**FMAM1032**

**DATA SHEET**

4.5 dB NF Low Phase Noise Amplifier Operating From 6 GHz to 12 GHz with 11 dB Gain, 20 dBm P1dB and SMA

FMAM1032 is a low phase noise amplifier that operates across the frequency range from 6 GHz to 12 GHz. The design utilizes leading edge GaAs HBT MMIC technology and exhibits ultra low phase noise of -167 dBc/Hz @ 1 kHz offset frequency. The design also exhibits high dynamic range with typical performance that incudes 11 dB of small signal gain, 4.5 dB noise figure, up to +23 dBm of output power at P1dB, +34 dBm output IP3, while using a +7V single DC supply. The wideband distributed amplifier design input/output ports are internally matched to 50 ohms and are DC blocked.

The drop-in package is hermetically sealed with field replaceable SMA connectors and has an operating temperature range of -55°C to +85°C. And for added confidence, this rugged package assembly is designed to meet MIL-STD-883 test conditions for Hermeticity and Temperature Cycle.

This broadband low noise amplifier module is part of Fairview Microwave's expanding line of amplifier offerings. These modules offer very wide frequency range coverage and outstanding electrical performance in the band.

### Electrical Specifications (TA = +25°C , DC Voltage = 7Vdc)

<table>
<thead>
<tr>
<th>Description</th>
<th>Min</th>
<th>Typ</th>
<th>Max</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Range</td>
<td>6</td>
<td>11</td>
<td>12</td>
<td>GHz</td>
</tr>
<tr>
<td>Small Signal Gain</td>
<td></td>
<td>11</td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>Output at 1 dB Compression Point</td>
<td></td>
<td>20</td>
<td></td>
<td>dBm</td>
</tr>
<tr>
<td>Noise Figure</td>
<td></td>
<td>4.5</td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>Operating DC Voltage</td>
<td></td>
<td>7</td>
<td></td>
<td>Volts</td>
</tr>
<tr>
<td>Operating Temperature Range</td>
<td></td>
<td>-55</td>
<td></td>
<td>°C</td>
</tr>
</tbody>
</table>

**Features:**
- Low Phase Noise Amplifier
- Wide frequency band
- Highly Linear GaAs HBT MMIC Technology
- Phase Noise -167 dBc/Hz @ 1KHz offset
- Gain 11 dB
- High Output IP3 +34 dBm
- P1dB up to +23 dBm
- Hermetically Sealed Module
- Mil Spec Compliant
- Field Replaceable SMA Connectors
- -54°C to +85°C Operating Temperature

**Applications:**
- Electronic Warfare
- Microwave Radio
- VSAT
- Radar
- Space Systems
- Test Instrumentation
- Telecom Infrastructure

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## Performance by Frequency

<table>
<thead>
<tr>
<th>Description</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Range</td>
<td>6 - 12 GHz</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Gain</td>
<td>9</td>
<td>11</td>
<td></td>
<td>dB</td>
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<tr>
<td>Gain Flatness</td>
<td>±1</td>
<td></td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>Gain Variation Over Temperature</td>
<td>0.015 dB/°C</td>
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<tr>
<td>Noise Figure</td>
<td>4.5</td>
<td></td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>Input Return Loss</td>
<td>15</td>
<td></td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>Output Return Loss</td>
<td>15</td>
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<td></td>
<td>dB</td>
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<tr>
<td>Output Power For 1 dB Compression (P1dB)</td>
<td>17</td>
<td>20</td>
<td></td>
<td>dBm</td>
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<tr>
<td>Saturated Output Power (Psat)</td>
<td>22</td>
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<td></td>
<td>dBm</td>
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<tr>
<td>Output Third Order Intercept (IP3)</td>
<td>34</td>
<td></td>
<td></td>
<td>dBm</td>
</tr>
<tr>
<td>Phase Noise @ 100 Hz, Psat, 10 GHz</td>
<td>-157</td>
<td></td>
<td></td>
<td>dBc/Hz</td>
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<tr>
<td>Phase Noise @ 1 KHz, Psat, 10 GHz</td>
<td>-167</td>
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<td></td>
<td>dBc/Hz</td>
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<tr>
<td>Phase Noise @ 10 KHz, Psat, 10 GHz</td>
<td>-176</td>
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<td></td>
<td>dBc/Hz</td>
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<tr>
<td>Phase Noise @ 100 KHz, Psat, 10 GHz</td>
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<td>dBc/Hz</td>
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<tr>
<td>Supply Current</td>
<td>170</td>
<td>200</td>
<td></td>
<td>mA</td>
</tr>
</tbody>
</table>

## Mechanical Specifications

### Size
- **Length**: 1.14 in [28.96 mm]
- **Width**: 1.9 in [48.26 mm]
- **Height**: 0.56 in [14.22 mm]
- **Weight**: 0.4072 lbs [184.7 g]

### Connector Option
- **Input Connector**: SMA Female
- **Output Connector**: SMA Female

## Environmental Specifications

### Temperature
- **Operating Range**: -55 to +85 deg C
- **Storage Range**: -65 to +150 deg C

### Temperature Cycling
- MIL-STD-883, Method 101C, Cond B

### Hermetic Seal
- Gross Leak MIL-STD-883 Method 1014C1/Fine Leak
- MIL-STD-883, Method 1014A2, 5 x 10^-8 atm cc

### ESD Sensitivity
- ESD Sensitive Material, Transport material in Approved ESD bags. Handle only in ESD Workstation.
Compliance Certifications (see product page for current document)

Plotted and Other Data
Notes:
• Values at 25 °C, sea level

Functional Block Diagram
Typical Performance Data

**Gain & Return Loss**

**Gain vs. Temperature**

**Input Return Loss vs. Temperature**

**Output Return Loss vs. Temperature**

**Noise Figure vs. Temperature**
4.5 dB NF Low Phase Noise Amplifier Operating From 6 GHz to 12 GHz with 11 dB Gain, 20 dBm P1dB and SMA from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Allen, Texas. Fairview Microwave is RF on-demand.

For additional information on this product, please click the following link: 4.5 dB NF Low Phase Noise Amplifier Operating From 6 GHz to 12 GHz with 11 dB Gain, 20 dBm P1dB and SMA FMAM1032


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