10 MHz to 6 GHz, Broadband Amplifier with 900 mW, 13 dB Gain and SMA

FMAM4031 is a single stage amplifier operates across a wide frequency range from 10 MHz to 6 GHz. The design utilizes GaAs PHEMT MMIC technology for high efficiency and high linearity. Typical performance includes 13 dB of small signal gain, +40 dBm output IP3, and up to +30 dBm of Saturated Power. The design exhibits a very flat gain response across a wide frequency band. Input/output ports are matched for 50 ohms and are DC blocked.

The design also incorporates integrated bias sequencing circuitry and voltage regulators to allow for flexible biasing for both the negative and positive voltage supplies. The drop-in package is hermetically sealed with field replaceable SMA connectors. 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, VDC1 = 15 Vdc, VDC2 = -5 Vdc)

<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>0.01</td>
<td>6</td>
<td>6</td>
<td>GHz</td>
</tr>
<tr>
<td>Gain</td>
<td>13</td>
<td></td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>P1dB</td>
<td>+29.5</td>
<td></td>
<td></td>
<td>dBm</td>
</tr>
<tr>
<td>Noise Figure</td>
<td>5</td>
<td></td>
<td></td>
<td>dB</td>
</tr>
<tr>
<td>Operating DC Voltage 1</td>
<td>15</td>
<td></td>
<td></td>
<td>Volts</td>
</tr>
<tr>
<td>Operating DC Voltage 2</td>
<td>-5</td>
<td></td>
<td></td>
<td>Volts</td>
</tr>
<tr>
<td>Operating Temperature Range (OTR)</td>
<td>-55</td>
<td>+85</td>
<td></td>
<td>°C</td>
</tr>
</tbody>
</table>

### Features:
- Driver Amplifier
- Wide Frequency Band
- GaAs PHEMT MMIC Technology
- Spurious-Free Operation
- Gain 13 dB
- High Output IP3 +40 dBm
- Saturated Output Power up to +30 dBm typical
- Regulated Supply and Bias Sequencing
- Hermetically Sealed Module
- Mil Spec Compliant
- Field Replaceable SMA Connectors
- -55°C to +85°C Operating Temperature

### Applications:
- Electronic Warfare
- Electronic Countermeasures
- Microwave Radio
- VSAT
- Radar
- Fiber Optic
- Space Systems
- Test Instrumentation
- Telecom Infrastructure

Fairview Microwave  
1130 Junction Dr. #100  
Allen, TX 75013  
Tel: 1-800-715-4396 / (972) 649-6678  
Fax: (972) 649-6689  
www.fairviewmicrowave.com  
sales@fairviewmicrowave.com
### 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>0.01</td>
<td>-6</td>
<td>GHz</td>
<td></td>
</tr>
<tr>
<td>Gain</td>
<td>11.5</td>
<td>13</td>
<td>dB</td>
<td></td>
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<tr>
<td>Gain Flatness</td>
<td>±0.75</td>
<td></td>
<td>dB</td>
<td></td>
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<tr>
<td>Gain Variation Over Temperature</td>
<td>0.02</td>
<td></td>
<td>dB/ °C</td>
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<tr>
<td>Input Return Loss</td>
<td>17</td>
<td></td>
<td>dB</td>
<td></td>
</tr>
<tr>
<td>Output Return Loss</td>
<td>17</td>
<td></td>
<td>dB</td>
<td></td>
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<tr>
<td>Output Power For 1 dB Compression (P1dB)</td>
<td>27.5</td>
<td>29.5</td>
<td>dBm</td>
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<tr>
<td>Saturated Output Power (Psat)</td>
<td>30</td>
<td></td>
<td>dBm</td>
<td></td>
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<tr>
<td>Output Third Order Intercept (IP3)</td>
<td>40</td>
<td></td>
<td>dBm</td>
<td></td>
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<tr>
<td>Noise Figure</td>
<td>5</td>
<td></td>
<td>dB</td>
<td></td>
</tr>
<tr>
<td>Supply Current (+15V)</td>
<td>450</td>
<td>500</td>
<td>mA</td>
<td></td>
</tr>
<tr>
<td>Supply Current (-5V)</td>
<td>5</td>
<td></td>
<td>mA</td>
<td></td>
</tr>
</tbody>
</table>

### Mechanical Specifications

#### Size
- Length: 2.305 in [58.55 mm]
- Width: 2.6 in [66.04 mm]
- Height: 0.54 in [13.72 mm]
- Connector Option: Field Replaceable
- 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
- 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
- RoHS Compliant: Yes
- REACH Compliant: 12/17/2015

(visit www.FairviewMicrowave.com for current document)
Plotting 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**
- **Reverse Isolation vs. Temperature**
- **Noise Figure vs. Temperature**
10 MHz to 6 GHz, Broadband Amplifier with 900 mW, 13 dB Gain 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: 10 MHz to 6 GHz, Broadband Amplifier with 900 mW, 13 dB Gain and SMA FMAM4031

URL: https://www.fairviewmicrowave.com/10-mhz-6-ghz-broadband-amplifier-fmam4031-p.aspx

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NOTE:
HEAT SINK REQUIRED FOR PROPER OPERATION, UNIT IS COOLED BY CONDUCTING TO HEAT SINK.