BROADBAND DISTRIBUTED AMPLIFIER

AP-115
(POSITIVE-BIAS ONLY)

The AP-115 is a positive bias only multipurpose amplifier available in a connectorized or surface mount EQ package. It is a distributed MMIC amplifier with positive only bias circuitry to provide resonance free gain with high saturated output power from 1 to 15 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
- +21 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>1.0-15.0</td>
<td>+10</td>
<td>+15</td>
<td>+18</td>
</tr>
<tr>
<td>Saturated Output Power (dBm)</td>
<td></td>
<td>+16</td>
<td>+21</td>
<td>+19</td>
</tr>
<tr>
<td>+6.3 Volts Bias</td>
<td></td>
<td>+14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>+5 Volts Bias</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saturated Output Voltage (Vp-p)^1</td>
<td></td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small Signal Gain (dB)</td>
<td></td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Return Loss (dB)</td>
<td></td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reverse Isolation (dB)</td>
<td></td>
<td>35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output Third Order Intercept (dBm)</td>
<td></td>
<td>27</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power Consumption (W)</td>
<td></td>
<td>0.5</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Bias Requirements (mA)</td>
<td>+5.0 to +6.3 Volts DC</td>
<td>110</td>
<td>160</td>
<td></td>
</tr>
</tbody>
</table>

^1With a 50 Ω load impedance

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Description</th>
<th>Package Style(s)^2</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP-115EQ^1</td>
<td>1.0 to 15.0 GHz Amplifier</td>
<td>EQ, EQP</td>
</tr>
<tr>
<td>AP-115EQP</td>
<td>(OBS)</td>
<td></td>
</tr>
</tbody>
</table>

^1Carrier 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.

NOTE: This product is obsolete. Please see this letter for more information.
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AP-115

Frequency 1.0 to 15.0 GHz

Schematic

DC Bias (+V)

RF In → → RF Out

Linear operation (<+5 dBm In)

Saturated operation (>+10 dBm In)

Typical Performance

Saturated Power Output (dBm): 10 dBm Input

Small Signal Gain (dB): 3V Bias

Harmonic Saturated Power Output (dBm): 5V Bias, 10 dBm Input

Harmonic Saturated Power Output (dBm): 6.3V Bias, 10 dBm Input

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AP-115

Frequency 1.0 to 15.0 GHz

Power Compression, Pout (dBm): 6.3V Bias

Output IP3 (dBm)

Output P1dB (dBm)

Small Signal Return Loss (dB)

Reverse Isolation (dB)

Group Delay (ps)

Frequency (GHz)

Pin (dBm)

Frequency (GHz)

Return Loss (dB)

Frequency (GHz)
DATA SHEET NOTES:

1. Maximum input power without damage is +18 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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