Wide Band Power Amplifier
0.01GHz ~ 20GHz

RoHS Compliant

Features

- Gain: 12dB
- Output Power +29.5dBm Typical
- High P1dB: +25dBm Full Band
- Supply Voltage: +10V

Typical Applications

- Wireless Infrastructure
- Military & Aerospace
- Test and Measurement

Electrical Specifications, T_A = +25°C, Vcc = +10V

Parameter	Min.	Typ.	Max.	Units
Frequency Range	0.01		20	GHz
Gain		12		dB
Gain Flatness		±2		dB
Gain Variation Over Temperature (-45°C ~ +85°C)		-		dB
Input Return Loss		-		dB
Output 1dB Compression Point (P1dB)		29		dBm
Saturated Output Power (Psat)		29.5		dBm
Isolation S12		-		dB
Supply Current (Vcc=+10V)		400		mA
Efficiency at P1dB		-		%
Weight	-			ounces
Impedance	50			Ohms
Input / Output Connectors	SMA			
Finish	Gold Plated			
Material	Aluminum / Copper			
Package Sealing	Epoxy Sealed (Standard)			
	Hermetically Sealed (Optional)			

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Absolute Maximum Ratings

Operating Voltage	+10V
RF Input Power	Psat - Gain

Biasing Up Procedure

Step 1	Connect Ground Pin
Step 2	Connect input and output
Step 3	Connect +10V biasing
Power OFF Procedure	
Step 1	Turn off +10V biasing
Step 2	Remove RF connection
Step 3	Remove Ground.

Environmental Specifications and Test Standards

Parameter	Standard	Description
Operational Temperature	MIL-STD-39016	-45℃~+85℃
Storage Temperature		-50℃~+125℃
Thermal Shock		1 Hour@ -45℃ → 1 Hour @ +85℃ (5 Cycles)
Electrical & Temperature Burn In		Temperature +85℃ for 72 Hours
Shock		1. Weight >20g, 50g half sine wave for 11ms, Speed variation 3.44m/s 2. Weight <=20g, 100g Half sine wave for 6ms, Speed variation 3.75m/s 3. Total 18 times (6 directions, 3 repetitions per direction).
Altitude		Standard: 30,000 Ft (Epoxy Sealed Controlled Environment) Optional: Hermetically Sealed (60,000 ft. 1.0 PSI min)
Hermetically Sealed (Optional)	MIL-STD-883	MIL-STD-883 (For Hermetically Sealed Units)
Random Vibration	MIL-STD-202	Test Method 214A. Test Condition I. Test Condition Letter C. Duration 15 minutes

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Ordering Information

Part No.	Description
R00G20GSPMB	0.01-20GHz Wide Band Power Amplifier

Amplifier Use

Ensure that the amplifier input and output ports are safely terminated into a proper 50 ohm load before turning on the power. Never operate the amplifier without a load. A proper 50 ohm load is defined as a load with impedance less than 1.9:1 or return loss larger than 10dB relative to 50 Ohm within the specified operating band width.

Power Supply Requirements

Power supply must be able to provide adequate current for the amplifier. Power supply should be able to provide 1.5 times the typical current or 1.2 times the maximum current (whichever is greater).

In most cases, RF - Lambda amplifiers will withstand severe mismatches without damage. However, operation with poor loads is discouraged. If prolonged operation with poor or unknown loads is expected, an external device such as an isolator or circulator should be used to protect the amplifier.

Ensure that the power is off when connecting or disconnecting the input or output of the amp.

Prevent overdriving the amplifier. Do not exceed the recommended input power level.

Adequate heat-sinking required for RF amplifier modules. Please inquire.

Amplifiers do not contain Thermal protection, Reverse DC polarity or Over voltage protection with the exception of a few models. Please inquire.

Proper electrostatic discharge (ESD) precautions are recommended to avoid performance degradation or loss of functionality.

What is not covered with warranty?

Each RF - Lambda amplifier will go through power and temperature stress testing.
Since the die, ICs or MMICs are fragile, these are not covered by warranty. Any damage to these will NOT be free to repair.

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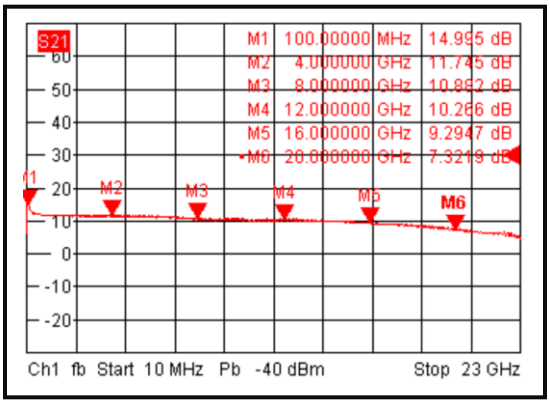
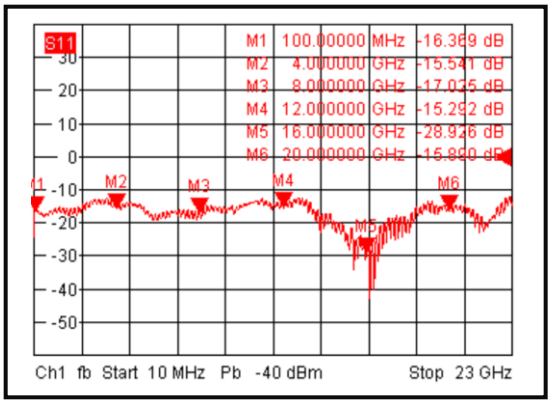
Typical Performance Plots

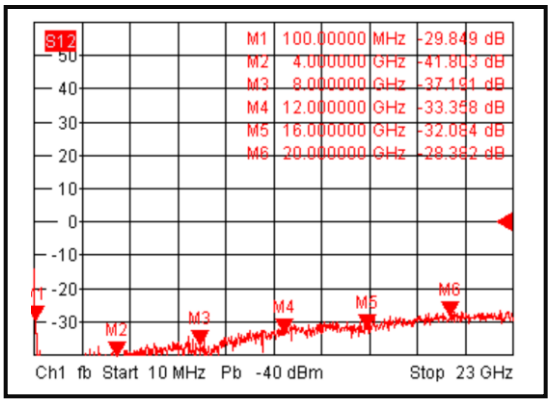
Gain



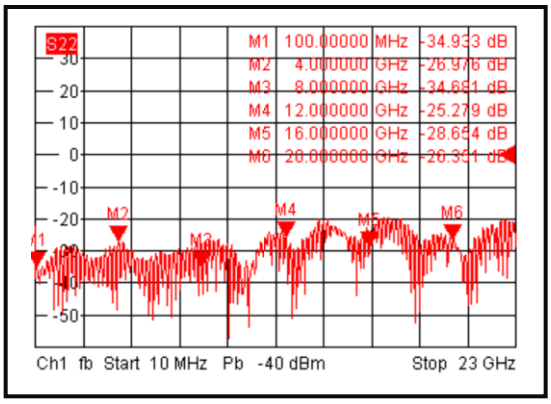
Input Return Loss



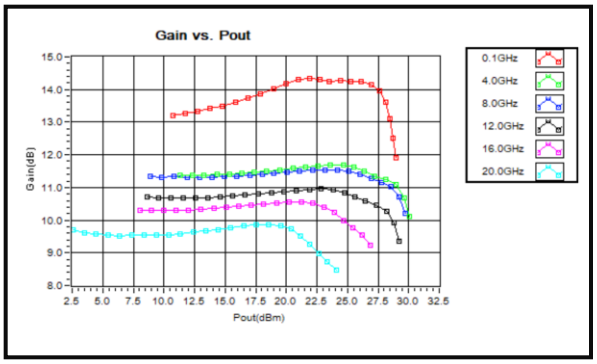
Isolation



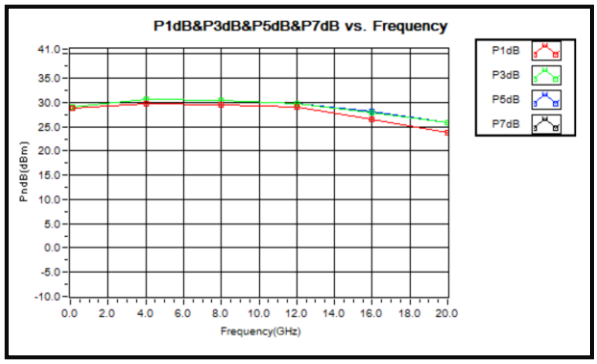
Output Return Loss



Gain vs. Output Power



PXdB vs. Frequency



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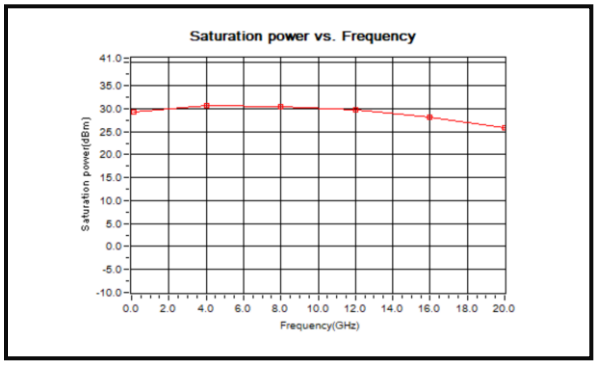
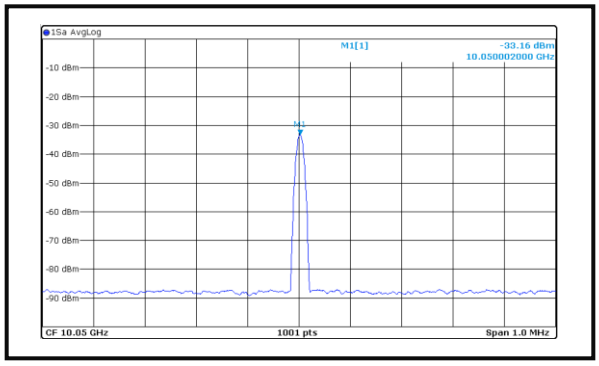
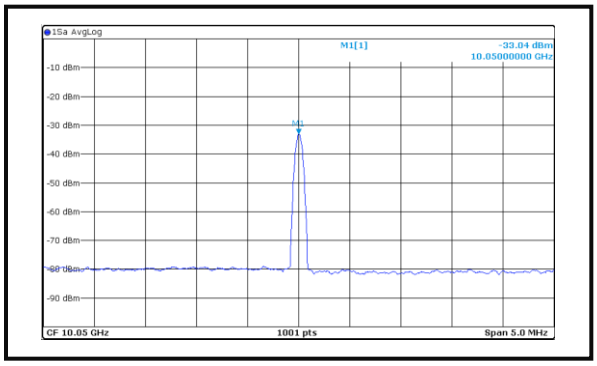
Output Power vs. Frequency



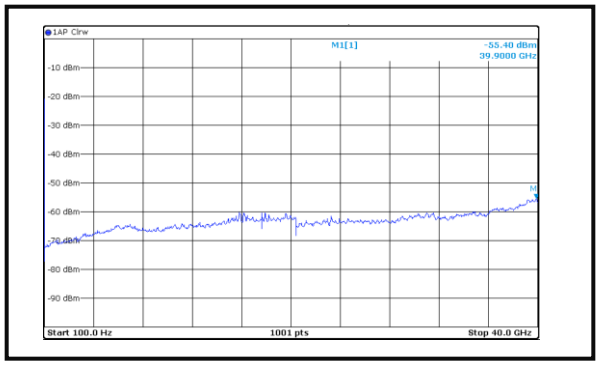
Side Band 1MHz Span



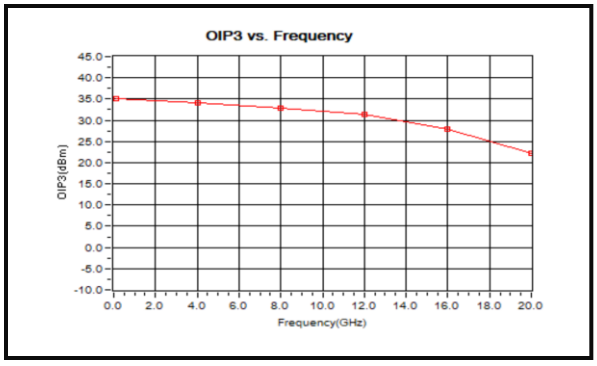
Side Band 5MHz Span



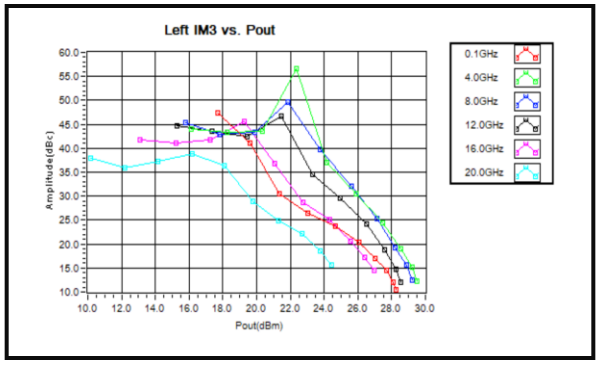
Oscillation 40GHz Span



OIP3 vs. Frequency



Left IM3 vs. Pout



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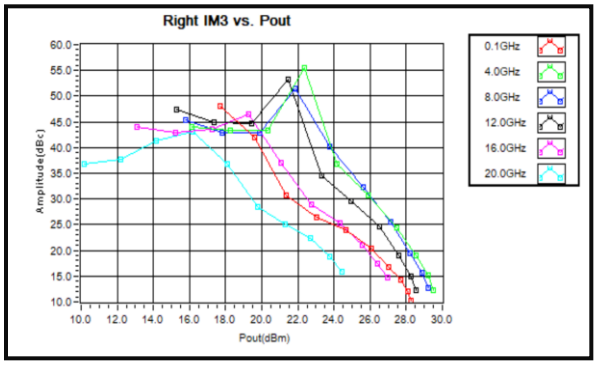
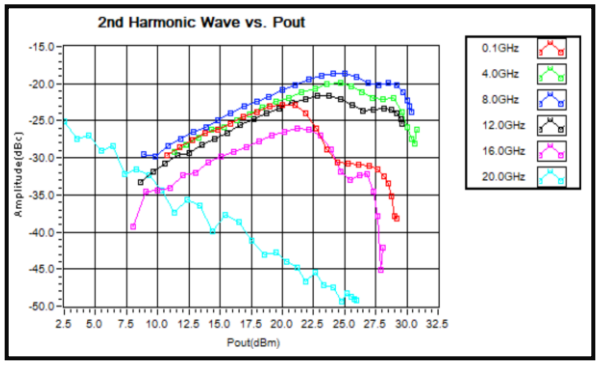
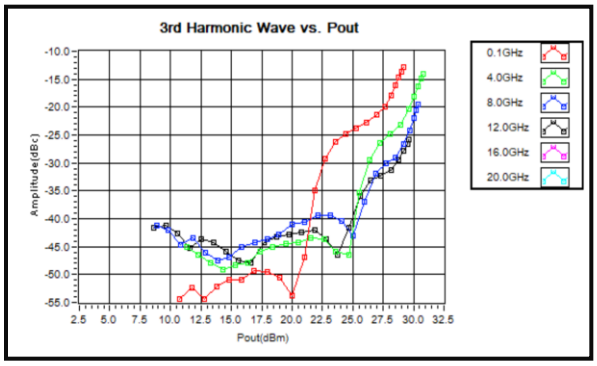
Right IM3 vs. Pout



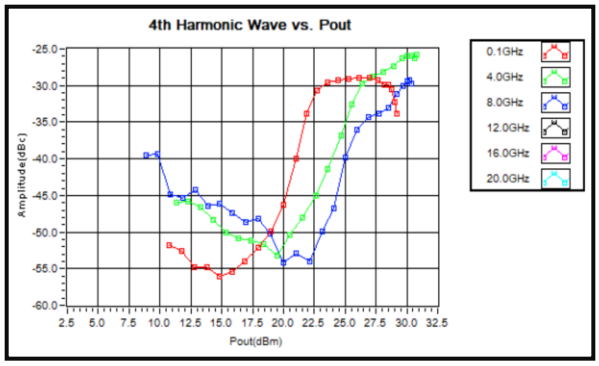
2nd Harmonic vs. Pout



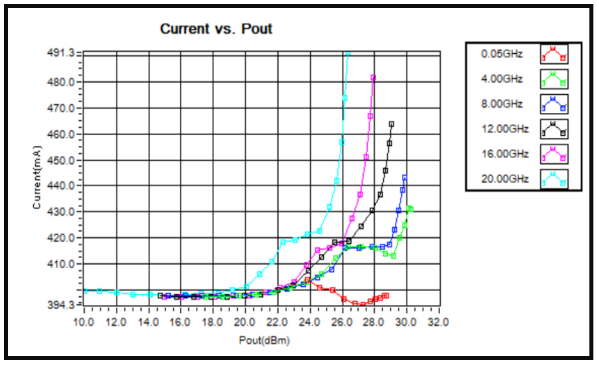
3nd Harmonic vs. Pout



4nd Harmonic vs. Pout



Current vs. Pout (CW)



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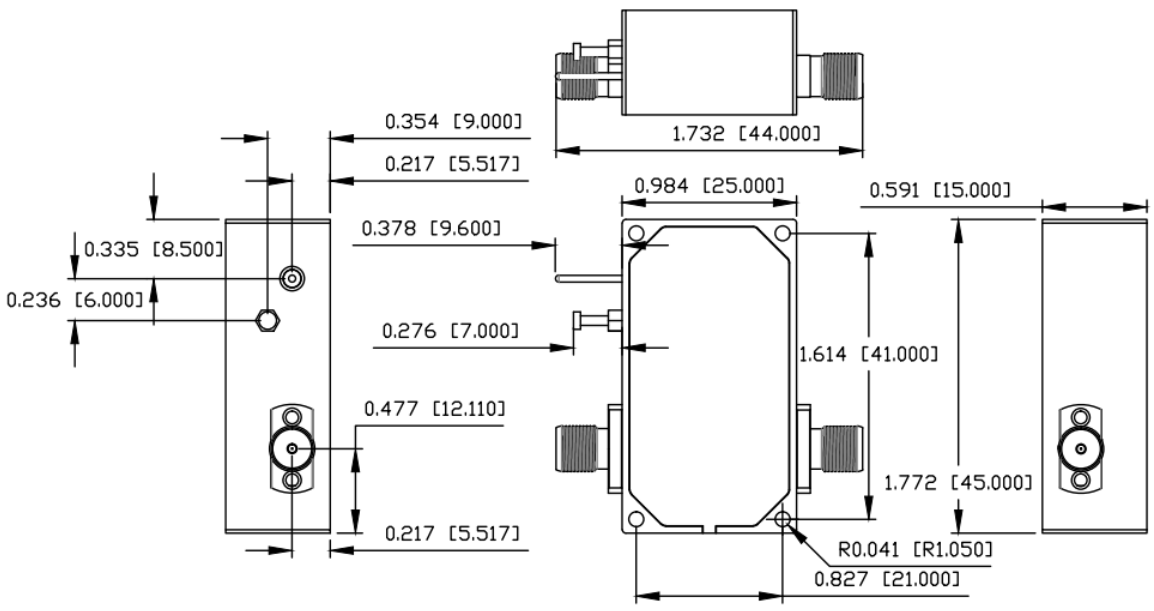
Outline Drawing:

All Dimensions in mm [inches]



Heat Sink required during operation (Sold Separately)

Important Notice