BROADBAND DISTRIBUTED AMPLIFIER

(POSITIVE-BIAS ONLY)

The AP-10 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 20 MHz 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
- +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></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saturated Output Power (dBm)</td>
<td></td>
<td>+10</td>
<td>+15</td>
<td>+17</td>
</tr>
<tr>
<td>+7 Volts Bias</td>
<td></td>
<td>+19</td>
<td>+23</td>
<td></td>
</tr>
<tr>
<td>+5 Volts Bias</td>
<td></td>
<td>+17</td>
<td>+21</td>
<td></td>
</tr>
<tr>
<td>Saturated Output Voltage (V_{pp})(^1)</td>
<td>0.020-1.0</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small Signal Gain (dB)</td>
<td></td>
<td></td>
<td>14</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>45</td>
<td></td>
</tr>
<tr>
<td>Output Third Order Intercept (dBm)</td>
<td></td>
<td></td>
<td>30</td>
<td></td>
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<tr>
<td>Rise/Fall Time (ps)(^2)</td>
<td></td>
<td></td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Power Consumption (W)</td>
<td></td>
<td></td>
<td>0.75</td>
<td>1.6</td>
</tr>
<tr>
<td>Bias Requirements (mA)</td>
<td></td>
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<tr>
<td>+5.0 to +8.0 Volts DC</td>
<td></td>
<td></td>
<td>150</td>
<td>200</td>
</tr>
</tbody>
</table>

\(^1\)With a 50 Ω load impedance

\(^2\)Minimum rise/fall time with a saturated input. See plot on page 4 for more detail

Model Number | Description | Package Style(s)\(^2\)
-------------|-------------|------------------------
AP-10EQ\(^1\) (OBS) | 20 MHz to 10.0 GHz Amplifier | EQ, EQP
AP-10EQP (OBS) | 20 MHz to 10.0 GHz Amplifier | EQ, EQP

\(^1\)EQ-Carrier Distributed Amplifiers are not suitable for in-line reflow solder. Manual assembly only. (Refer to EZ/EQ Amplifiers Installation Notes)

\(^2\)Connectorized test fixtures available for most carrier and surface mount packages. Contact factory.

NOTE: This product is obsolete. Please see this page for new surface mount LO driver amps.
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Frequency .020 to 10.0 GHz

Schematic

Linear operation (<+5 dBm In)

Saturated operation (>+10 dBm In)

Typical Performance

Saturated Power Output (dBm): 10 dBm Input

Small Signal Gain (dB): 5V Bias

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

Harmonic Saturated Power Output (dBm): 7V Bias, 10 dBm Input
BROADBAND DISTRIBUTED AMPLIFIER

AP-10

Frequency 0.020 to 10.0 GHz

Power Compression, Pout (dBm): 7V Bias

Output IP3 (dBm)

Output P1dB (dBm)

Small Signal Return Loss (dB)

Reverse Isolation (dB)

Group Delay (ps)
BROADBAND DISTRIBUTED AMPLIFIER
AP-10

Frequency 0.20 to 10.0 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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