Features
- High Power Handling: 80 W @ 2 GHz or Less
- Low Insertion Loss:
  - <0.35 dB @ 2 GHz
  - <0.60 dB @ 6 GHz
- Medium Isolation:
  - >22 dB @ 2 GHz
  - >14 dB @ 6 GHz
- RoHS* Compliant

Description
The MEST2G-080-25-CM27 is a thermal to ground series diode switch element in an Alumina Nitride package. This part is designed for reliable high power switch application up to 80 watts. Usable up to 10 GHz.

Electrical Specifications: $T_C = +25^\circ C$ (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>$I_R = 10$ mA, single diode</td>
<td>V</td>
<td>500</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Leakage Current ($I_R$)</td>
<td>$I_F = 100$ V, single diode</td>
<td>nA</td>
<td>—</td>
<td>40</td>
<td>100</td>
</tr>
<tr>
<td>Forward Voltage ($V_F$)</td>
<td>$I_F = 100$ mA, single diode</td>
<td>mV</td>
<td>—</td>
<td>0.93</td>
<td>1.05</td>
</tr>
<tr>
<td>Series Resistance ($R_S$)</td>
<td>$I_F = 100$ mA, single diode</td>
<td>Ω</td>
<td>—</td>
<td>0.97</td>
<td>—</td>
</tr>
<tr>
<td>Junction Capacitance ($C_J$)</td>
<td>$V_R = 50$ V, 1 MHz, single diode</td>
<td>pF</td>
<td>—</td>
<td>0.09</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>1550</td>
<td>—</td>
</tr>
<tr>
<td>I-Region ($w$)</td>
<td>I-Layer, single diode</td>
<td>µm</td>
<td>—</td>
<td>80</td>
<td>—</td>
</tr>
</tbody>
</table>
| Return Loss ($R_L$)          | $I_F = 100$ mA, 2 GHz
$I_F = 100$ mA, 6 GHz | dB    | 27 13| 31   | 16   |
| Insertion Loss ($I_L$)       | $I_F = 100$ mA, 2 GHz
$I_F = 100$ mA, 6 GHz | dB    | —    | 0.20 | 0.45 |
| Isolation ($I_{ISO}$)        | $V_R = 10$ V, 2 GHz
$V_R = 10$ V, 6 GHz | dB    | 22 14| 25   | 17   |

Pin Diode Switch Element

Absolute Maximum Ratings

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Absolute Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakdown Voltage (V_{BR})</td>
<td>500 V</td>
</tr>
<tr>
<td>Forward Current (I_F)</td>
<td>200 mA</td>
</tr>
<tr>
<td>Theta (θ_JC)</td>
<td>10°C/W</td>
</tr>
<tr>
<td>Junction Temperature (T_J)</td>
<td>-40°C to +175°C</td>
</tr>
<tr>
<td>Storage Temperature (T_{STG})</td>
<td>-55°C to +150°C</td>
</tr>
<tr>
<td>Mounting Temperature (T_{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, -10 dBm Small Signal

- **Insertion Loss**
  - [Graph showing Insertion Loss vs. Frequency]

- **Isolation**
  - [Graph showing Isolation vs. Frequency]

- **Input Return Loss**
  - [Graph showing Input Return Loss vs. Frequency]

- **Output Return Loss**
  - [Graph showing Output Return Loss vs. Frequency]
Pin Diode Switch Element

Junction Temperature vs. $P_{IN}$
(Mounted on Heat Sink @ $T_A = +25^\circ C$, 1.3 GHz)

Resistance vs. Current, 500 MHz
For Two Diodes in Series

Package Outline (CM27)

NOTES:

Finishes:
1. 50µ" Min. of Gold over 50µ" Min. of Nickel.
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