AMT-A0119 0.8 GHz to 3 GHz
Broadband High Power Amplifier 50W P1dB

Data Sheet

Features

- 0.8 GHz to 3GHz Frequency Range
- Class AB, High Linearity
- Gain 50 dB min 55 dB Typical
- Gain Flatness < ± 1.2 dB Typical
- P1dB + 47 dBm (50W) minimum
- Internally Regulated
- Operates from a Single +30V Supply
- Unconditionally Stable
- State-of-the-Art Technology

Description

The AMT-A0119 is a Broadband Power amplifier with 50W minimum power over the full frequency range. The performance is achieved through the use of AMTI's proprietary technology. The amplifier I/Os are Internally matched to 50 Ohms and DC blocked. The AMT-A0119 is ideal for use as output power amplifier, or driver amplifier in a Hi-Rel communications system for Commercial or Military applications.

Applications

- Test Equipment
- Radar
- Communication systems
- Microwave Radio systems

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_{MO}</td>
<td>°C</td>
<td>-10</td>
<td>+45</td>
</tr>
<tr>
<td>Storage Temperature - Case</td>
<td>T_{MS}</td>
<td>°C</td>
<td>-40</td>
<td>+85</td>
</tr>
<tr>
<td>RF Input power (CW)</td>
<td>P_{in}</td>
<td>dBm</td>
<td>+20</td>
<td></td>
</tr>
<tr>
<td>Die T_{Junction}</td>
<td>T_{J}</td>
<td>°C</td>
<td></td>
<td>+175</td>
</tr>
<tr>
<td>Positive Supply Voltage</td>
<td>V_{SS}</td>
<td>V</td>
<td></td>
<td>+31</td>
</tr>
</tbody>
</table>

HPA must be attached to proper heat sink

†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 @ 25°C

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Conditions</th>
<th>Units</th>
<th>MIN</th>
<th>Typical</th>
<th>MAX</th>
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</thead>
<tbody>
<tr>
<td>Frequency Range</td>
<td></td>
<td>GHz</td>
<td>0.8</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Gain(^2)</td>
<td>Small Signal</td>
<td>dB</td>
<td>50</td>
<td>55</td>
<td></td>
</tr>
<tr>
<td>Gain Flatness</td>
<td></td>
<td>dB</td>
<td>±1.2</td>
<td>±2.5</td>
<td></td>
</tr>
<tr>
<td>Input Power</td>
<td>CW, without damage</td>
<td>dBm</td>
<td>+20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output Power (P1dB)</td>
<td>1 dB compression point</td>
<td>dBm</td>
<td>+47</td>
<td>+48.5</td>
<td></td>
</tr>
<tr>
<td>OIP3</td>
<td>OIIP3 measured @ 1.275 GHz Two tone F1-F2=10MHz</td>
<td>dB</td>
<td>57</td>
<td></td>
<td></td>
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<tr>
<td>Noise Figure</td>
<td></td>
<td>dB</td>
<td>5.5</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>RF Input Impedance</td>
<td>Reference to 50 ohms VSWR</td>
<td></td>
<td>1.5:1</td>
<td>2.0:1</td>
<td></td>
</tr>
<tr>
<td>RF Output Impedance</td>
<td>Reference to 50 ohms</td>
<td></td>
<td>1:5:1</td>
<td>2.0:1</td>
<td></td>
</tr>
<tr>
<td>Harmonics</td>
<td>Pout= 50W</td>
<td>dBC</td>
<td>-25</td>
<td>-18</td>
<td></td>
</tr>
<tr>
<td>Spurious</td>
<td>Pout= 50W</td>
<td>dBC</td>
<td>-70</td>
<td>-60</td>
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</tr>
<tr>
<td>Supply Voltage Positive:</td>
<td></td>
<td>V</td>
<td>+30V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply Current Positive:</td>
<td></td>
<td>A</td>
<td>7</td>
<td>14</td>
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</tr>
</tbody>
</table>

Notes:
1/ Unconditional Stability:

Customized configurations of the above specifications are available
Measured Power Data @ 25°C
S–Parameters

Gain (S21)

Frequency (MHz)

Gain (S21)

Input Return Loss
Out Return Loss

Frequency, MHz
Measured Power Data @ 25°C
Power P1dB, Psat and OIP3

1 dB Compression Point

Saturated Power

IP3

Frequency, MHz

Frequency, MHz
Measured Power Data @ 25°C
Harmonics

2nd Harmonic

3rd Harmonic
Package Outline: RFout N-Connector  Input SMA Female  mm(inches)

~ 10.2" X 4" X 1"

High Power Amplifier must be mounted to proper heat sink

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Description</th>
<th>Hermeticity</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMT-A0119</td>
<td>Input N</td>
<td>Non-Hermetic</td>
<td>Outline: Mounting Plate</td>
</tr>
<tr>
<td></td>
<td>Output :SMA Female</td>
<td></td>
<td></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:

ISO 9001:2015 Certified Company

701 Cascade Pointe Lane
Cary, NC 27513

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

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