BROADBAND DISTRIBUTED AMPLIFIER
(POSITIVE-BIAS ONLY)

The AP-110 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 10 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></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>+20</td>
</tr>
<tr>
<td>+6.3 Volts Bias</td>
<td></td>
<td>+15</td>
<td>+20</td>
<td></td>
</tr>
<tr>
<td>+5 Volts Bias</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saturated Output Voltage (V&lt;sub&gt;p-p&lt;/sub&gt;)&lt;sup&gt;1&lt;/sup&gt;</td>
<td>1.0-10.0</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small Signal Gain (dB)</td>
<td></td>
<td></td>
<td>+15</td>
<td></td>
</tr>
<tr>
<td>Return Loss (dB)</td>
<td></td>
<td></td>
<td>+15</td>
<td></td>
</tr>
<tr>
<td>Reverse Isolation (dB)</td>
<td></td>
<td></td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Output Third Order Intercept (dBm)</td>
<td></td>
<td></td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>Power Consumption (W)</td>
<td></td>
<td></td>
<td>0.5</td>
<td>1</td>
</tr>
<tr>
<td>Bias Requirements (mA)</td>
<td></td>
<td></td>
<td>110</td>
<td>160</td>
</tr>
<tr>
<td>+5.0 to +6.3 Volts DC</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

<sup>1</sup>With a 50 Ω load impedance

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Description</th>
<th>Package Style(s)&lt;sup&gt;2&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP-110EQ&lt;sup&gt;1&lt;/sup&gt; (OBS)</td>
<td>1.0 to 10.0 GHz Amplifier</td>
<td>EQ, EQP</td>
</tr>
<tr>
<td>AP-110EQP (OBS)</td>
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</tbody>
</table>

EQ-Carrier Distributed Amplifiers are not suitable for in-line reflow solder. Manual assembly only.  
(Refer to EZ/EQ Amplifiers Installation Notes).

<sup>2</sup>Connectorized test fixtures available for most carrier and surface mount packages. Contact factory.

NOTE: This product is obsolete.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

AP-110

Frequency 1.0 to 10.0 GHz

Typical Performance

Schematic

Linear operation (<+5 dBm In)

Saturated operation (>+10 dBm In)

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

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

Small Signal Gain (dB): 3V Bias

Typical Performance
BROADBAND DISTRIBUTED AMPLIFIER

AP-110

Frequency 1.0 to 10.0 GHz

Power Compression, Pout (dBm): 6.3V Bias

Output IP3 (dBm)

Output P1db (dBm)

Group Delay (ps)

Small Signal Return Loss (dB)

Reverse Isolation (dB)
BROADBAND DISTRIBUTED AMPLIFIER

AP-110

Frequency 1.0 to 10.0 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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