AMT-A0237 0.7 GHz to 20 GHz
Broadband Medium Power with Low Noise Figure

Data Sheet

Features

• 0.7 GHz to 20 GHz Frequency Range
• Typical P1dB power > +23 dBm
• Gain 33 dB Typical
• Gain Flatness ± 1.4 dB Typical
• 2.7 dB Typical Noise Figure
• Internally Regulated
• Operates from Single +12V Supply
• Unconditionally Stable
• Available in Hermetic Laser sealed version

Description

The AMT-A0237 is a +22 dBm P1dB Broadband medium power amplifier in a compact size. The performance is achieved through the use of AMTI's proprietary matching technology and latest in GaAs technology. The amplifier I/Os are Internally matched to 50 Ohms and DC Blocked. The AMT-A0221 is ideal for use as medium power with low noise for test equipment, Communication systems or where broadband amplification and power are required without adding significant noise in a Hi-Rel communications system for Commercial or Military applications

Applications

• Test Equipment
• EW Systems
• Lab Applications
• Radar

MAXIMUM RATINGS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Units</th>
<th>MIN</th>
<th>MAX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Temperature – Case</td>
<td>T&lt;sub&gt;MO&lt;/sub&gt;</td>
<td>°C</td>
<td>-40</td>
<td>+75</td>
</tr>
<tr>
<td>Storage Temperature - Case</td>
<td>T&lt;sub&gt;MS&lt;/sub&gt;</td>
<td>°C</td>
<td>-40</td>
<td>+125</td>
</tr>
<tr>
<td>RF Input power (CW)</td>
<td>Pin</td>
<td>dBm</td>
<td></td>
<td>+15</td>
</tr>
<tr>
<td>Die T&lt;sub&gt;Junction&lt;/sub&gt;</td>
<td>T&lt;sub&gt;J&lt;/sub&gt;</td>
<td>°C</td>
<td></td>
<td>+150</td>
</tr>
<tr>
<td>Positive Supply Voltage</td>
<td>V&lt;sub&gt;SS&lt;/sub&gt;</td>
<td>V</td>
<td></td>
<td>+13</td>
</tr>
</tbody>
</table>

Appropriate Heat sink must be used

1. Stresses above those listed under "Absolute Maximum Rating" may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.
ELECTRICAL SPECIFICATIONS @ 23°C

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Conditions</th>
<th>Units</th>
<th>MIN</th>
<th>Typical</th>
<th>MAX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Range</td>
<td></td>
<td>GHz</td>
<td>0.7</td>
<td></td>
<td>20</td>
</tr>
<tr>
<td>Gain</td>
<td>Small Signal</td>
<td>dB</td>
<td>28</td>
<td>35</td>
<td></td>
</tr>
<tr>
<td>Gain Flatness</td>
<td></td>
<td>dB</td>
<td>±1.4</td>
<td>±2.5</td>
<td></td>
</tr>
<tr>
<td>Noise Figure</td>
<td>1 to 20 GHz, maybe higher below 1 GHz</td>
<td>dB</td>
<td>2.7</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Output Power (P1dB)</td>
<td>1 to 16 GHz, measured @10GHz</td>
<td>dBm</td>
<td>+20</td>
<td>+23</td>
<td></td>
</tr>
<tr>
<td>Output Power (P1dB)</td>
<td>16 to 20 GHz</td>
<td>dBm</td>
<td>+19</td>
<td>+20</td>
<td></td>
</tr>
<tr>
<td>OIP3</td>
<td>OIP3 @ 10 GHz Two tone F1-F2= 10MHz</td>
<td>dB</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RF Input Impedance</td>
<td>Reference to 50 ohms VSWR</td>
<td></td>
<td>1.8:1</td>
<td>2.4:1</td>
<td></td>
</tr>
<tr>
<td>RF Output Impedance</td>
<td>Reference to 50 ohms VSWR</td>
<td></td>
<td>1.8:1</td>
<td>2.4:1</td>
<td></td>
</tr>
<tr>
<td>Supply Voltage Positive:</td>
<td></td>
<td>V</td>
<td>+12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply Current Positive:</td>
<td>Small signal</td>
<td>mA</td>
<td>290</td>
<td>350</td>
<td></td>
</tr>
</tbody>
</table>

Notes:
1/ Unconditional Stability
   NF Tested to 18 GHz, 18-20 GHz by design
   Customized configurations of the above specifications are available
Typical S-Parameters @ 23°C

CH1: S11 10 dB/REF 0 dB
5-8.8150 dB 20,000,000,000 GHz

CH2: S21
5-28.809 dB 20,000,000,000 GHz

CH3: S12
5-10.936 dB 20,000,000,000 GHz

CH3 Markers
1: 20.846 dB
2: 700.750 MHz
3: 2.00000 GHz
4: 8.00000 GHz
5: 14.0000 GHz

CH3 Markers
1: 17.872 dB
2: 700.750 MHz
3: 2.00000 GHz
4: 8.00000 GHz
5: 14.0000 GHz

CH1 Markers
1: 20.846 dB
2: 700.750 MHz
3: 2.00000 GHz
4: 8.00000 GHz
5: 14.0000 GHz

CH2 Markers
1: 31.672 dB
2: 700.750 MHz
3: 2.00000 GHz
4: 8.00000 GHz
5: 14.0000 GHz

Hld START 50,000 MHz STOP 20,000,000,000 MHz

Smo START 0.050 000 000 GHz STOP 20,000,000,000 GHz

Hld START 50,000 MHz STOP 20,000,000,000 MHz

Hld START 50,000 MHz STOP 20,000,000,000 MHz
Typical P1dB @ 23°C

**Graph:**
- **Title:** Typical Output Power @ 25°C
- **Axes:**
  - X-axis: Frequency (GHz)
  - Y-axis: Output Power (dBm)
- Data points indicate the typical output power in dBm across different frequencies.
Package Outline M020: SMA Connectorized mm(inches)

Field replaceable SMA Connectors, Removable Ground slug

Note: The unit must be attached to proper heat sink

Housing: Aluminum Gold over Nickel plated
Removable SMA and Ground Slug

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Description</th>
<th>Hermeticity</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMT-A0237</td>
<td>SMA Female</td>
<td>Non-Hermetic</td>
<td>Outline: M020</td>
</tr>
<tr>
<td>AMT-A0237-H</td>
<td>SMA Female</td>
<td>Hermetic Laser Weld Tested to Leak Rate $&lt;2.0 \times 10^{-8}$</td>
<td>Outline: M020</td>
</tr>
</tbody>
</table>
Contact us for custom configurations and special requirements.

Our highly experienced team of engineers can quickly identify and implement innovative solutions using latest technology to improve performance and reduce cost.

- Add additional functionality: Input limiter, Temperature compensation, Amplitude/Phase matching, Amplitude/Phase Tracking, Automatic Gain control, Gain sloping, Bypass path, Specific supply voltage, Regulation, Power detector, Health status, and others

- Integrated: Filters, Switches, Limiter, Digital attenuator, Phase shifter, Microcontroller, Multiple amplifiers, Switch matrix, Comb generators and others

- Mechanical: Custom packages - Surface Mount, Connectorized, Waveguide, Carrier, Drop-in, Hermetic and others

Agile Microwave Technology Inc is the logical choice for all your commercial or military RF/Microwave components/module requirements.

Contact Information:

701 Cascade Pointe Lane
Cary, NC 27513

Phone: (984) 228-8001 info@agilemwt.com www.agilemwt.com