Radar Pulsed Power Transistor
0.85W, 1.2-1.4 GHz, 2ms Pulse, 20% Duty

Features
- NPN silicon microwave power transistors
- Common emitter configuration
- Broadband Class A operation
- High efficiency inter-digitized geometry
- Diffused emitter ballasting resistors
- Gold metallization system
- Internal input and output impedance matching
- Hermetic metal/ceramic package
- RoHS compliant

Absolute Maximum Ratings at 25°C

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Rating</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collector-Emitter Voltage</td>
<td>(V_{CES})</td>
<td>27</td>
<td>V</td>
</tr>
<tr>
<td>Collector-Emitter Voltage</td>
<td>(V_{CEO})</td>
<td>20</td>
<td>V</td>
</tr>
<tr>
<td>Emitter-Base Voltage</td>
<td>(V_{EB0})</td>
<td>3.5</td>
<td>V</td>
</tr>
<tr>
<td>Collector Current (Peak)</td>
<td>(I_C)</td>
<td>0.71</td>
<td>A</td>
</tr>
<tr>
<td>Power Dissipation @ +25°C</td>
<td>(P_{TOT})</td>
<td>9.2</td>
<td>W</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>(T_{STG})</td>
<td>-65 to +200</td>
<td>°C</td>
</tr>
<tr>
<td>Junction Temperature</td>
<td>(T_J)</td>
<td>200</td>
<td>°C</td>
</tr>
</tbody>
</table>

Electrical Specifications: \(T_C = 25 \pm 5°C\) (Room Ambient)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Test Conditions</th>
<th>Frequency</th>
<th>Symbol</th>
<th>Min</th>
<th>Max</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collector-Emitter Breakdown Voltage</td>
<td>(I_C = 4mA)</td>
<td>(F = 1.2, 1.3, 1.4 GHz)</td>
<td>(BV_{CES})</td>
<td>27</td>
<td>-</td>
<td>V</td>
</tr>
<tr>
<td>Collector-Emitter Breakdown Voltage</td>
<td>(I_C = 10mA)</td>
<td>(F = 1.2, 1.3, 1.4 GHz)</td>
<td>(BV_{CEO})</td>
<td>20</td>
<td>-</td>
<td>V</td>
</tr>
<tr>
<td>Collector-Emitter Leakage Current</td>
<td>(V_{CE} = 15V)</td>
<td>(I_{CES})</td>
<td>- 1.0</td>
<td>mA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thermal Resistance</td>
<td>(V_{cc} = 11.5V, \ Pin = 0.1W)</td>
<td>(F = 1.2, 1.3, 1.4 GHz)</td>
<td>(R_{TH(JC)})</td>
<td>- 19.0</td>
<td>°C/W</td>
<td></td>
</tr>
<tr>
<td>Output Power</td>
<td>(V_{cc} = 11.5V, \ Pin = 0.1W)</td>
<td>(F = 1.2, 1.3, 1.4 GHz)</td>
<td>(P_{OUT})</td>
<td>0.85</td>
<td>-</td>
<td>W</td>
</tr>
<tr>
<td>Power Gain</td>
<td>(V_{cc} = 11.5V, \ Pin = 0.1W)</td>
<td>(F = 1.2, 1.3, 1.4 GHz)</td>
<td>(G_{P})</td>
<td>9.3</td>
<td>-</td>
<td>dB</td>
</tr>
<tr>
<td>Collector Efficiency</td>
<td>(V_{cc} = 11.5V, \ Pin = 0.1W)</td>
<td>(F = 1.2, 1.3, 1.4 GHz)</td>
<td>(\eta_C)</td>
<td>30</td>
<td>-</td>
<td>%</td>
</tr>
<tr>
<td>Input Return Loss</td>
<td>(V_{cc} = 11.5V, \ Pin = 0.1W)</td>
<td>(F = 1.2, 1.3, 1.4 GHz)</td>
<td>(RL)</td>
<td>-</td>
<td>-9</td>
<td>dB</td>
</tr>
<tr>
<td>Load Mismatch Tolerance</td>
<td>(V_{cc} = 11.5V, \ Pin = 0.1W)</td>
<td>(F = 1.2, 1.3, 1.4 GHz)</td>
<td>(VSWR-T)</td>
<td>-</td>
<td>2:1</td>
<td>-</td>
</tr>
<tr>
<td>Load Mismatch Stability</td>
<td>(V_{cc} = 11.5V, \ Pin = 0.1W)</td>
<td>(F = 1.2, 1.3, 1.4 GHz)</td>
<td>(VSWR-S)</td>
<td>-</td>
<td>1.5:1</td>
<td>-</td>
</tr>
</tbody>
</table>
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**RF Test Fixture Impedance**

<table>
<thead>
<tr>
<th>F (GHz)</th>
<th>Z_{IF} (Ω)</th>
<th>Z_{OF} (Ω)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2</td>
<td>5.9 - j4.5</td>
<td>7.4 + j6.3</td>
</tr>
<tr>
<td>1.3</td>
<td>6.4 - j4.0</td>
<td>7.5 + j7.7</td>
</tr>
<tr>
<td>1.4</td>
<td>7.1 - j4.4</td>
<td>7.4 + j8.9</td>
</tr>
</tbody>
</table>

**Test Fixture Circuit Dimensions**

![Test Fixture Circuit Dimensions Diagram]

**Test Fixture Assembly**

![Test Fixture Assembly Diagram]
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PH1214-0.85L

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