BROADBAND DISTRIBUTED AMPLIFIER
(POSITIVE-BIAS ONLY)

The AP-0025 is a positive bias only multipurpose amplifier available in a connectorized or surface mount EZ package. It consists of two distributed MMIC amplifiers with positive only bias circuitry to provide resonance free gain with high saturated output power from 20 MHz to 25 GHz. It can be used for generation of square wave LO drives for T3 mixers (in saturation mode), general purpose LO drive signal generation or as a general purpose gain block for lab use (in linear mode).

Features

- Positive Bias Only Required
- Non-Inverting Output
- Surface Mount Package Available
- +23 dBm Typical Saturated Output Power
- Buffer- Amplifiers for Mixer LO
- 3rd and 5th Harmonic Generation

Electrical Specifications - Specifications guaranteed from -30 to +70°C, measured in a 50-Ohm system.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Frequency (GHz)</th>
<th>Min</th>
<th>Typ</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input for Saturated Output (dBm)</td>
<td>.020-25.0</td>
<td>+5</td>
<td>+10</td>
<td>+17</td>
</tr>
<tr>
<td>Saturated Output Power (dBm)</td>
<td></td>
<td>+16</td>
<td>+23</td>
<td></td>
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<tr>
<td>+7 Volts Bias</td>
<td></td>
<td>+14</td>
<td>+20</td>
<td></td>
</tr>
<tr>
<td>+5 Volts Bias</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Saturated Output Voltage ($V_{os}$)1</td>
<td></td>
<td>9</td>
<td></td>
<td></td>
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<tr>
<td>Small Signal Gain (dB)</td>
<td></td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Return Loss (dB)</td>
<td></td>
<td>12</td>
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<tr>
<td>Reverse Isolation (dB)</td>
<td></td>
<td>40</td>
<td></td>
<td></td>
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<tr>
<td>Output Third Order Intercept (dBm)</td>
<td></td>
<td>27</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rise/Fall Time (ps)2</td>
<td></td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power Consumption (W)</td>
<td></td>
<td>1.3</td>
<td>2.6</td>
<td></td>
</tr>
<tr>
<td>Bias Requirements (mA) +5.0 to +8.0 Volts DC</td>
<td>260</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1With a 50 Ω load impedance
2Minimum rise/fall time with a saturated input. See plot on page 4 for more detail

Model Number | Description                        | Package Style(s)2
-------------|------------------------------------|-------------------
AP-0025EZ (OBS) | 20 MHz to 25.0 GHz Amplifier         | EZ, EZP
AP-0025EZP (OBS) |                                                      |

NOTE: This product is obsolete. Please see this letter for more information.

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1EZ-Carrier Distributed Amplifiers are not suitable for in-line reflow solder. Manual assembly only. (Refer to EZ/EQ Amplifiers Installation Notes).
2Connectorized test fixtures available for most carrier and surface mount packages. Contact factory.

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AP-0025

Frequency .020 to 25.0 GHz

Schematic

Typical Performance

![Schematic Diagram]

Linear operation (<-5 dBm)

Saturated operation (>-5 dBm)

![Typical Performance Graphs]

- Saturated Power Output (dBm): 10 dBm Input
  - 7 V Bias
  - 5 V Bias

- Small Signal Gain (dB): 5 V Bias

- Harmonic Saturated Power Output (dBm): 5 V Bias, 10 dBm Input
  - 2nd, 3rd, 4th, 5th

- Harmonic Saturated Power Output (dBm): 7 V Bias, 10 dBm Input
  - 2nd, 3rd, 4th, 5th
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Power Compression, Pout (dBm): 7V Bias

Output IP3 (dBm)

Output P1dB (dBm)

Group Delay (ps)

Small Signal Return Loss (dB)

Reverse Isolation (dB)
**BROADBAND DISTRIBUTED AMPLIFIER**

**AP-0025**

Frequency .020 to 25.0 GHz

**DATA SHEET NOTES:**

1. Maximum input power without damage is +17 dBm at +70°C.
2. Specifications are subject to change without notice. Contact Marki Microwave for the most recent specifications and data sheets.

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