< L/S band internally matched power GaAs FET >

MGFS45V2123A

2.1 – 2.3 GHz BAND / 32W

DESCRIPTION
The MGFS45V2123A is an internally impedance-matched GaAs power FET especially designed for use in 2.1 – 2.3 GHz band amplifiers. The hermetically sealed metal-ceramic package guarantees high reliability.

FEATURES
Class A operation
Internally matched to 50(ohm) system
• High output power
  P1dB=32W (TYP.) @f=2.1 – 2.3GHz
• High power gain
  GLP=12.0dB (TYP.) @f=2.1 – 2.3GHz
• High power added efficiency
  P.A.E.=45% (TYP.) @f=2.1 – 2.3GHz
• Low distortion [item-51]
  IM3=-45dBc (TYP.) @Po=34.5dBm S.C.L

APPLICATION
• item 01 : 2.1 – 2.3 GHz band power amplifier
• item 51 : 2.1 – 2.3 GHz band digital radio communication

QUALITY
• IG

RECOMMENDED BIAS CONDITIONS
• VDS=10V
  • ID=6.5A
  • RG=25ohm

Absolute maximum ratings (Ta=25°C)

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Ratings</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>VGDO</td>
<td>Gate to drain breakdown voltage</td>
<td>-15</td>
<td>V</td>
</tr>
<tr>
<td>VGSO</td>
<td>Gate to source breakdown voltage</td>
<td>-15</td>
<td>V</td>
</tr>
<tr>
<td>ID</td>
<td>Drain current</td>
<td>22</td>
<td>A</td>
</tr>
<tr>
<td>IGR</td>
<td>Reverse gate current</td>
<td>-61</td>
<td>mA</td>
</tr>
<tr>
<td>IGF</td>
<td>Forward gate current</td>
<td>76</td>
<td>mA</td>
</tr>
<tr>
<td>PT*1</td>
<td>Total power dissipation</td>
<td>100</td>
<td>W</td>
</tr>
<tr>
<td>Tch</td>
<td>Cannel temperature</td>
<td>175</td>
<td>°C</td>
</tr>
<tr>
<td>Tstg</td>
<td>Storage temperature</td>
<td>-65 to +175</td>
<td>°C</td>
</tr>
</tbody>
</table>

*1: Ta=25°C

Electrical characteristics (Ta=25°C)

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Test conditions</th>
<th>Limits</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>VGS(off)</td>
<td>Gate to source cut-off voltage</td>
<td>VDS=3V,ID=60mA</td>
<td>Min.</td>
<td>Typ.</td>
</tr>
<tr>
<td>P1dB</td>
<td>Output power at 1dB gain compression</td>
<td>VDS=10V,ID(RF off)=6.5A</td>
<td>44</td>
<td>45</td>
</tr>
<tr>
<td>GLP</td>
<td>Linear Power Gain</td>
<td>f=2.1 – 2.3GHz</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>ID</td>
<td>Drain current</td>
<td></td>
<td>-</td>
<td>7.5</td>
</tr>
<tr>
<td>P.A.E.</td>
<td>Power added efficiency</td>
<td></td>
<td>-</td>
<td>45</td>
</tr>
<tr>
<td>IM3*2</td>
<td>3rd order IM distortion</td>
<td>delta Vf method</td>
<td>-42</td>
<td>-45</td>
</tr>
<tr>
<td>Rth(ch-c)*3</td>
<td>Thermal resistance</td>
<td></td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

*2: item -51, 2 tone test, Po=34.5dBm Single Carrier Level, f=2.1,2.2,2.3GHz, delta f=5MHz
*3: Channel-case

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