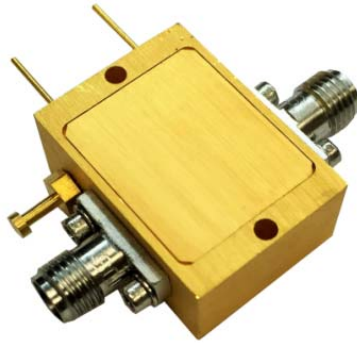




8W Ultra Wide Band Power Amplifier 2GHz~20GHz



Feature

- Gain: 8 dB typical
- High Psat: +38 dBm at 5GHz
- Supply Voltage: +28V @ 850mA
- 50 Ohm Matched Input / Output

Typical Applications

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

Electrical Specifications, TA = +25 ° C, With Vcc = +28V, 50 Ohm System

Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	2		6	6		18	18		20	GHz
Gain	7	8.5	9.5	6.5	8.4	9	6	7	7.5	dB
Gain Flatness		±0.5			±0.5			±0.5		dB
Gain Variation Over Temperature (-45 ~ +85)		±1			±1			±1		dB
Input Return Loss		-8			-8			-15		dB
Output Return Loss		-10			-12			-12		dB
Noise Figure		10			6.5			9		dB
Output Power for 1 dB Compression (P1dB)	35	36.5	37	33.5	34.5	36.5	34.5	35	35.5	dBm
Saturated Output Power (P3dB)	37	38	38.5	35	36	38	36	36.5	37	dBm
Output Third Order Intercept (IM3)										dBm
Supply Current (Idd) (Vcc=+28V)		850			850			850		mA
Efficiency at P1dB		/			/			/		%
Isolation S12	-80	-70	65	-70	-60	-40	-45	-40	-35	dB
Input Max Power(no damage)			34			34			34	dBm
Weight	34									g
Impedance	50									Ohms
Input /Output Connector	SMA-Female(Option with 2.92mm)									
Finishing	Standard: Gold 40 micron; Nickel 220 micron thickness									
	Option: Gold 80 micron; Nickel 180 micron thickness									
Material	Aluminum/copper									
Package Sealing	Epoxy Sealing (Standard)									
	Hermetically Seal (Option with extra charge)									



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 fragile of the die, IC or MMIC, those are not covered by warranty. Any damage to those will NOT be free to repair.



RF-LAMBDA

The power beyond expectations

R02G20GSPA

Absolute Maximum Ratings

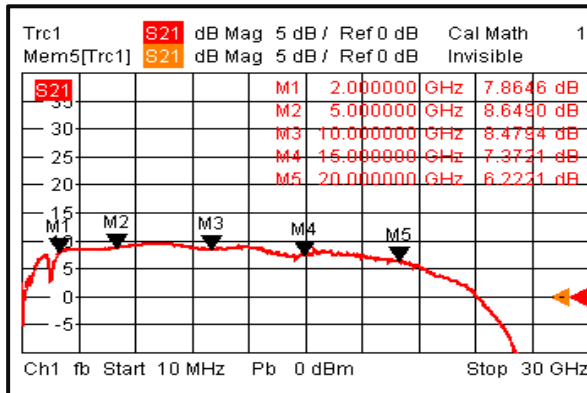
Drain Biasing	+32 Vdc
Gate Biasing	-8 ~ 0 Vdc
RF Input Power (RFIN)	34dB m
Storage Temperature(C°)	-55 to +125

Environment specifications

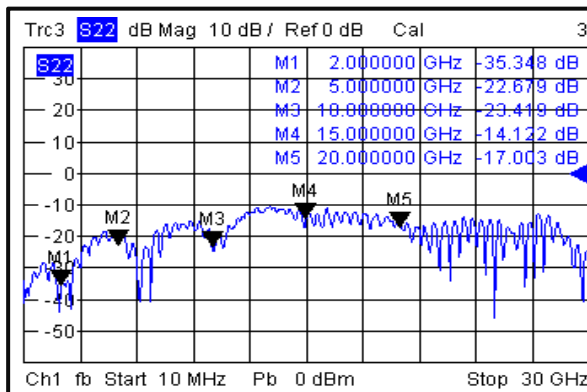
Operational Temperature (C°)	-45 ~ +85
Storage Temperature (C°)	-50 ~ +125
Altitude	30,000 ft. (Epoxy Seal Controlled environment)
	60,000 ft 1.opsi min (Hermetically Seal Un-controlled environment) (Optional)
Vibration	25g rms (15 degree 2KHz) endurance, 1 hour per axis
Humidity	100% RH at 35c, 95%RH at 40°c
Shock	20G for 11msc half sin wave,3 axis both directions

performance plots

Gain



Output Return Loss

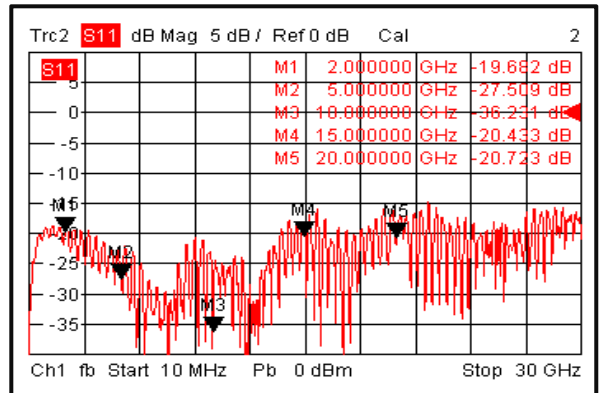


Biasing Up Procedure

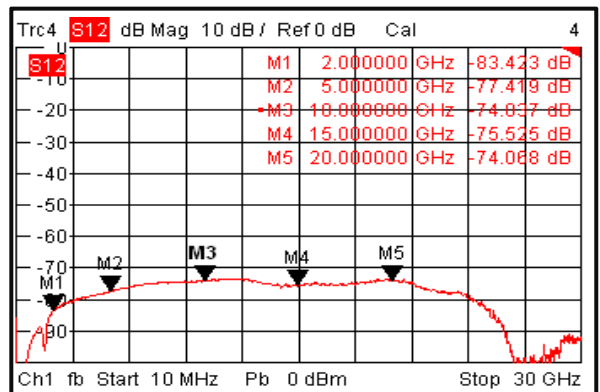
Biasing On Procedure	
Step 1	Make sure the input and output of amplifier are connected to 50Ohm source and load, with >15W power ranking on the load
Step 2	Connect -4V to VG
Step 3	Connect +28V to VD
Step 4	Tune VG in steps of .01V towards 0V and stop when drain current reaches 800 mA

Biasing Off Procedure	
Step 1	Gradually tune VG to -4V
Step 2	Turn off the VD
Step 3	Turn off the VG

Input Return Loss



Isolation



Ultra Wide Band 8W Power Amplifier 2-20GHz

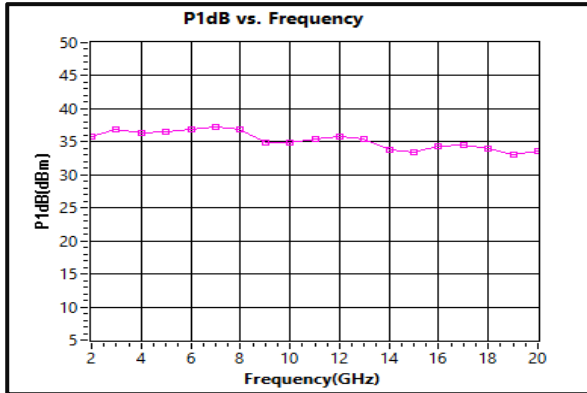


RF-LAMBDA

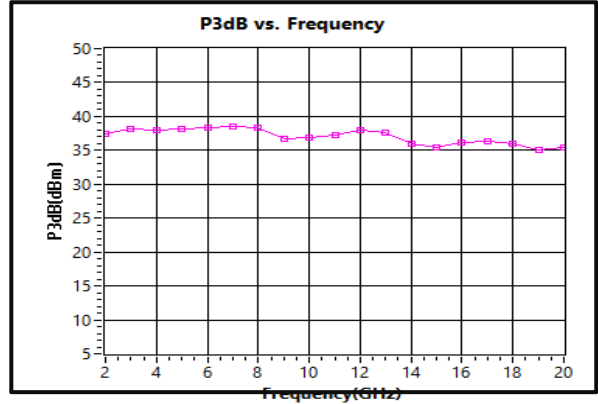
The power beyond expectations

R02G20GSPA

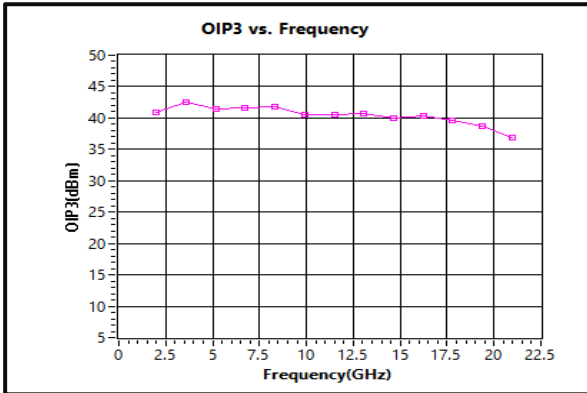
P1dB vs. Frequency



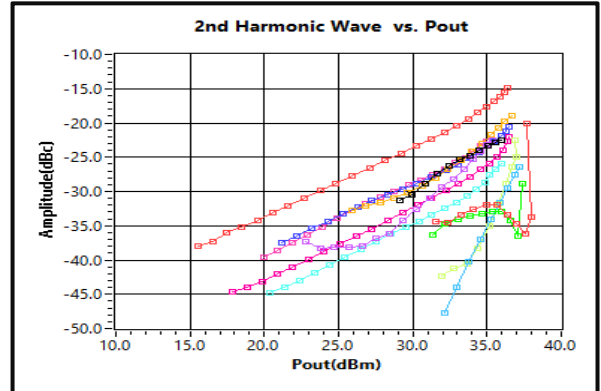
P3dB vs. Frequency



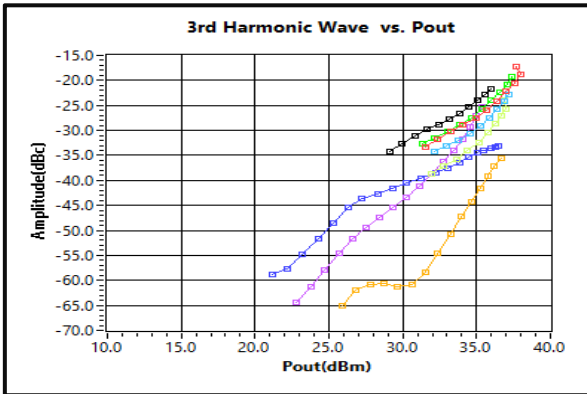
Output Third Order Intercept (IP3)



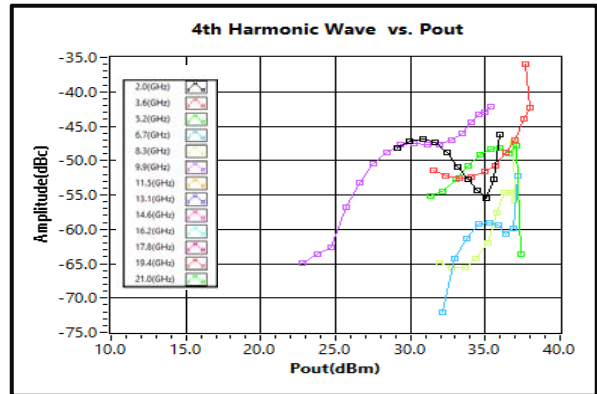
2nd Harmonic Wave output Power



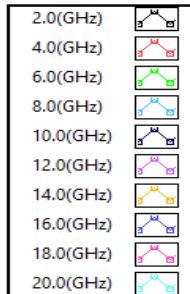
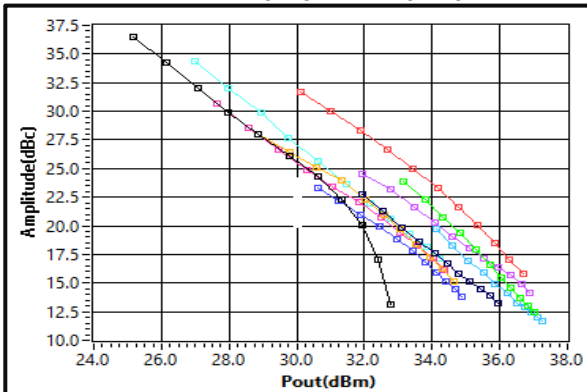
3rd Harmonic Wave output Power



4th Harmonic Wave output Power



IM3 Test (dBc) vs. Pout (dBm)



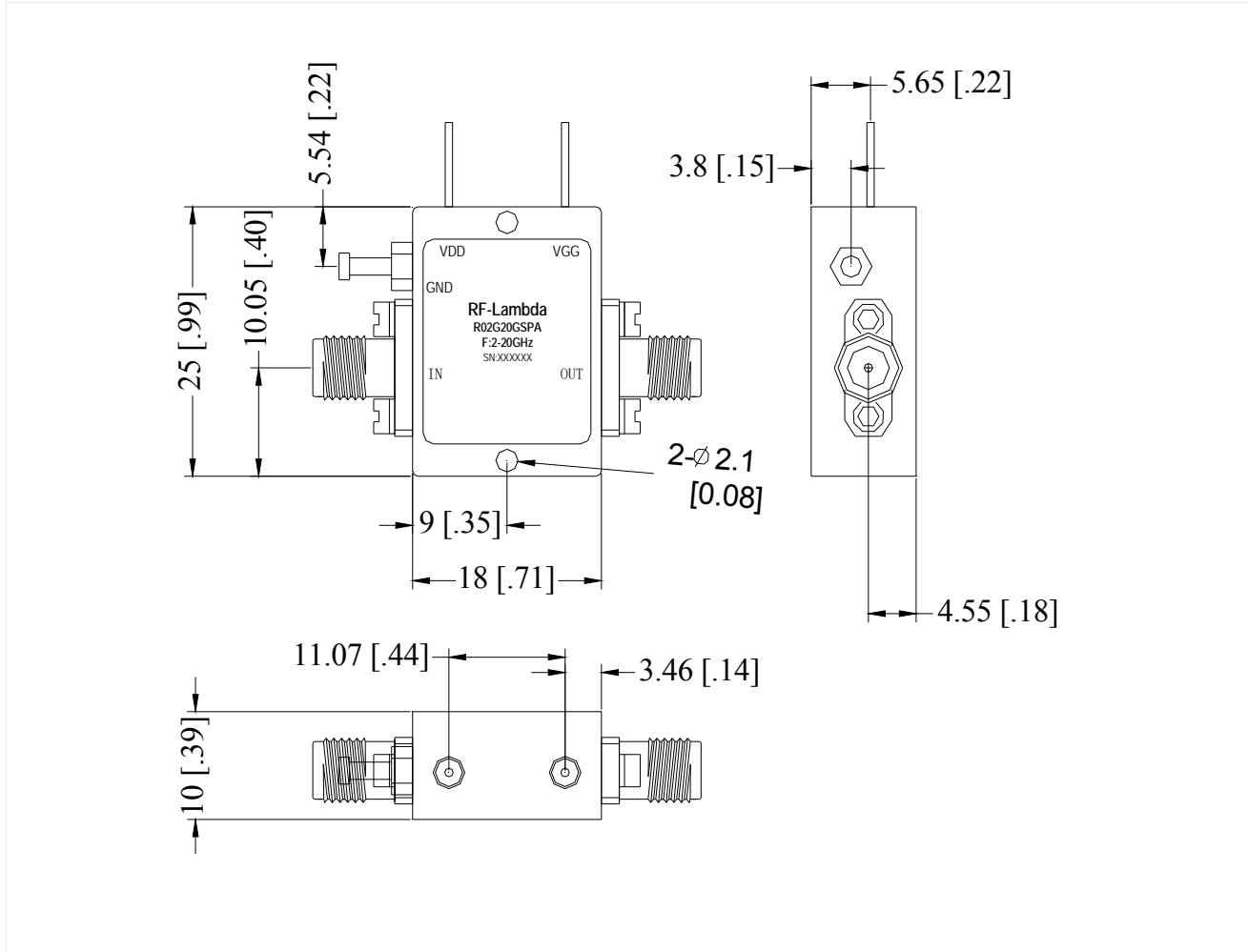
Ultra Wide Band 8W Power Amplifier 2-20GHz



Outline Drawing:

All Dimensions in mm (inches)

Heat Sink required during operation



Ultra Wide Band 8W Power Amplifier 2-20GHz

Ordering Information

Part No	ECCN	Description
R02G20GSPA	3A001	2-20GHz Power Amplifier

Important Notice

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