MGS8xx / MGS9xx Series

GaAs Schottky Diodes

Features
- 14 Different Configurations
- Beam Lead, Flip Chip, or Packaged Devices
- Hi-Rel Screening per MIL-PRF-19500 and MIL-PRF-38534 Available

Description
The MGS series of GaAs Schottky diodes are designed for optimum performance in millimeter wave components operating to 60 GHz.

Beam Lead
Electrical Characteristics, $T_A = +25^\circ C$

<table>
<thead>
<tr>
<th>Model</th>
<th>Configuration</th>
<th>$V_F$ mV</th>
<th>$\Delta V_F$ mV</th>
<th>$V_{BR}$ V</th>
<th>$C_J$ pF</th>
<th>$\Delta C_J$ pF</th>
<th>$R_S$</th>
<th>Outline</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGS901</td>
<td>Single Junction</td>
<td>650</td>
<td>750</td>
<td>—</td>
<td>5</td>
<td>0.06</td>
<td>—</td>
<td>GB110</td>
</tr>
<tr>
<td>MGS902</td>
<td>Anti-parallel Pair</td>
<td>650</td>
<td>750</td>
<td>20</td>
<td>5</td>
<td>0.10</td>
<td>—</td>
<td>GB210</td>
</tr>
<tr>
<td>MGS903</td>
<td>Series Tee</td>
<td>650</td>
<td>750</td>
<td>20</td>
<td>5</td>
<td>0.06</td>
<td>0.02</td>
<td>GB310</td>
</tr>
<tr>
<td>MGS904</td>
<td>4 Junction Ring-Quad</td>
<td>650</td>
<td>750</td>
<td>20</td>
<td>5</td>
<td>0.06</td>
<td>0.02</td>
<td>B85</td>
</tr>
<tr>
<td>MGS905</td>
<td>4 Junction Bridge-Quad</td>
<td>650</td>
<td>750</td>
<td>20</td>
<td>5</td>
<td>0.06</td>
<td>0.02</td>
<td>B86</td>
</tr>
<tr>
<td>MGS906</td>
<td>4 Junction Series-Tee</td>
<td>1300</td>
<td>1500</td>
<td>40</td>
<td>10</td>
<td>0.04</td>
<td>0.02</td>
<td>B91</td>
</tr>
<tr>
<td>MGS907</td>
<td>8 Junction Ring-Quad</td>
<td>1300</td>
<td>1500</td>
<td>40</td>
<td>10</td>
<td>0.04</td>
<td>0.02</td>
<td>B85</td>
</tr>
<tr>
<td>MGS907A</td>
<td>8 Junction Ring-Quad</td>
<td>1300</td>
<td>1500</td>
<td>40</td>
<td>10</td>
<td>0.06</td>
<td>0.02</td>
<td>B85</td>
</tr>
<tr>
<td>MGS907B</td>
<td>8 Junction Ring-Quad</td>
<td>1300</td>
<td>1500</td>
<td>40</td>
<td>10</td>
<td>0.08</td>
<td>0.02</td>
<td>B85</td>
</tr>
<tr>
<td>MGS908</td>
<td>8 Junction Quad</td>
<td>1300</td>
<td>1500</td>
<td>40</td>
<td>10</td>
<td>0.04</td>
<td>0.02</td>
<td>B86</td>
</tr>
<tr>
<td>MGS909</td>
<td>6 Junction Series-Tee</td>
<td>1800</td>
<td>2100</td>
<td>60</td>
<td>15</td>
<td>0.10</td>
<td>0.03</td>
<td>B90</td>
</tr>
<tr>
<td>MGS910</td>
<td>12 Junction Ring-Quad</td>
<td>1800</td>
<td>2100</td>
<td>60</td>
<td>15</td>
<td>0.10</td>
<td>0.03</td>
<td>B87</td>
</tr>
<tr>
<td>MGS911</td>
<td>12 Junction Bridge-Quad</td>
<td>1800</td>
<td>2100</td>
<td>60</td>
<td>15</td>
<td>0.10</td>
<td>0.03</td>
<td>B88</td>
</tr>
<tr>
<td>MGS912</td>
<td>Four Junction</td>
<td>2500</td>
<td>2900</td>
<td>—</td>
<td>20</td>
<td>0.03</td>
<td>—</td>
<td>B89</td>
</tr>
</tbody>
</table>

Test Conditions
- $I_F = 1 mA$
- $I_R = 10 \mu A$
- $V_R = 0 V$, 1 MHz
- $I_F = 5 mA$

Flip Chip
Electrical Characteristics, $T_A = +25^\circ C$

<table>
<thead>
<tr>
<th>Model</th>
<th>Configuration</th>
<th>$V_F$ mV</th>
<th>$\Delta V_F$ mV</th>
<th>$V_{BR}$ V</th>
<th>$C_J$ pF</th>
<th>$\Delta C_J$ pF</th>
<th>$R_S$</th>
<th>Outline</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGS801</td>
<td>Single Junction</td>
<td>650</td>
<td>750</td>
<td>—</td>
<td>5</td>
<td>0.05</td>
<td>—</td>
<td>GC110</td>
</tr>
<tr>
<td>MGS801A</td>
<td>Single Junction</td>
<td>650</td>
<td>750</td>
<td>—</td>
<td>5</td>
<td>0.075</td>
<td>—</td>
<td>GC110</td>
</tr>
<tr>
<td>MGS802</td>
<td>Anti-parallel Pair</td>
<td>650</td>
<td>750</td>
<td>20</td>
<td>5</td>
<td>0.10</td>
<td>—</td>
<td>GC210</td>
</tr>
<tr>
<td>MGS802A</td>
<td>Anti-parallel Pair</td>
<td>650</td>
<td>750</td>
<td>20</td>
<td>5</td>
<td>0.15</td>
<td>—</td>
<td>GC210</td>
</tr>
<tr>
<td>MGS803</td>
<td>Series Tee</td>
<td>650</td>
<td>750</td>
<td>20</td>
<td>5</td>
<td>0.06</td>
<td>0.02</td>
<td>GC310</td>
</tr>
</tbody>
</table>

Test Conditions
- $I_F = 1 mA$
- $I_R = 10 \mu A$
- $V_R = 0 V$, 1 MHz
- $I_F = 5 mA$
## Absolute Maximum Ratings

<table>
<thead>
<tr>
<th>Rating</th>
<th>Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reverse Voltage</td>
<td>Rated Vbr</td>
</tr>
<tr>
<td>Forward Current</td>
<td>50 mA</td>
</tr>
<tr>
<td>DC Power Dissipation</td>
<td>75 mW per junction @ $T_A = 25^\circ C$</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-65°C to +150°C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-65°C to +150°C</td>
</tr>
<tr>
<td>Soldering Temperature (packaged)</td>
<td>+260°C for 5 seconds per JEDEC J-STD-20C</td>
</tr>
<tr>
<td>Minimum Beam Lead Pull Strength</td>
<td>6 grams</td>
</tr>
</tbody>
</table>

## Outlines

- **GB10**: GB210, GB310, GC110, GC210, GC310
Outlines
M/A-COM Technology Solutions Inc. All rights reserved.

Information in this document is provided in connection with M/A-COM Technology Solutions Inc ("MACOM") products. These materials are provided by MACOM as a service to its customers and may be used for informational purposes only. Except as provided in MACOM’s Terms and Conditions of Sale for such products or in any separate agreement related to this document, MACOM assumes no liability whatsoever. MACOM assumes no responsibility for errors or omissions in these materials. MACOM may make changes to specifications and product descriptions at any time, without notice. MACOM makes no commitment to update the information and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to its specifications and product descriptions. No license, express or implied, by estoppeels or otherwise, to any intellectual property rights is granted by this document.

THESE MATERIALS ARE PROVIDED “AS IS” WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, RELATING TO SALE AND/OR USE OF MACOM PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, CONSEQUENTIAL OR INCIDENTAL DAMAGES, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT. MACOM FURTHER DOES NOT WARRANT THE ACCURACY OR COMPLETENESS OF THE INFORMATION, TEXT, GRAPHICS OR OTHER ITEMS CONTAINED WITHIN THESE MATERIALS. MACOM SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOST REVENUES OR LOST PROFITS, WHICH MAY RESULT FROM THE USE OF THESE MATERIALS.

MACOM products are not intended for use in medical, lifesaving or life sustaining applications. MACOM customers using or selling MACOM products for use in such applications do so at their own risk and agree to fully indemnify MACOM for any damages resulting from such improper use or sale.