



## BROADBAND DISTRIBUTED AMPLIFIER (POSITIVE-BIAS ONLY)

**AP-0020**

The AP-0020 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 5 MHz to 20 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
- 3<sup>rd</sup> and 5<sup>th</sup> Harmonic Generation

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

Parameter	Frequency (GHz)	Min	Typ	Max
Input for Saturated Output (dBm)	.005-20.0	+5	+10	+17
Saturated Output Power (dBm)				
+7 Volts Bias		+17	+23	
+5 Volts Bias		+16	+20	
Saturated Output Voltage ( $V_{p-p}$ ) <sup>1</sup>			9	
Small Signal Gain (dB)			21	
Return Loss (dB)			12	
Reverse Isolation (dB)			45	
Output Third Order Intercept (dBm)			27	
Rise/Fall Time (ps) <sup>2</sup>			15	
Power Consumption (W)			1.3	2.6
Bias Requirements (mA)				
+5.0 to +8.0 Volts DC			260	325

<sup>1</sup>With a 50  $\Omega$  load impedance

<sup>2</sup>Minimum rise/fall time with a saturated input. See plot on page 4 for more detail

Model Number	Description	Package Style(s) <sup>2</sup>
AP-0020EZ <sup>1</sup> AP-0020EZP	5.0 MHz to 20.0 GHz Amplifier	<a href="#">EZ</a> , <a href="#">EZP</a>

<sup>1</sup>EZ-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.

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9/24/14



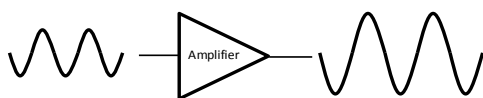
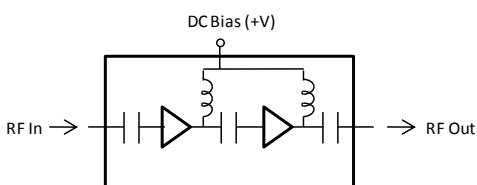
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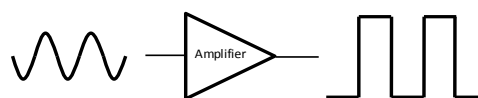
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Frequency .005 to 20.0 GHz

## Schematic

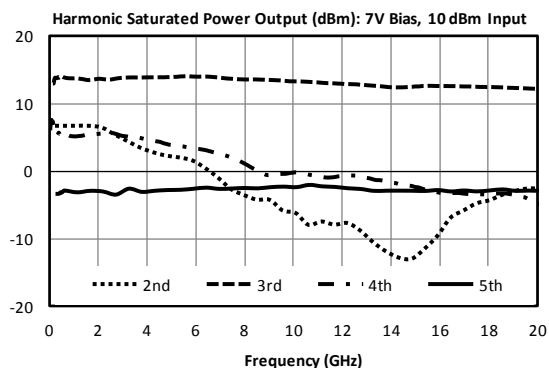
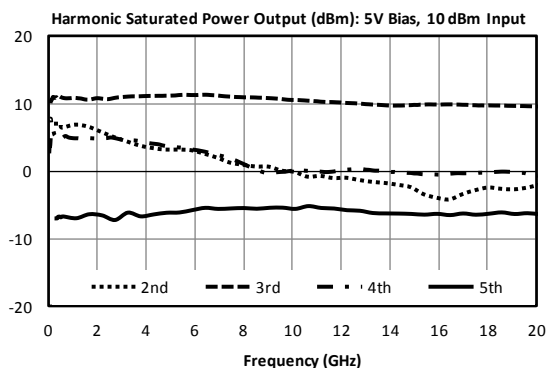
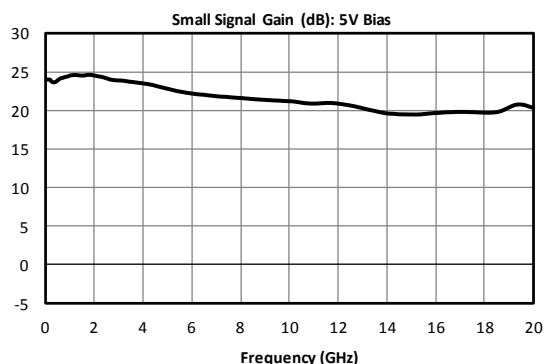
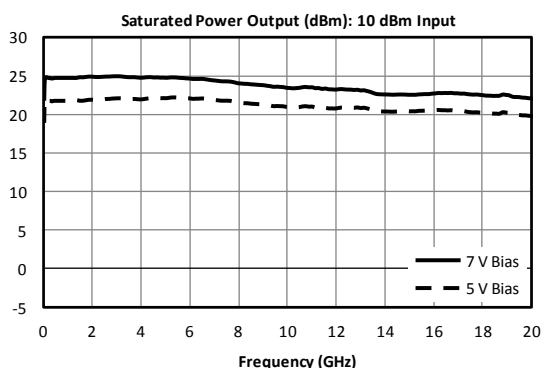


Linear operation (<-5 dBm)



Saturated operation (>+5 dBm)

## Typical Performance



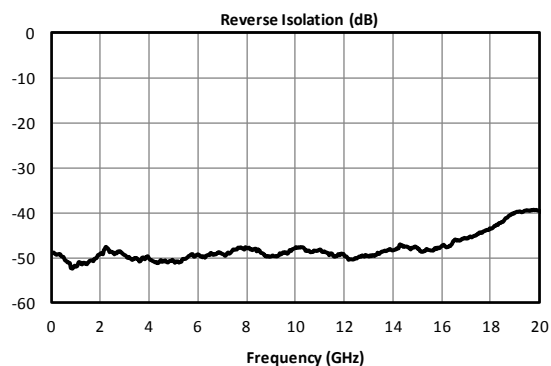
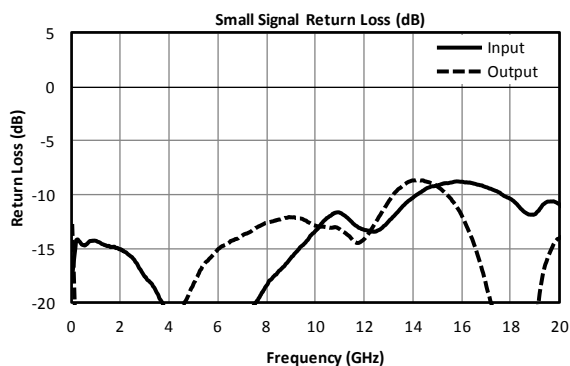
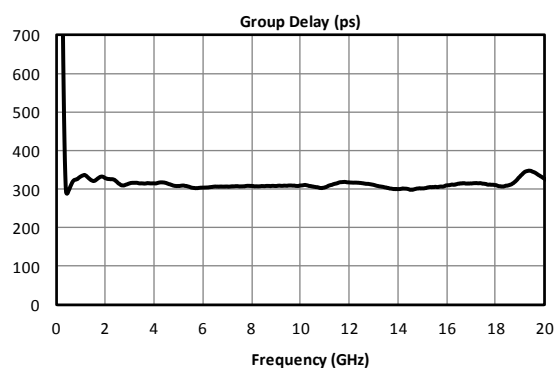
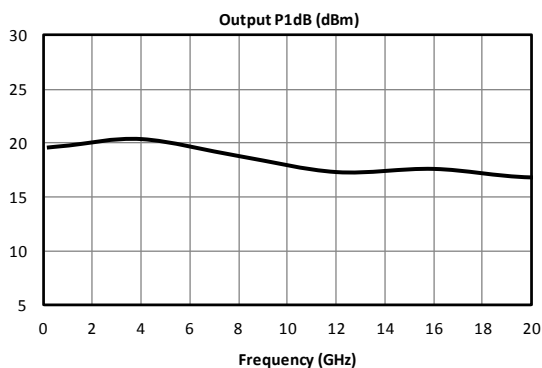
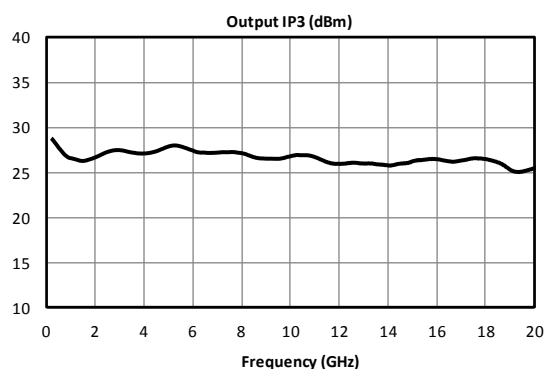
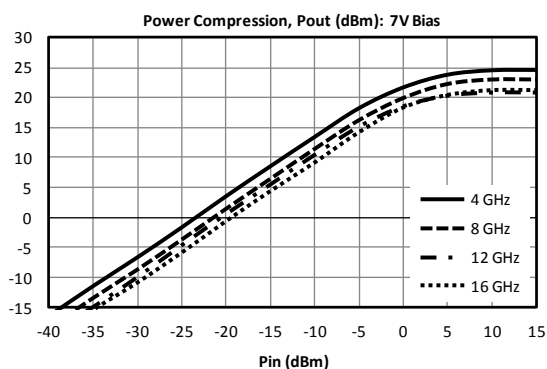


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Frequency .005 to 20.0 GHz



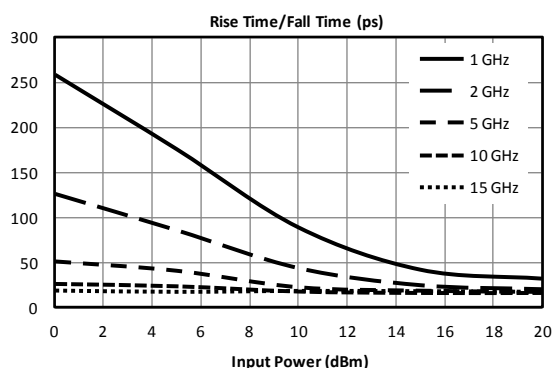


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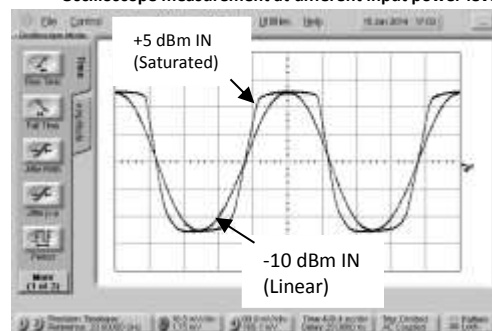
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Frequency .005 to 20.0 GHz



Oscilloscope measurement at different input power level



### 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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