DESCRIPTION

AMCOM's AM072239WM is a broadband GaAs MMIC Power Amplifier. It has a nominal CW performance of 30dB small signal gain, and 39dBm (8W) saturated output power over the 0.7 to 2.2GHz band. The MMIC is offered in both chip (-00-R) and package (-SN-R) forms. The AM072239WM-SN-R is in a ceramic package with a flange and straight RF and DC leads for drop-in assembly. Because of high DC power dissipation, good heat sinking is required, and the chip MMIC has to be mounted using eutectic soldering directly on a metal ridge. Both chip and package are RoHS compliant.

FEATURES
  - Wide bandwidth from 0.7 to 2.2GHz
  - 39dBm of saturated CW output power
  - High gain, 30dB
  - Input /Output matched to 50 Ohms

APPLICATIONS
  - Commercial telecom transmission equipment
  - Fixed microwave backhaul
  - Commercial 2-way radio

TYPICAL PERFORMANCE * ( $V_{dd1,2} = 28V$, $I_{ddq1} = 0.2A$, $I_{ddq2} = 0.6A$, $V_{gs1,2} = -0.90V$ )

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Minimum</th>
<th>Typical **</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>0.8 – 2.0GHz</td>
<td>0.7 – 2.2 GHz</td>
<td>33 dB</td>
</tr>
<tr>
<td>Small Signal Gain</td>
<td>27 dB</td>
<td>30 dB</td>
<td>33 dB</td>
</tr>
<tr>
<td>Gain Ripple</td>
<td></td>
<td>± 1 dB</td>
<td>± 3.0 dB</td>
</tr>
<tr>
<td>$P_{1dB}$</td>
<td></td>
<td>38 dBm</td>
<td></td>
</tr>
<tr>
<td>$P_{3dB}$</td>
<td>37 dBm</td>
<td>39 dBm</td>
<td></td>
</tr>
<tr>
<td>Efficiency @ $P_{3dB}$</td>
<td></td>
<td>25%</td>
<td></td>
</tr>
<tr>
<td>Noise Figure</td>
<td>-</td>
<td>10 dB</td>
<td></td>
</tr>
<tr>
<td>IP3 @ 1.5GHz</td>
<td></td>
<td>TBD</td>
<td></td>
</tr>
<tr>
<td>Input Return Loss</td>
<td>15 dB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output Return Loss</td>
<td>3 dB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thermal Resistance</td>
<td></td>
<td>4 °C/W</td>
<td></td>
</tr>
</tbody>
</table>

* Notes:
1- Specifications are subject to change without notice.
2- $V_{gs1,2}$ should be adjusted to -0.90V approximately to get the specified currents, and will vary slightly from one unit to another.
3- Measurements are done in CW mode.
ABSOLUTE MAXIMUM RATING

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Symbol</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drain source voltage</td>
<td>$V_{dd1,2}$</td>
<td>30V</td>
</tr>
<tr>
<td>Gate source voltage</td>
<td>$V_{gs1,2}$</td>
<td>-3V</td>
</tr>
<tr>
<td>Drain source current</td>
<td>$I_{ddq1}$</td>
<td>0.3A</td>
</tr>
<tr>
<td>Drain source current</td>
<td>$I_{ddq2}$</td>
<td>1.2A</td>
</tr>
<tr>
<td>Continuous dissipation at 25°C</td>
<td>$P_t$</td>
<td>40W</td>
</tr>
<tr>
<td>Channel temperature</td>
<td>$T_{ch}$</td>
<td>175°C</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>$T_{op}$</td>
<td>-55°C to +85°C</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>$T_{sto}$</td>
<td>-55°C to +135°C</td>
</tr>
</tbody>
</table>

SMALL SIGNAL DATA*

* Data shown is for packaged version (SN-R) of the MMIC biased at $V_{dd1,2}=28V$, $I_{ddq1}=0.2A$, $I_{ddq2}=0.6A$, $V_{gs1,2}=-0.90V$. 

![Gain and Return Loss (dB)](image_url)

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POWER DATA *

* Data shown is for packaged version (SN-R) of the MMIC biased at $V_{dd1,2}=28 \text{V}$, $I_{ddq1}=0.2 \text{A}$, $I_{ddq2}=0.6 \text{A}$, $V_{gs1,2}=-0.90 \text{V}$ and measured in CW mode.
CHIP OUTLINE

*Notes:

1- It is necessary to connect drain bias $V_{dd2}$ to both the upper and lower bonding pads.

2- $V_{gs1,2}$ bias values are for reference only and will vary slightly from one unit to another.

3- When both first and second stages are pinched off ($V_{gs1,2} < -2V$), there will still be a small current flowing in internal biasing circuitry.

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**Pin No.** | **Function** | **Bias**
---|---|---
1 | $V_{gs1}$ | -0.90V
2 | $V_{gs2}$ | -0.90V
3 | $V_{dd2}$ | +28V
4 | RF out | -
5 | $V_{dd1}$ | +28V
6 | $V_{gs2}$ | -0.90V
7 | RF in | -
Notes:
1- Use epoxy to mount PCB, and eutectic soldering to mount chip.
2- C1=1uF, C2=1000pF, C3=20pF, R1=50ohms, R2=10ohms, R3=5ohms
3- All SMT Caps & Resistors are 0402 size
4- Don’t apply V_{dd1,2} without proper negative voltages.
SN PACKAGE OUTLINE (Dimensions in mils)

Pin Layout
SN Package Test Fixture

Notes:

1- Use epoxy to mount PCB.

2- C1=1uF, C2=1000pF, R1=50ohms, R2=10ohms, R3=5ohms.

3- All SMT Caps & Resistors are 0603 size.

4- Don’t apply drain biases $V_{gs1,2}$ without proper negative voltages on corresponding gates.