MSWSHC-040-40

PIN Diode Shunt Switch Element

Features

- Supports up to 40 W Power
- Low Insertion Loss:
  - 0.2 dB @ 2.7 GHz
  - 0.4 dB @ 8.0 GHz
- High Isolation:
  - 55 dB to 2.7 GHz
- RoHS* Compliant

Description

A broadband, high linearity, medium power shunt switch element in a 2.6 x 1.5 mm DFN package.

This PIN diode switch element is designed for wireless telecommunications infrastructure and test instrument applications. It is also suited for other applications in 0.05 ~ 10 GHz.

Electrical Specifications: $T_A = +25^\circ C$

<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 ($V_B$)</td>
<td>$I_R = 10 \mu A$</td>
<td>V</td>
<td>300</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>
| Insertion Loss ($I_L$) | $V_R = 50 V$
  - 2.3 - 2.7 GHz
  - <6.0 GHz | dB | — | 0.20 | 0.40 | 0.50 |
| Isolation ($I_{ISOL}$) | $V_R = -10 V$
  - 2.3 - 2.7 GHz
  - <6.0 GHz | dB | 50 | 55 | 40 | — |
| Input / Output Return Loss ($R_L$) | $I_F = 100 mA$
  - 2.3 - 2.7 GHz
  - <6.0 GHz | dB | 20 | 25 | 16 | — |
| Minority Carrier Lifetime ($T_L$) | $I_F = 10 mA$, $I_R = 6 mA$, @ 50% | ns | — | 3000 | — |

Absolute Maximum Ratings

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Absolute Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakdown Voltage</td>
<td>300 V</td>
</tr>
<tr>
<td>Forward Current</td>
<td>200 mA</td>
</tr>
<tr>
<td>Thermal Resistance</td>
<td>9°C/W</td>
</tr>
<tr>
<td>Junction Temperature</td>
<td>+175°C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-65°C to +150°C</td>
</tr>
<tr>
<td>Assembly Temperature</td>
<td>+260°C, Per JEDEC STD-J-20C</td>
</tr>
</tbody>
</table>


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Printed Circuit Board Layout

Junction Temperature vs. Power
Mounted on Heatsink, +25°C, 1.3 GHz

Insertion Loss

Isolation

Input Return Loss

Series Resistance vs. Bias, 500 MHz

1. Resonant frequencies vary with PCB layout. This performance measured on 20 mils Rogers RO3006 and with the printed circuit board layout shown above.
Outline (2615)

Dimension are in inches [mm]  
Finish is 300 micro inches matte tin, annealed at 150°C