



GC4921-112 & GC4922-112
CONTROL DEVICES –
DUAL SERIES BEAMLEAD DIODE
RoHS Compliant

GENERAL DESCRIPTION

Semiconductor mesa beam lead PIN diodes are designed for very low inductance, low resistance and moderately low capacitance with ultra-fast switching characteristics. The structural details include thermal oxide junction passivation thus providing reliable operation with stable junction parameters along with ceramic glass, which provides mechanical strength to the diode. These devices are designed with a narrow base width, a high quality intrinsic 'I' layer that provides low loss, high isolation and ultra-high speed switching characteristics.

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

These high speed beam lead PIN diodes are designed for stripline and microstrip circuits and are primarily used in shunt/series and conventional series multi-throw configurations as switching, attenuating and phase shifting elements with frequencies extending up to Ka band.

KEY FEATURES

- Dual Series PIN Diodes
- Wide Bandwidth / High Switching Speed
- Up to 3 dB Isolation improvement over conventional designs
- 5 Gram Typical Pull Strength
- Very Low RS/CJ (Loss/Isolation)
- High Quality, High Resistivity Epitaxy
- Stable Low Leakage Passivation with Rugged Glass Body
- RoHS Compliant ¹

1- These devices are supplied with gold terminations. Consult factory for details.

APPLICATION/BENEFITS

- High Speed Switching
- Broadband Performance
- Suitable for Applications through 40GHz



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ABSOLUTE MAXIMUM RATINGS @ 25°C

| Rating | Symbol | Value | Unit |
|--|------------|-------------|-------------|
| Maximum Leakage Current @80% of minimum Rated V_B | I_R | 0.5 | μA |
| Operating Temperature | T_{OP} | -65 to +150 | $^{\circ}C$ |
| Storage Temperature | T_{STG} | -65 to +200 | $^{\circ}C$ |
| CW RF Operating Power | P_{CW} | 1 | W |
| Power Dissipation (derate linearly to 0 @ 175 C | P_{diss} | 250 | mW |
| Forward DC Current | I_F | 100 | mA |
| Reverse DC Voltage | V_R | 100 | V |
| ESD HMB Class 1 | | | |

DEVICE ELECTRICAL PARAMETERS AT 25°C

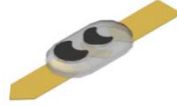
| Model Number | V_B (V) $I_R=10\mu A$ (Min) | C_T (pF) @0V (Typ) | C_T (pF) @10V (Typ) | C_T (pF) @10V (Max) | $R_s(\Omega)$ @10mA F= 1.0 GHz (Typ) | $R_s(\Omega)$ @10mA F= 1.0 GHz (Max) |
|--------------|-------------------------------------|----------------------------|-----------------------------|-----------------------------|---|---|
| GC4921-112 | 100 | 0.025 | 0.018 | 0.020 | 5.0 | 6.5 |
| GC4922-112 | 100 | 0.030 | 0.020 | 0.022 | 3.5 | 5.0 |

| Model Number | T_L (ns) (50%) (Typ) | V_F (V) $I_F=10$ mA (Typ) | Ins. Loss @10mA f=10GHz | Isolation @10V f=10GHz |
|--------------|------------------------------|-----------------------------------|-------------------------------|------------------------------|
| GC4921-112 | 50 | 2.1 | 0.40 | 19.0 |
| GC4922-112 | 60 | 2.0 | 0.30 | 17.0 |

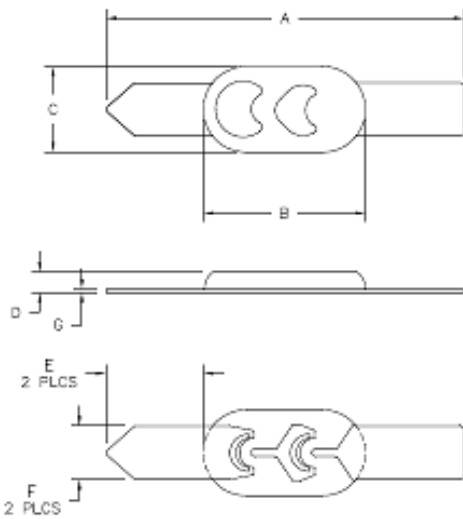
For the most current data, consult MICROSEMI's website: www.MICROSEMI.com
 Specifications are subject to change, consult the RFIS factory at (978) 442-5600 for the latest information.



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PACKAGE STYLE 112



SCHEMATIC

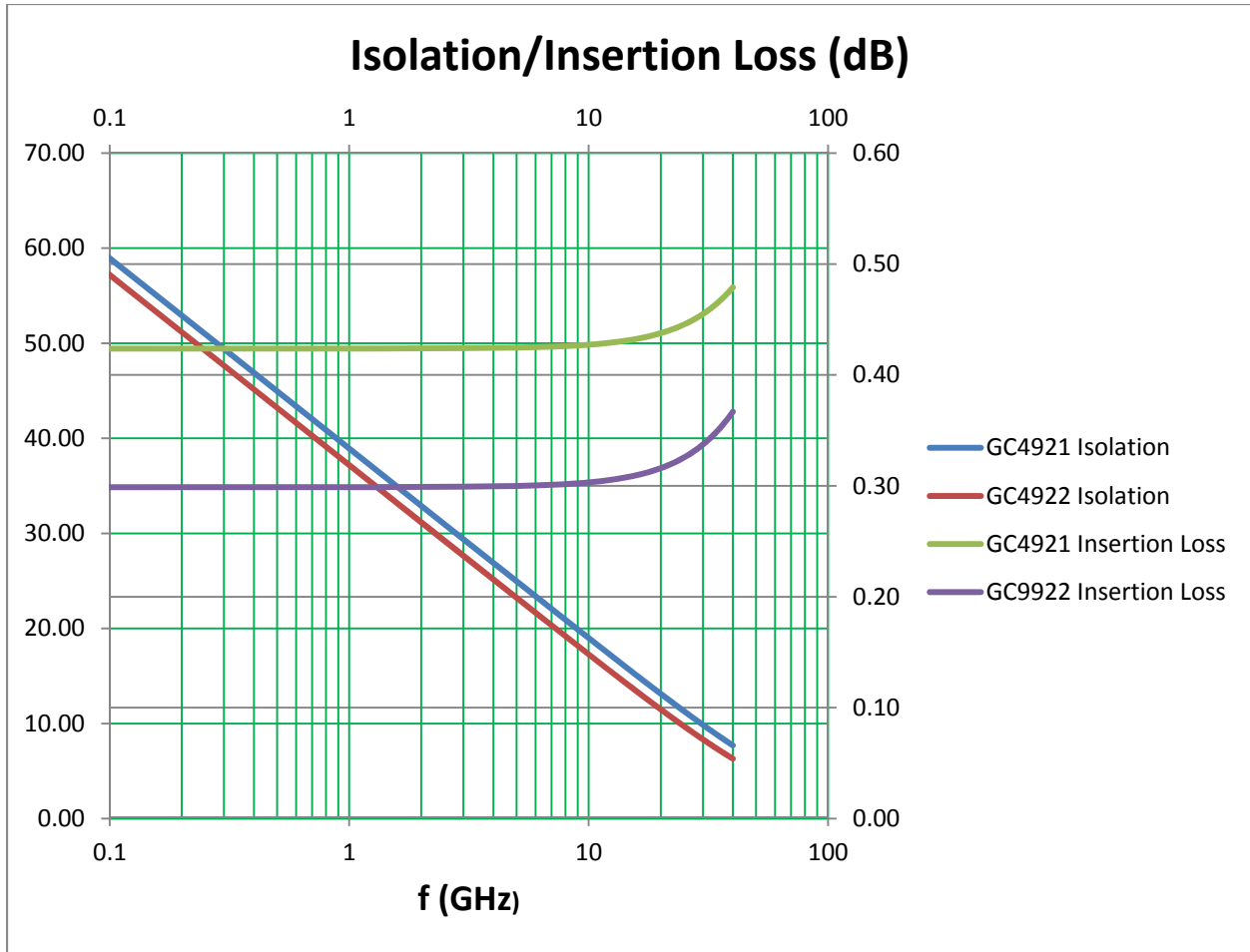


| DIM | INCHES | | | MM | | |
|-----|---------|---------|---------|---------|---------|---------|
| | MIN | TYP | MAX | MIN | TYP | MAX |
| A | 0.0430 | 0.0440 | 0.0450 | 1.0922 | 1.1176 | 1.1430 |
| B | 0.0190 | 0.0200 | 0.0210 | 0.4826 | 0.5080 | 0.5334 |
| C | 0.0100 | 0.0110 | 0.0120 | 0.2540 | 0.2794 | 0.3048 |
| D | 0.0015 | 0.0025 | 0.0035 | 0.0381 | 0.0635 | 0.0889 |
| E | 0.0100 | 0.0110 | 0.0120 | 0.2540 | 0.2794 | 0.3048 |
| F | 0.0060 | 0.0070 | 0.0080 | 0.1524 | 0.1778 | 0.2032 |
| G | 0.00020 | 0.00025 | 0.00030 | 0.00508 | 0.00635 | 0.00762 |

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Revision History

| Revision Level / Date | Para. Affected | Description |
|---|----------------|--|
| PRELIMINARY PRELIMINARY UPDATE 1 / 30 June 2015 | | ADDED GC4922-112 ADDED ISOLATION/INSERTION LOSS CHART |

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