DESCRIPTION

AMCOM's AM00010037MD-1H is a broadband GaN Power Amplifier module designed for general purpose applications. It operates from 0.05 GHz to 10.0 GHz and typically delivers 5 watts (37 dBm) of CW output power and 12 dB small signal gain. The amplifier module has 4 screw slots for mounting to a heat sink. This amplifier module is compact and light weight at 2.2” (L) x 2.2” (W) x 0.65” (H).

FEATURES

- Wide bandwidth from 0.05 to 10 GHz
- Psat 37 dBm, Gain 12 dB
- Input / Output matched to 50 Ohms
- TTL control
- Temperature monitor
- Thermal Shutdown for Temp > 95°C

APPLICATIONS

- Radar
- Fixed microwave backhaul
- Instrumentation and measurements
- Military and Aerospace

TYPICAL PERFORMANCE * (Quiescent bias is +32V, I_{ddq} = 0.4 A)

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Minimum</th>
<th>Typical **</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>0.1 – 9 GHz</td>
<td>0.05 – 10 GHz</td>
<td></td>
</tr>
<tr>
<td>Small Signal Gain</td>
<td>9.5 dB</td>
<td>12 dB</td>
<td></td>
</tr>
<tr>
<td>Gain Ripple</td>
<td>± 2 dB</td>
<td>± 3.5 dB</td>
<td></td>
</tr>
<tr>
<td>P_{sat}</td>
<td>34 dBm</td>
<td>37 dBm</td>
<td></td>
</tr>
<tr>
<td>P_{1dB}</td>
<td>30 dBm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current @ P_{sat}</td>
<td>0.75 A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Noise Figure</td>
<td>7 dB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input Return Loss</td>
<td>10 dB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output Return Loss</td>
<td>6 dB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature Sensor Output (V)</td>
<td>( V_{out}=0.45V+(10_{0V} \times \text{Temp in Celsius}) )</td>
<td>e.g for (50°C) : ( V_{out}=0.45+0.01\times50=0.95V )</td>
<td></td>
</tr>
<tr>
<td>TTL RF ON/OFF</td>
<td>&lt;1V for OFF , &gt;2.5 V for ON</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Notes:
1- Specifications are subject to change without notice.
2- Proper heat sink should be used to remove heat from bottom of package.
AMCOM Communications, Inc.

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>$V_{dd}$</td>
<td>36 V</td>
</tr>
<tr>
<td>Continuous dissipation at 25°C</td>
<td>$P_t$</td>
<td>35 W</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>$T_{op}$</td>
<td>-40°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

![Graph showing small signal data]
POWER DATA

**Graph 1:**
- **Y-axis:** Power (dBm)
- **X-axis:** Frequency (GHz)
- **Legend:**
  - Red: PSAT
  - Green: P1dB

**Graph 2:**
- **Y-axis:** Current (A)
- **X-axis:** Frequency (GHz)
- **Legend:**
  - Red: Current @ Psat
  - Green: Current @ P1dB
INTERMODULATION DISTORTION

![Graph showing IP3 & IP5 (dBm) vs Frequency (GHz).]
NOISE FIGURE

\[ V_{\text{out}} = 0.45V + (T^\circ C \times 10mV) \], e.g. for (50^\circ C): \ V_{\text{out}} = 0.45 + 0.01 \times 50 = 0.95V.

* Thermal shutdown protection for high temperatures > 95^\circ C.

TEMPERATURE SENSOR
NOTES:

1- Dimensions are in inches.
2- Aluminum housing with silver nickel plating.
3- Female SMA for RF input and output.
4- Use a heat sink to remove heat from the module.