



4W Ultra Wide Band Power Amplifier 0.1GHz~22GHz



Feature

- Gain: 10dB typical
- Output power +31dBm typical
- High P1dB: +34.5 dBm Full Band
- Supply Voltage: -5V & +28V @ 700 m A
- 50 Ohm Matched Input / Output

Typical Applications

- Wireless Infrastructure
- RF Microwave & VSAT
- Military & Aerospace
- Test Instrument
- Fiber Optics

Parameter	Min	Typ	Max	Min	Typ	Max	Units
Frequency Range	0.1~10			11~22			GHz
Gain	10	11	12	10	12	13	dB
Gain Variation Over Temperature		1	3		1	3	dB
Noise Figure		4			5		dB
Input Return Loss		19			19		dB
Output Return Loss		25			25		dB
Output Power For 1dB Compression (P1dB)	32	33	34.5	27	30	33	dBm
Output Power For 3dB Compression (P3dB)	33	35	36	29	33	34	dBm
Saturated Output Power (Psat)		36			36		dBm
Supply Current (Idd) (Vdd=+28V)	500	700	750	500	700	750	mA
Positive Power Supply		28	28.5		28	28.5	V
Negative Power Supply	-5	-5	-5.2	-5	-5	-5.2	V
Isolation S12	79	85	94	76	86	94	dB
Input Max		30			30		dBm
Weight	34						g
Impedance	50						Ohms
Input /Output Connector	SMA-Female						
Finishing	Gold plating						
Material	Aluminum/copper						

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Absolute Maximum Ratings	
Drain Biasing	+30Vdc
Gate Biasing	-5V to -5.2Vdc
RF Input Power (RFIN)	+30 dBm
Storage Temperature(C°)	-50 to +125

Note: Maximum RF input power is set to assure safety of amplifier. Input power may be increased at own risk to achieve full power of amplifier. Please reference gain and power curves

Biasing On Procedure	
No. 1	Connect input and output with 50 Ohm source/load. (in band VSWR<1.9:1 or >10dB return loss)
No. 2	Connect -5 Vdc. Negative supply should never go higher (less negative) than -5Vdc
No. 3	Connect +28 Vdc
No. 4	Current on +28V power supply should not exceed 750mA when input power is applied.
No. 5	Must have a heatsink and working fan to cool the unit.
No.6	Follow reverse order when turning off

Environment specifications	
Operational Temperature (C°)	-45 ~ +85(Case Temperature must be less than 85C all time)
Altitude	30,000 ft. (Epoxy Seal Controlled environment)
	60,000 ft 1.0psi min (Hermetically Seal Un-controlled environment) (Optional)
Vibration	25g rms (15 degree 2KHz) endurance, 1 hour per axis
Humidity	100% RH at 35c, 95%RH at 40°c
Shock	20G for 11msc half sin wave,3 axis both directions

Ordering Information	
Part No	Description
R00G22GSPA	0.1GHz~22GHz 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 of RF-Lambda amplifiers will go through power and temperature stress testing. Due to fragility of the die, IC or MMIC, those are not covered by warranty. Any damage to those will NOT be free to repair.

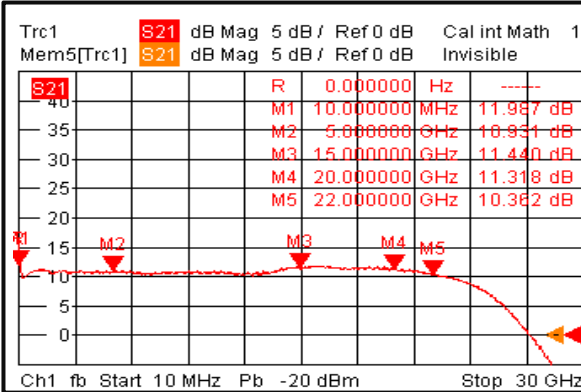


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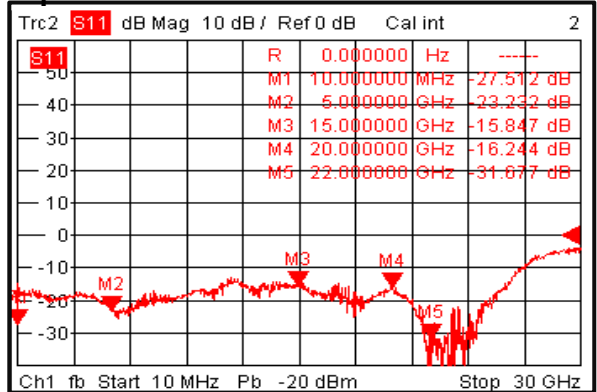
The power beyond expectations

RO0G22GSPA

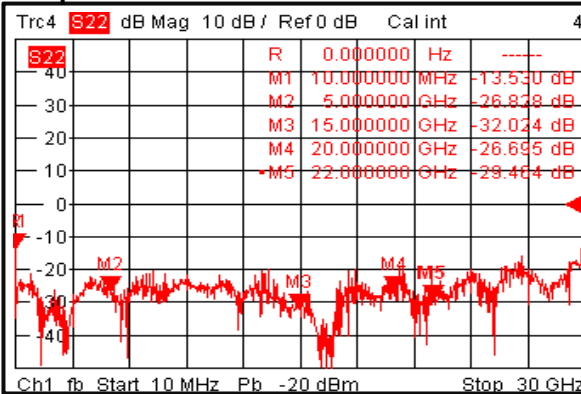
Gain



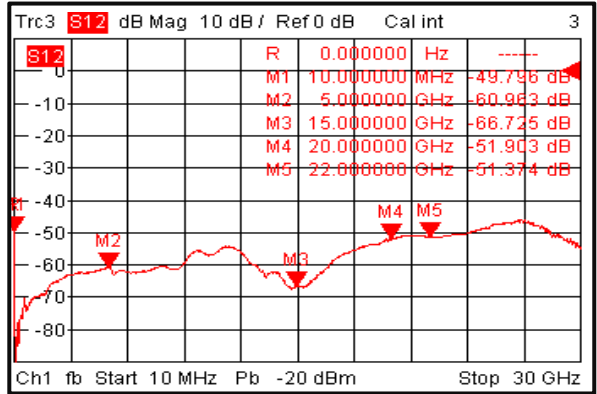
Input Return Loss



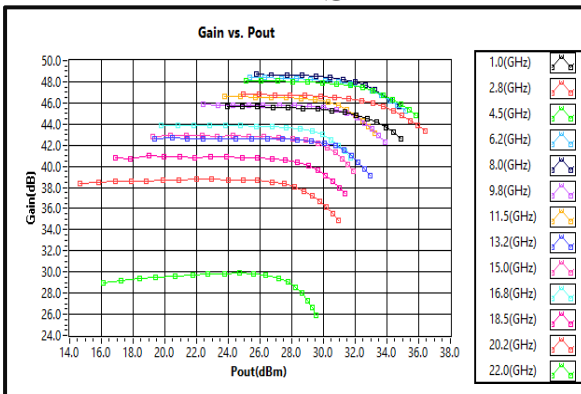
Output Return Loss



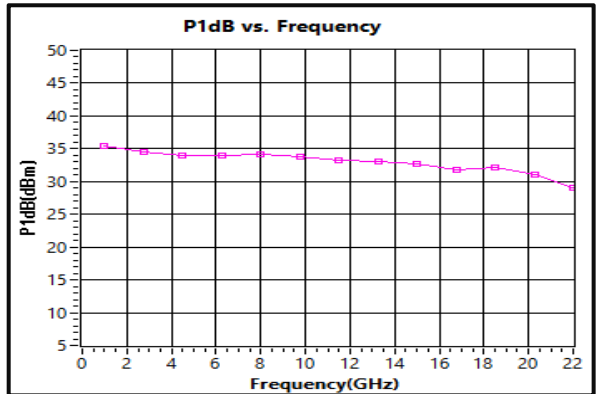
Isolation



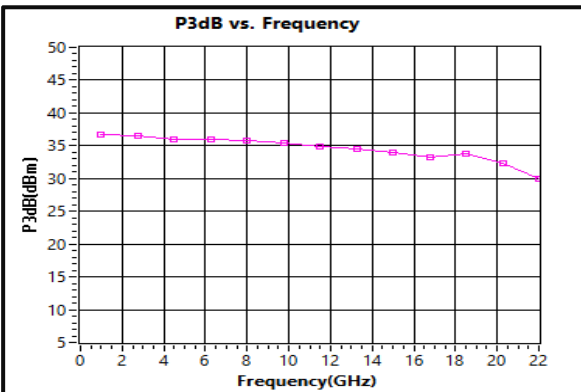
Gain vs. output power (gain includes preamp)



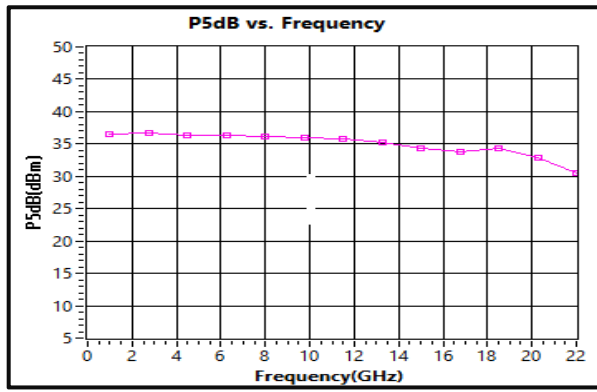
P1dB vs. Frequency



P3dB vs. Frequency



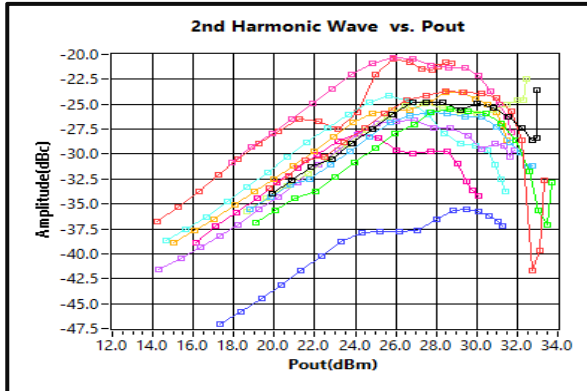
P5dB vs. Frequency



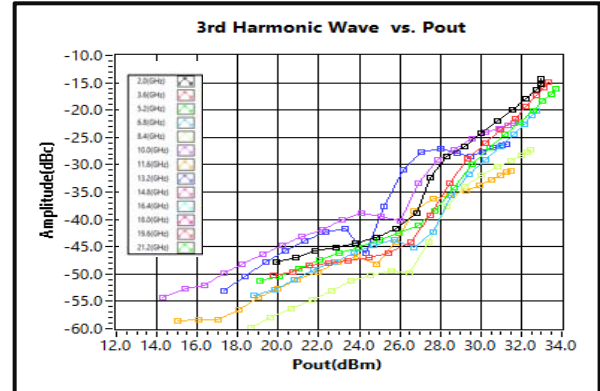
Ultra Wide Band 4W Power Amplifier 0.1-22GHz



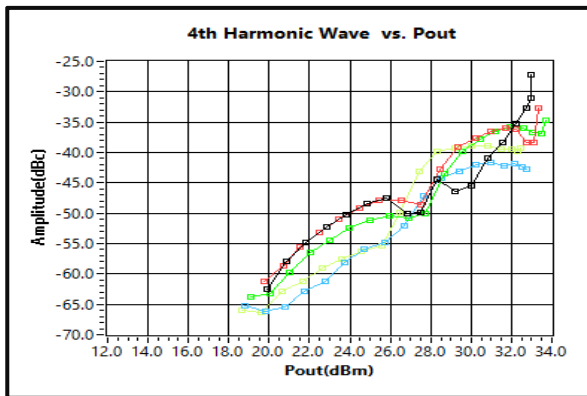
2nd Harmonic Wave output Power



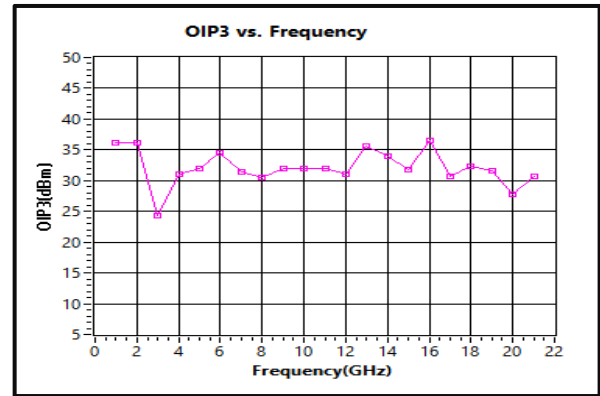
3rd Harmonic Wave output Power



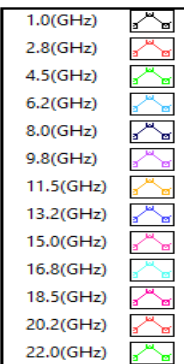
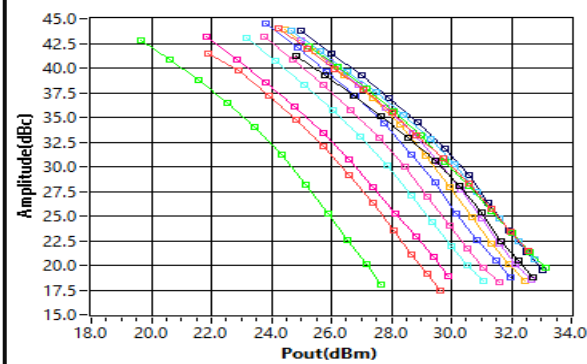
4th Harmonic Wave output Power



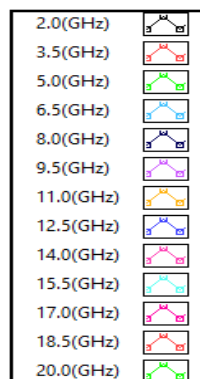
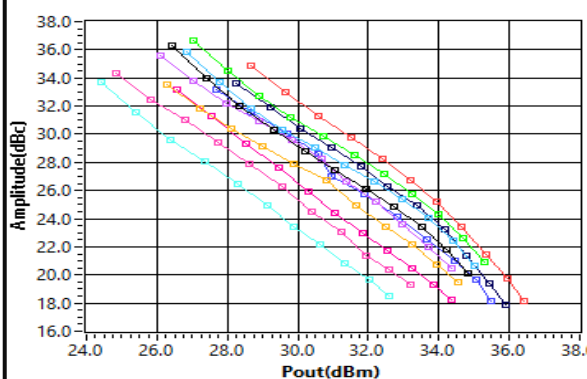
Output Third Order Intercept (IP3)



IM3 Test (dBc) vs. Pout (dBm)



IM3 Test (dBc) vs. Pout (dBm)



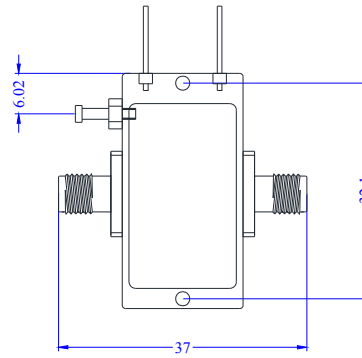
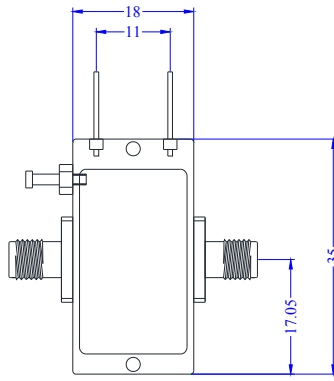
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RF-LAMBDA

The power beyond expectations

R00G22GSPA



Outline Drawing:
All Dimensions in mm

Heat Sink required during operation

Important Notice

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