AMT-A0162  14 GHz to 18 GHz Medium Power Amplifier

Data Sheet

Features

• 14 GHz to 18 GHz Frequency Range
• Typical P1dB > +20 dBm
• Typical Gain 26 dB
• Gain Flatness < ± 0.6 dB Typical
• Typical Noise Figure < 4.5 dB
• Internally Regulated
• Operates from a Single +10 to +12V Supply
• Unconditionally Stable
• State-of-the-Art GaAs Technology

Description

The AMT-A0162 is a Broadband Medium Power amplifier with P1dB of greater than +20 dBm 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. The AMT-A0162 is ideal for use as gain block of receiver system, or where amplification is required with broadband power in a Hi-Rel communications system for Commercial or Military applications.

Applications

• Radar
• Communication systems
• Microwave Radio systems
• Test Equipment

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>-0</td>
<td>+75</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>Pin</td>
<td>dBm</td>
<td></td>
<td>+20</td>
</tr>
<tr>
<td>Die T Junction</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>

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 @ 23ºC

<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>14</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Gain</td>
<td>Small Signal</td>
<td>dB</td>
<td>24</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>Gain Flatness</td>
<td></td>
<td>dB</td>
<td>±0.6</td>
<td>±1</td>
<td></td>
</tr>
<tr>
<td>Gain vs Temp Stability</td>
<td>At given Frequency from 0C to +75C</td>
<td>dBpp</td>
<td></td>
<td>3.5</td>
<td></td>
</tr>
<tr>
<td>Output Power (P1dB)</td>
<td>1 dB compression point @16 GHz</td>
<td>dBm</td>
<td>+19</td>
<td>+20</td>
<td></td>
</tr>
<tr>
<td>OIP3</td>
<td>OPI3 measured@16 GHz Two tone F1-F2= 10MHz</td>
<td>dB</td>
<td></td>
<td>29</td>
<td></td>
</tr>
<tr>
<td>Noise Figure</td>
<td></td>
<td>dB</td>
<td>4.5</td>
<td>6.5</td>
<td></td>
</tr>
<tr>
<td>RF Input Impedance</td>
<td>Reference to 50 ohms VSWR</td>
<td></td>
<td>1.7:1</td>
<td>2.0:1</td>
<td></td>
</tr>
<tr>
<td>RF Output Impedance</td>
<td>Reference to 50 ohms</td>
<td></td>
<td>1:6:1</td>
<td>2.1:1</td>
<td></td>
</tr>
<tr>
<td>Supply Voltage Positive:</td>
<td></td>
<td>V</td>
<td>+10</td>
<td>+12</td>
<td>220</td>
</tr>
<tr>
<td>Supply Current Positive:</td>
<td>Small signal current</td>
<td>mA</td>
<td></td>
<td></td>
<td>240</td>
</tr>
</tbody>
</table>

Notes:
1/ Unconditional Stability:

Customized configurations of the above specifications are available
Typical S-Parameters @ 23°C

CH1  L06   10 dB/REF 0 dB
S11  5-18.364 dB 18.000 000 000 GHz

CH2  L06   5 dB/REF 20 dB
S21  5-26.302 dB 18.000 000 000 GHz

CH3  L06   10 dB/REF -10 dB
S12  5-54.470 dB 18.000 000 000 GHz

CH4  L06   10 dB/REF 0 dB
S22  5-14.002 dB 18.000 000 000 GHz

CH1 Markers
1: 18.549 dB
2: 20.981 dB
3: 18.226 dB
4: 13.502 dB

CH2 Markers
1: 26.024 dB
2: 26.274 dB
3: 26.647 dB
4: 26.736 dB

CH3 Markers
1: 53.686 dB
2: 54.465 dB
3: 55.560 dB
4: 55.991 dB

CH4 Markers
1: 15.022 dB
2: 20.193 dB
3: 30.806 dB
4: 21.153 dB
Package Outline: M088 SMA Connectorized (inches)

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-A0162</td>
<td>SMA Female</td>
<td>Non-Hermetic</td>
<td>Outline: M088</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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Cary, NC 27513

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