC4323                           | 200                                                             | 0.3                                                                           | 0.9                                                            | 200                                                                                  | 60                                                           |
| GC4324                           | 200                                                             | 0.4                                                                           | 0.8                                                            | 200                                                                                  | 50                                                           |
| GC4325                           | 200                                                             | 0.5                                                                           | 0.5                                                            | 200                                                                                  | 40                                                           |

**Notes:**

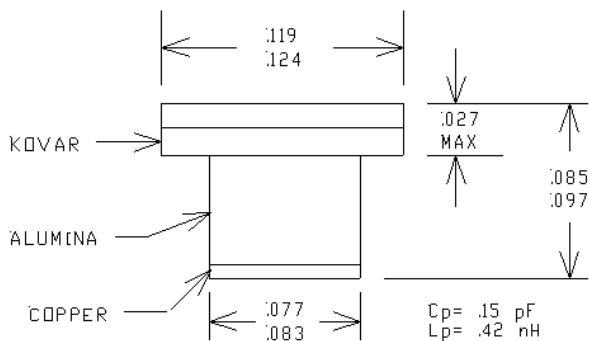
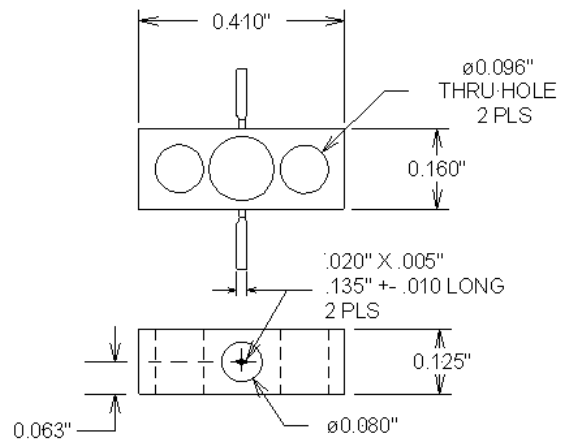
1. This series of devices is available in standard case styles 00, 30, and 35. Many other styles are available on request.
2. Capacitance is measured at 1 MHz.
3. Resistance is measured AT 1 GHz using transmission loss techniques.

The junction capacitance specified is for a 00 (chip) package style. Standard wafer evaluation and characterization is completed using a style 30 package. Diodes are available in many case styles. Each type offers performance trade-offs. The proper choice of package style depends on the end application and operating environment. Consult factory for assistance. Standard polarity (PIN) diodes and higher voltage PIN and NIP diodes are also available. (See data sheets for GC4200, GC4400, and GC4500 series respectively.)

**TYPICAL RS CURVES**

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**PACKAGE STYLE 00**

**PACKAGE STYLE 30**


Dimensions vary by model. Consult factory for details.

**PACKAGE STYLE 35**

**PACKAGE STYLE 115**


OUTLINE SAME FOR 115-2 EXCEPT COPPER HEATSINK INSERT

50 OHM BOLT CHANNEL MODULE  
 OTHER PACKAGE STYLES AVAILABLE ON REQUEST  
 CONSULT FACTORY