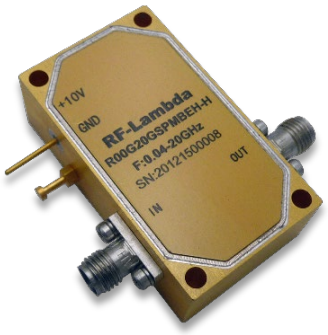
Hermetically Sealed
Wide Band Power Amplifier
0.04GHz ~ 20GHz



Features

- Gain: 10dB
- 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.	Min.	Typ.	Max.	Units
Frequency Range	0.01		20	20		23	GHz
Gain	9	11.5		9	10.5		dB
Gain Flatness		±1.5			±1.0		dB
Gain Variation Over Temperature (-40°C ~ +85°C)		±1.0			±1.0		dB
Input Return Loss		14			14		dB
Output 1dB Compression Point (P1dB)		29			29		dBm
Saturated Output Power (Psat)		29.5			29.5		dBm
Supply Current (Vcc=+10V)		400			400		mA
Efficiency at P1dB		15			5		%
Weight	1.8 Max.						ounces
Impedance	50						Ohms
Input / Output Connectors	SMA-Female						
Finish	Gold Plated						
Material	Aluminum						
Package Sealing	Hermetically Sealed (Laser Welded)						

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Absolute Maximum Ratings

Operating Voltage	+10.5V
RF Input Power	+25dBm

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	Description
Operational Temperature	-40℃~+85℃ (Case Temperature)
Storage Temperature	-50℃~+105℃
Thermal Shock	-40℃ → +85℃ (5 Cycles / 10 hours)
Random Vibration	MIL-STD-202G Table 214-I, Test Condition Letter C 1.5 Hours Per Axis
High 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 (For Hermetically Sealed Units)

Ordering Information

Part No.	Description
R00G20GSPMBEH-H	0.04-20GHz 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.

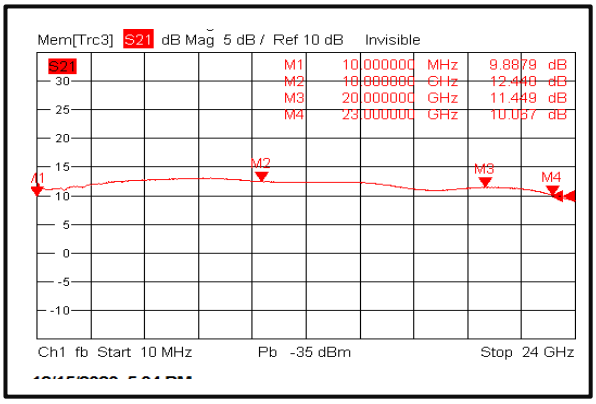
Proper electrostatic discharge (ESD) precautions are recommended to avoid performance degradation or loss of functionality.

What is not covered with warranty?

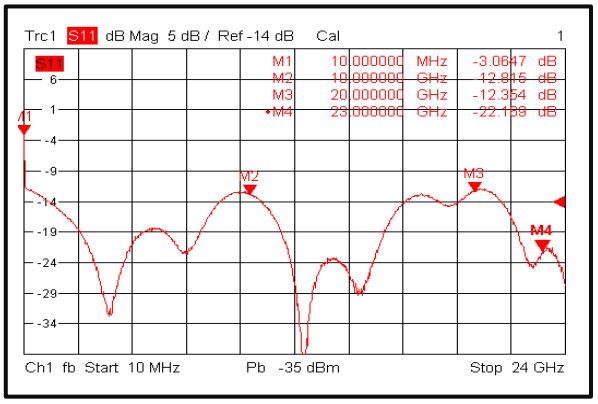
Each RF - Lambda amplifier will go through power and temperature stress testing.
Since the die, ICs or MMICs are fragile, these are not covered by warranty. Any damage to these will NOT be free to repair.

Typical Performance Plots

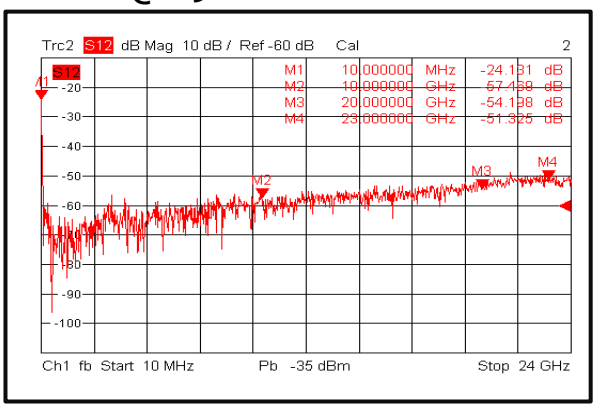
Gain@+25℃



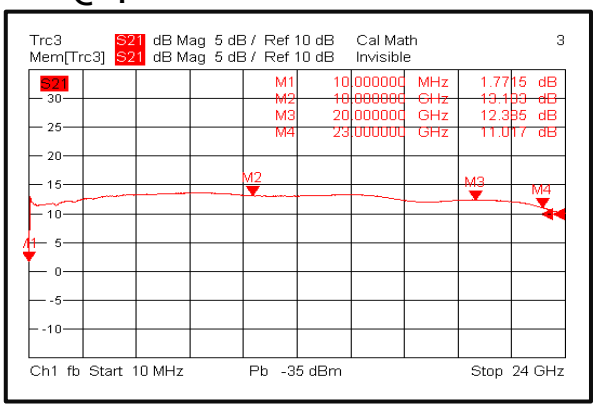
Input Return Loss @+25℃



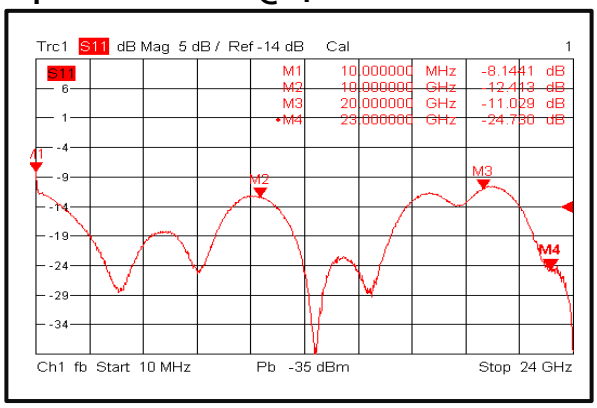
Isolation@+25℃



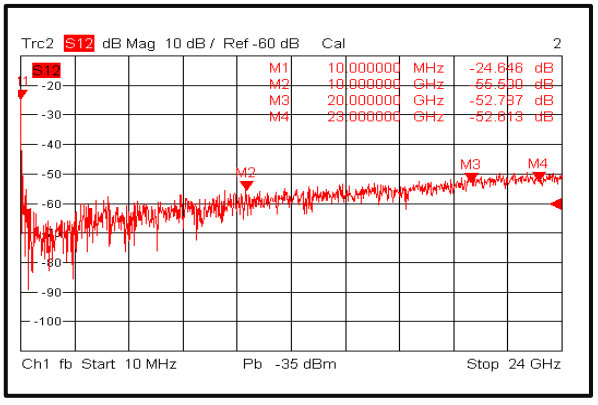
Gain@-40℃



Input Return Loss @-40℃



Isolation@-40℃



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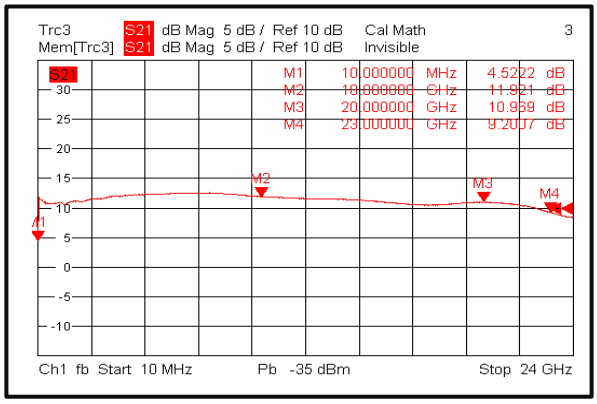
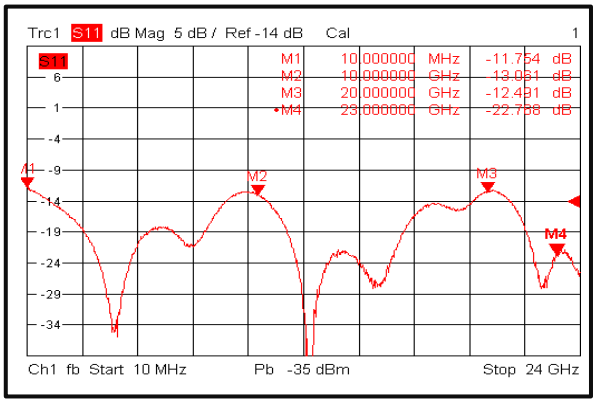
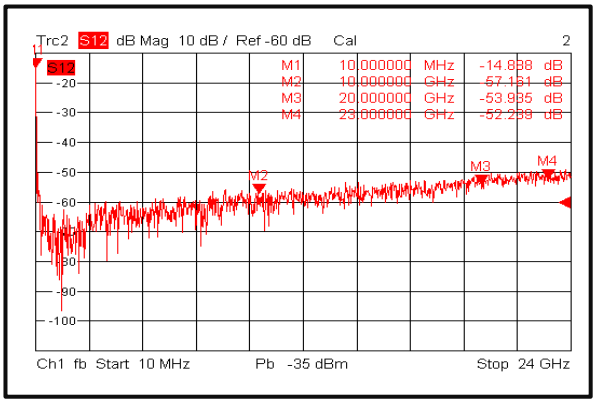
Gain@+85℃



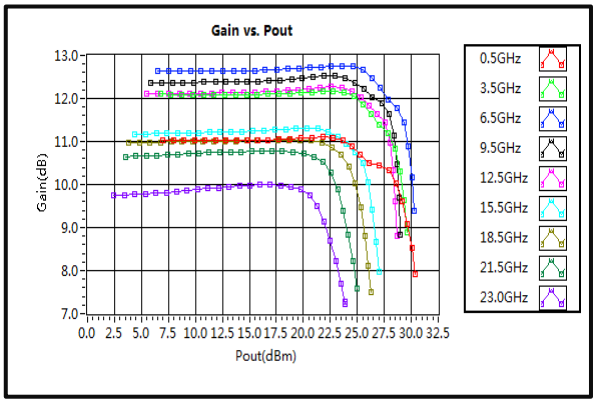
Input Return Loss @+85℃



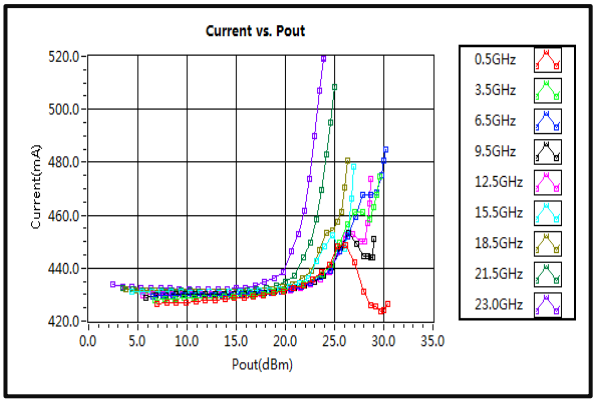
Isolation@+85℃



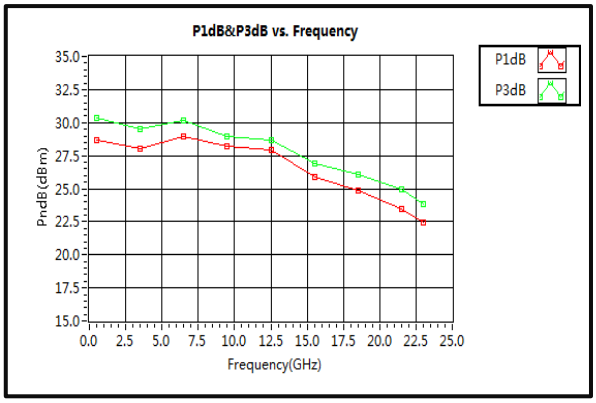
Gain vs. Output Power



Current



P1dB & P3dB vs. Frequency



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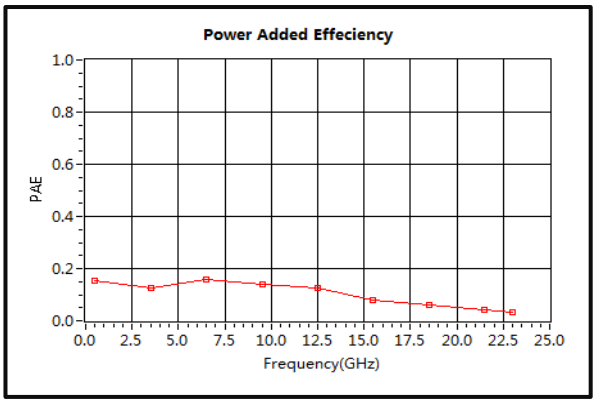
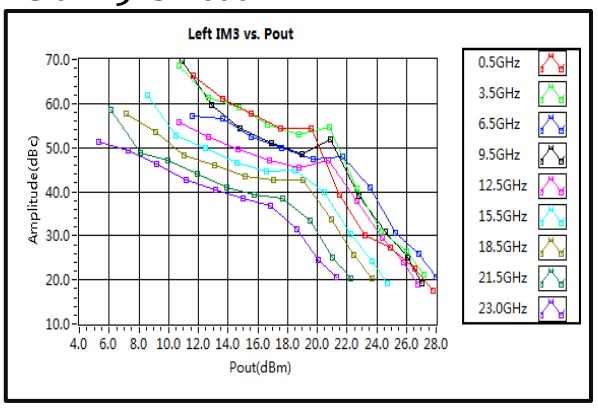
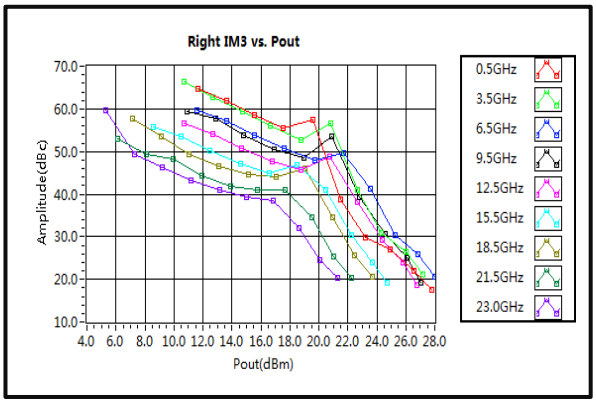
Power Added Efficiency



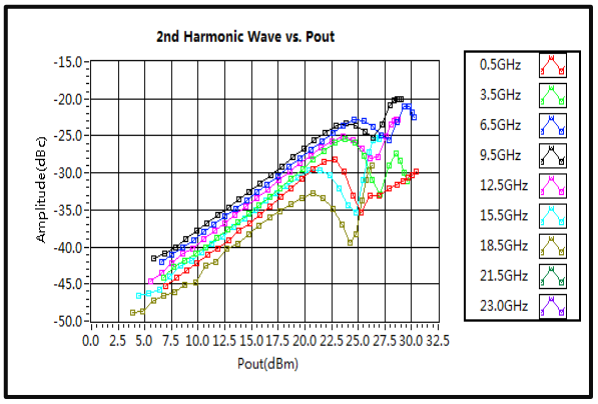
Left IM3 vs. Pout



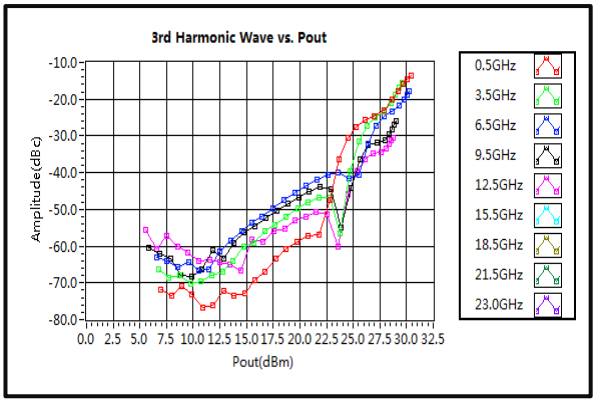
Right IM3 vs. Pout



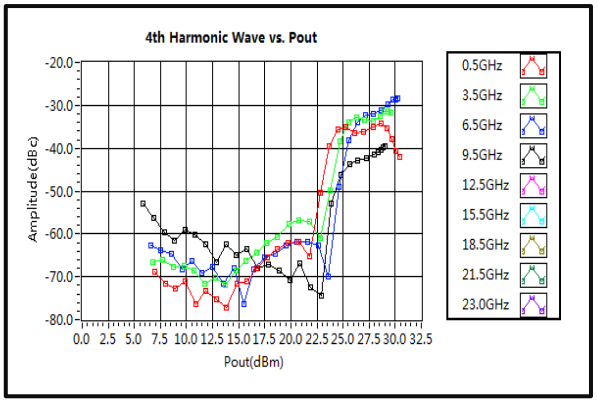
2nd Harmonic Wave Output Power



3rd Harmonic Wave Output Power

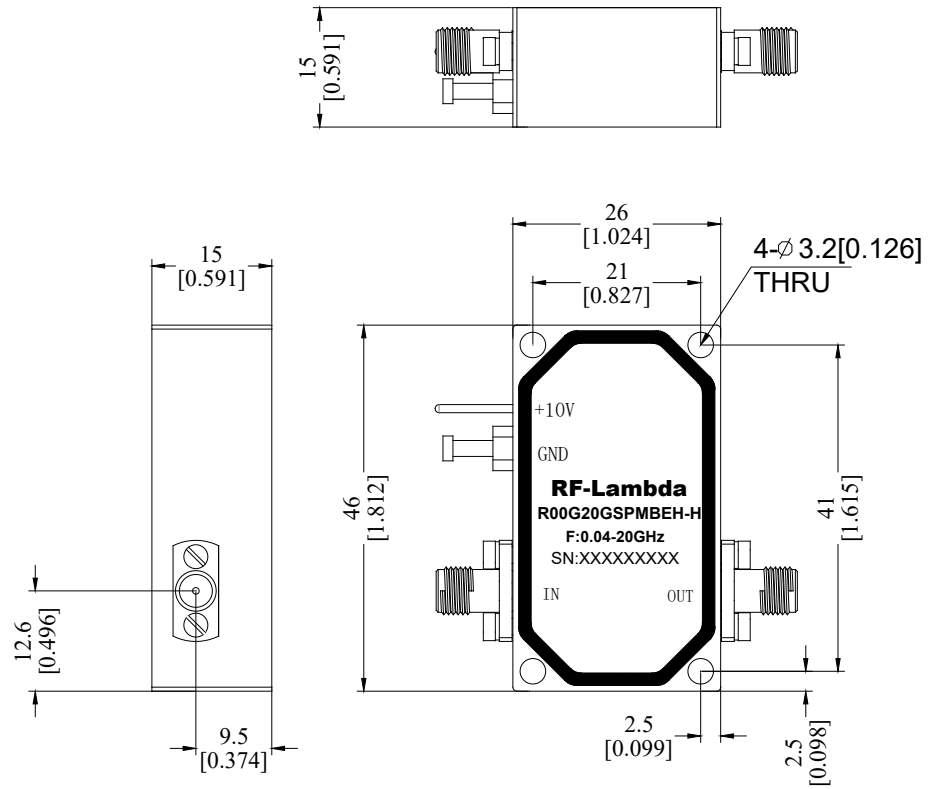


4th Harmonic Wave Output Power



Outline Drawing:

All Dimensions in mm [inches]
Housing Tolerances ± 0.1 [0.004]



Heat Sink required during operation (Sold Separately)

Important Notice

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