Radar Pulsed Power Transistor
55 W, 1.2 - 1.4 GHz, 1 ms Pulse, 10% Duty

Features
- NPN silicon microwave power transistors
- Common base configuration
- Broadband Class C 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>58</td>
<td>V</td>
</tr>
<tr>
<td>Emitter-Base Voltage</td>
<td>$V_{EBO}$</td>
<td>3.0</td>
<td>V</td>
</tr>
<tr>
<td>Collector Current (Peak)</td>
<td>$I_C$</td>
<td>7.0</td>
<td>A</td>
</tr>
<tr>
<td>Power Dissipation @ +25°C</td>
<td>$P_{TOT}$</td>
<td>220</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>$I_C = 120mA$</td>
<td></td>
<td>$BV_{CES}$</td>
<td>58</td>
<td>-</td>
<td>V</td>
</tr>
<tr>
<td>Collector-Emitter Leakage Current</td>
<td>$V_{CE} = 28V$</td>
<td></td>
<td>$I_{CES}$</td>
<td>-</td>
<td>6.0</td>
<td>mA</td>
</tr>
<tr>
<td>Thermal Resistance</td>
<td>$Vcc = 28V, \ Pin = 12W$</td>
<td>$F = 1.2, 1.3, 1.4$</td>
<td>GHz</td>
<td>$R_{TH(JC)}$</td>
<td>-</td>
<td>0.8</td>
</tr>
<tr>
<td>Output Power</td>
<td>$Vcc = 28V, \ Pin = 12W$</td>
<td>$F = 1.2, 1.3, 1.4$</td>
<td>GHz</td>
<td>$P_{OUT}$</td>
<td>55</td>
<td>-</td>
</tr>
<tr>
<td>Power Gain</td>
<td>$Vcc = 28V, \ Pin = 12W$</td>
<td>$F = 1.2, 1.3, 1.4$</td>
<td>GHz</td>
<td>$G_P$</td>
<td>6.6</td>
<td>-</td>
</tr>
<tr>
<td>Collector Efficiency</td>
<td>$Vcc = 28V, \ Pin = 12W$</td>
<td>$F = 1.2, 1.3, 1.4$</td>
<td>GHz</td>
<td>$\eta_C$</td>
<td>50</td>
<td>-</td>
</tr>
<tr>
<td>Input Return Loss</td>
<td>$Vcc = 28V, \ Pin = 12W$</td>
<td>$F = 1.2, 1.3, 1.4$</td>
<td>GHz</td>
<td>$RL$</td>
<td>-</td>
<td>-10</td>
</tr>
<tr>
<td>Load Mismatch Tolerance</td>
<td>$Vcc = 28V, \ Pin = 12W$</td>
<td>$F = 1.2, 1.3, 1.4$</td>
<td>GHz</td>
<td>$VSWR-T$</td>
<td>-</td>
<td>3:1</td>
</tr>
<tr>
<td>Load Mismatch Stability</td>
<td>$Vcc = 28V, \ Pin = 12W$</td>
<td>$F = 1.2, 1.3, 1.4$</td>
<td>GHz</td>
<td>$VSWR-S$</td>
<td>-</td>
<td>1.5:1</td>
</tr>
</tbody>
</table>
RF Test Fixture Impedance

<table>
<thead>
<tr>
<th>F (GHz)</th>
<th>$Z_{IF} (\Omega)$</th>
<th>$Z_{OF} (\Omega)$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2</td>
<td>5.8 + j1.8</td>
<td>5.5 - j3.4</td>
</tr>
<tr>
<td>1.3</td>
<td>2.4 + j1.3</td>
<td>3.3 - j2.3</td>
</tr>
<tr>
<td>1.4</td>
<td>2.4 + j0.6</td>
<td>2.0 - j2.3</td>
</tr>
</tbody>
</table>

Test Fixture Circuit Dimensions

Test Fixture Assembly
Radar Pulsed Power Transistor
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PH1214-55EL

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