



BROADBAND DISTRIBUTED AMPLIFIER (POSITIVE-BIAS ONLY)

AP-20

The AP-20 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 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
- +22 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.

Parameter	Frequency (GHz)	Min	Typ	Max
Input for Saturated Output (dBm)	.005-20.0	+10	+15	+17
Saturated Output Power (dBm)				
+7 Volts Bias		+17	+22	
+5 Volts Bias		+16	+20	
Saturated Output Voltage (V_{p-p}) ¹			8	
Small Signal Gain (dB)			14	
Return Loss (dB)			12	
Reverse Isolation (dB)			40	
Output Third Order Intercept (dBm)			30	
Rise/Fall Time (ps) ²			15	
Power Consumption (W)			0.75	1.6
Bias Requirements (mA)				
+5.0 to +8.0 Volts DC			150	200

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-20EQ ¹ AP-20EQP	5.0 MHz to 20.0 GHz Amplifier	EQ , EQP

¹EQ-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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9/24/14



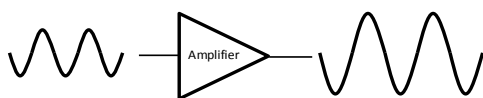
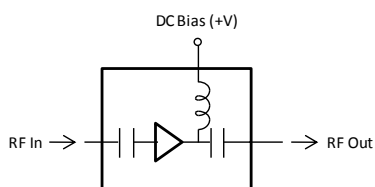
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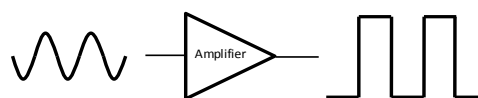
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Frequency .005 to 20.0 GHz

Schematic

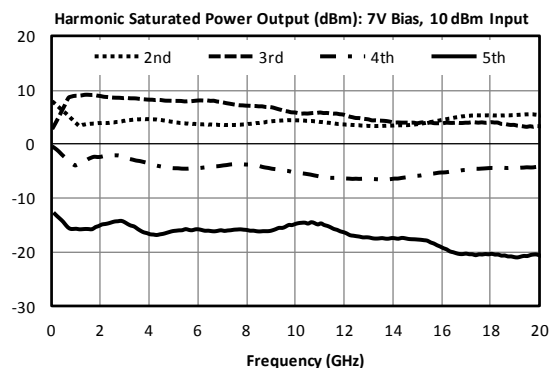
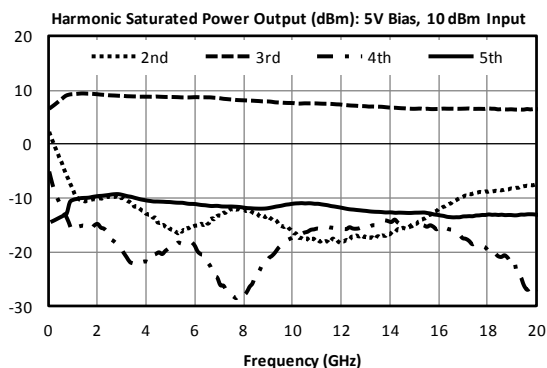
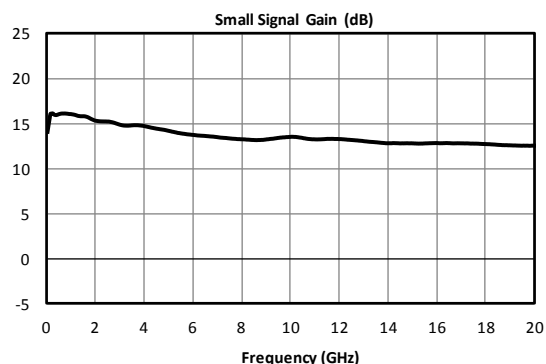
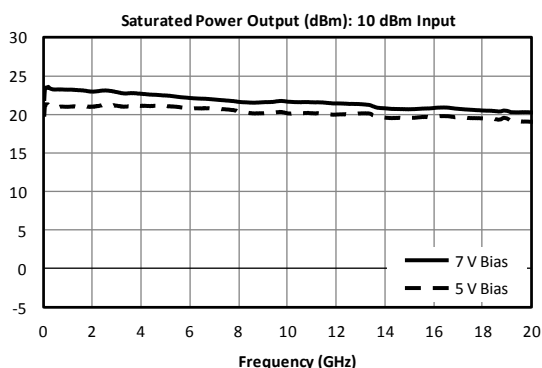


Linear operation (<+5 dBm In)



Saturated operation (>+10 dBm In)

Typical Performance



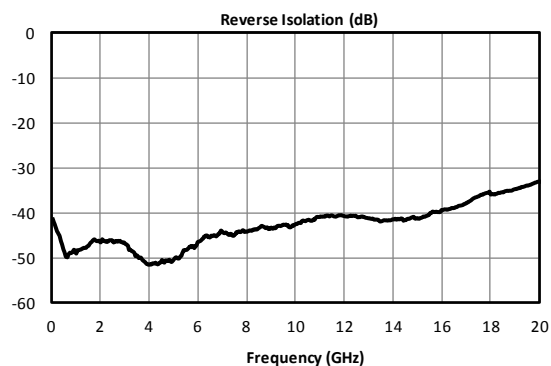
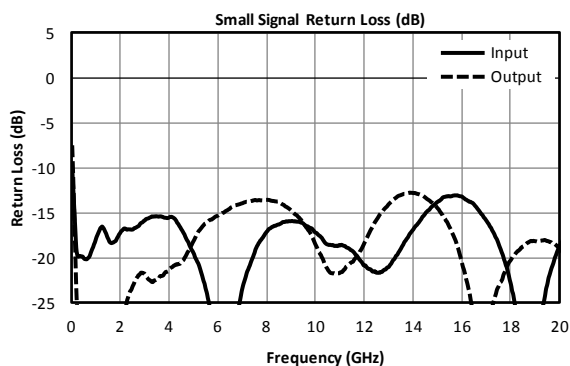
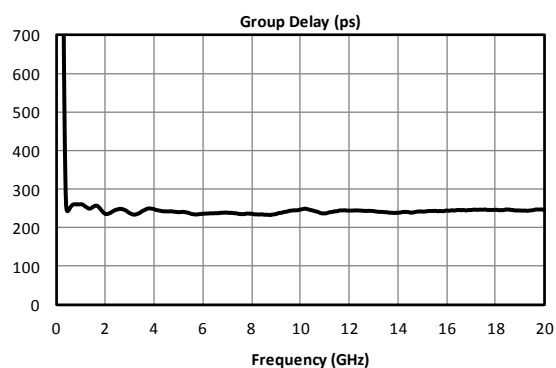
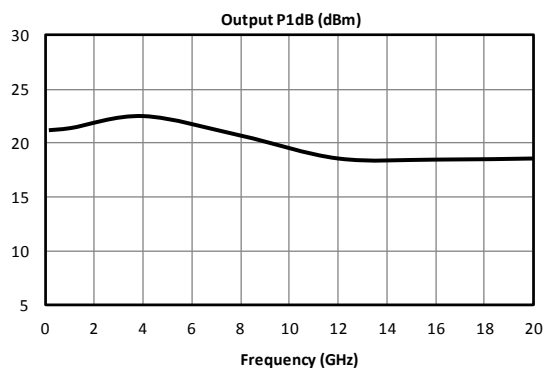
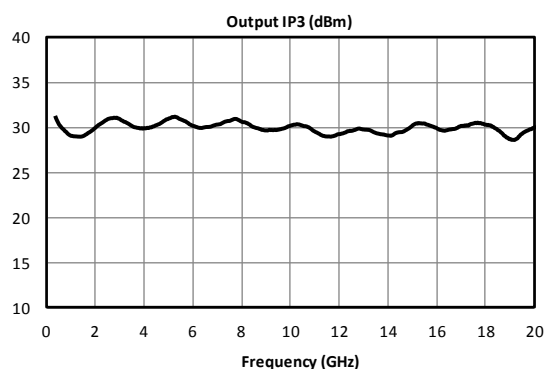
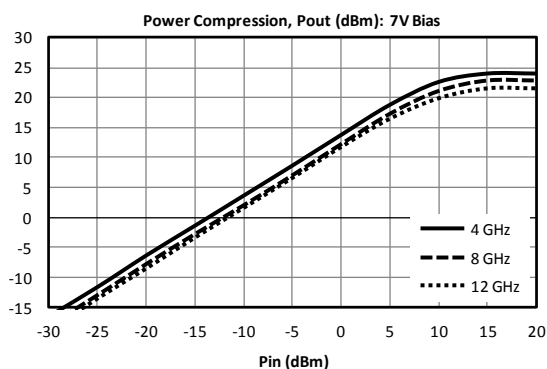


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Frequency .005 to 20.0 GHz



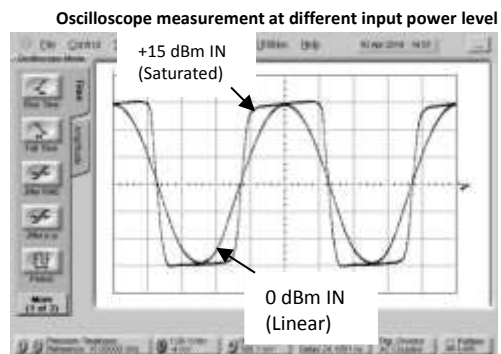
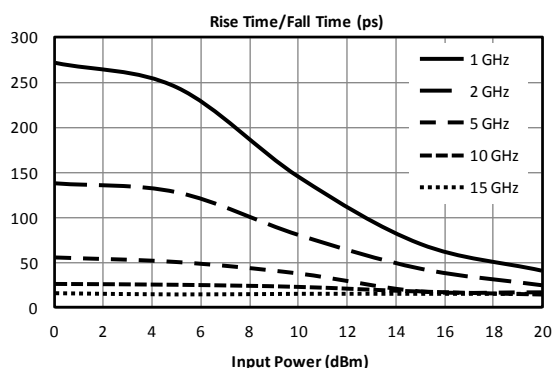


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Frequency .005 to 20.0 GHz



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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