MEST2G-150-20-CM26

Pin Diode Switch Element

Features
- High Power Handling 150 W
- Low Insertion Loss:
  - 0.25 dB @ 2 GHz
  - 0.40 dB @ 6 GHz
- Medium Isolation:
  - 21 dB @ 2 GHz
  - 12 dB @ 6 GHz
- RoHS* Compliant

Description
The MEST2G-150-20-CM26 is a thermal to ground series diode switch element (EST2G) in an Aluminum Nitride package. This part is designed for a reliable high power switch application up to 150 watts. Usable up to 10 GHz.

Electrical Specifications: $T_C = +25^\circ \text{C}$ (unless otherwise specified)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Test Conditions</th>
<th>Units</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakdown Voltage ($V_{BR}$)</td>
<td>$I_R = 10 \mu A$</td>
<td>V</td>
<td>500</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Forward Voltage ($V_F$)</td>
<td>$I_F = 50 mA$</td>
<td>V</td>
<td>—</td>
<td>1850</td>
<td>—</td>
</tr>
<tr>
<td>Series Resistance ($R_S$)</td>
<td>$I_F = 100 mA, 500 MHz, 2 Diodes</td>
<td>Ω</td>
<td>—</td>
<td>1.8</td>
<td>—</td>
</tr>
<tr>
<td>Junction Capacitance ($C_J$)</td>
<td>$V_R = 50 V, 1 MHz, 1 Diodes</td>
<td>pF</td>
<td>—</td>
<td>0.19</td>
<td>—</td>
</tr>
<tr>
<td>Lifetime (t)</td>
<td>$I_F = 10 mA, I_R = 6 mA, 50%$</td>
<td>ns</td>
<td>—</td>
<td>1800</td>
<td>—</td>
</tr>
<tr>
<td>I-Region (w)</td>
<td>I-Layer</td>
<td>µm</td>
<td>—</td>
<td>80</td>
<td>—</td>
</tr>
</tbody>
</table>
| Input / Output Return Loss ($I/\text{OR}_L$) | $I_F = 100 mA, 2 GHz
$I_F = 100 mA, 6 GHz$ | dB    | 25   | 30   | —    |
| Insertion Loss ($I_L$)           | $I_F = 100 mA, 2 GHz
$I_F = 100 mA, 6 GHz$ | dB    | —    | 0.25 | 0.60 |
| Isolation ($I_{ISO}$)            | $V_R = 10 V, 2 GHz
V_R = 10 V, 6 GHz$ | dB    | 18   | 21   | 12   |

Absolute Maximum Ratings\textsuperscript{1,2}

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Absolute Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakdown Voltage (V\textsubscript{R})</td>
<td>500 V</td>
</tr>
<tr>
<td>Forward Current (I\textsubscript{FDC})</td>
<td>250 mA</td>
</tr>
<tr>
<td>Thermal Resistance (\theta\textsubscript{JC})</td>
<td>8°C/W</td>
</tr>
<tr>
<td>Junction Temperature (T\textsubscript{J})</td>
<td>-40°C to 175°C</td>
</tr>
<tr>
<td>Storage Temperature (T\textsubscript{STG})</td>
<td>-55°C to +150°C</td>
</tr>
<tr>
<td>Mounting Temperature (T\textsubscript{MTG})</td>
<td>+260°C per JEDEC STD-J-20C</td>
</tr>
</tbody>
</table>

1. Exceeding any one or combination of these limits may cause permanent damage to this device.
2. MACOM does not recommend sustained operation near these survivability limits.

Handling Procedures

Please observe the following precautions to avoid damage:

**Static Sensitivity**

These electronic devices are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these Class 0 (HBM) devices.

Typical Performance Curves: $T_A = 25°C$, $Z_O = 50 \Omega$, -10 dBm Small Signal

**Insertion Loss**

![Insertion Loss Graph](image)

**Isolation**

![Isolation Graph](image)

**Input Return Loss**

![Input Return Loss Graph](image)

**Resistance vs. Bias Current, 500 MHz for 2 diodes in Series**

![Resistance Graph](image)
MEST2G-150-20-CM26

Pin Diode Switch Element

Junction Temperature vs. Input Power
Mounted on Heat Sink @ TA = 25°C, 1.3 GHz

Outline (CM26)

Dimensions in mils [mm]

NOTES:
1. 50µ" Min. of Gold over 50µ" Min. of Nickel.
Pin Diode Switch Element

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 estoppels 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.