AMT-A0438 6 GHz to 7 GHz Low Noise Amplifier

Data Sheet

Features

• 6 GHz to 7 GHz Frequency Range
• Gain 20 dB Typical, Gain window 18 to 22 dB
• Gain Flatness ± 1 dB max
• 1.6 dB Typical Noise Figure
• VSWR 1.8:1 typical
• OIP3 +20 dBm minimum
• Internally Regulated
• Operates from Single +12V Supply 80 mA typ
• Unconditionally Stable
• Compact Housing

Description

The AMT-A0438 is a low noise amplifier with flat gain, low NF in a compact size and matched gain window. The performance is achieved through the use of AMTI’s proprietary matching technology. The amplifier I/Os are Internally matched to 50 Ohms and DC Blocked. The AMT-A0438 is ideal for use as gain stage with low noise for test equipment, Communication systems or where ultra broadband amplification and medium power are required without adding significant noise in a Hi-Rel communications system for Commercial or Military applications.

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>-40</td>
<td>+85</td>
</tr>
<tr>
<td>Storage Temperature - Case</td>
<td>(T_{MS})</td>
<td>°C</td>
<td>-40</td>
<td>+125</td>
</tr>
<tr>
<td>RF Input power (CW)</td>
<td>(P_{in})</td>
<td>dBm</td>
<td></td>
<td>+15</td>
</tr>
<tr>
<td>Die (T_{J})</td>
<td>(T_{J})</td>
<td>°C</td>
<td></td>
<td>+150</td>
</tr>
<tr>
<td>Positive Supply Voltage</td>
<td>(V_{+SS})</td>
<td>V</td>
<td></td>
<td>+15</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>6</td>
<td>20</td>
<td>22</td>
</tr>
<tr>
<td>Gain(^2)</td>
<td>Small Signal</td>
<td>dB</td>
<td>18</td>
<td>20</td>
<td>22</td>
</tr>
<tr>
<td>Gain Flatness</td>
<td></td>
<td>dB</td>
<td>±0.5</td>
<td>±1</td>
<td></td>
</tr>
<tr>
<td>Noise Figure</td>
<td></td>
<td>dB</td>
<td>1.6</td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td>Output Power (P1dB)</td>
<td>@ 6.5 GHz</td>
<td>dBm</td>
<td>+12</td>
<td></td>
<td>+16</td>
</tr>
<tr>
<td>OIP3</td>
<td>OIP3 @ 6.5 GHz Two tone</td>
<td>dB</td>
<td>+20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spur(^3)</td>
<td>Self generated Spurs with Pout ~ 1 dBm</td>
<td>dBC</td>
<td>&lt; -70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RF Input Impedance</td>
<td>Reference to 50 ohms</td>
<td>V</td>
<td>+ 12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RF Output Impedance</td>
<td>Reference to 50 ohms</td>
<td>V</td>
<td>80</td>
<td></td>
<td>150</td>
</tr>
</tbody>
</table>

#### Notes:
1/ Unconditional Stability
2/ Maybe up to 0.5 dB higher at 7 Ghz
3/ Excludes harmonics

Customized configurations of the above specifications are available.
Typical Performance S-Parameters @ 25°C
AMT-A0438
Noise Figure
@ 23°C

NF (dB)

Frequency (GHz)

SN 1702
SN 1703
SN 1705

AMT-A0438
P1dB
@ 23°C

P1dB (dB)

Frequency (GHz)

SN 1560
SN 1561
SN 1562
SN 1564
SN 1566
SN 1567
Package Outline M084: SMA mm Female Connectors (inches)

Field replaceable SMA Connectors
Housing material: Aluminum       Plating: Gold over Nickel
Note: The unit must be attached 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-A0438</td>
<td>SMA Female</td>
<td>Non-Hermetic</td>
<td>Outline: M084</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:
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