



RF-LAMBDA

LEADER OF RF BROADBAND SOLUTIONS

R35G70GSC

Wide Band Ultra High Frequency Amplifier 35GHz~70GHz



Features

- Wideband Solid State Power Amplifier
- P1dB: +19dBm
- Gain: 20dB
- Supply Voltage: +12V

Typical Applications

- Wireless Infrastructure
- Military & Aerospace Applications
- Test Instrumentation

Electrical Specifications, $T_A = +25^\circ\text{C}$, $V_{CC} = +12\text{V}$

Parameter	Min.	Typ.	Max.	Units
Frequency Range	35 – 70			GHz
Gain		20		dB
Gain Flatness		± 3		dB
Gain Variation Over Temperature ($-45^\circ\text{C} \sim +85^\circ\text{C}$)		± 5		dB
Input Return Loss		12		dB
Output Return Loss		10		dB
Output 1dB Compression Point (P1dB)		19		dBm
Supply Current (+12 VDC)		0.35		A
Isolation S12		60		dB
Output Third Order Intercept (IP3)		27		dBm
Weight		-		g
Impedance		50		Ohms
Input / Output Connectors	1.85mm-Female			
Finish	Gold Plated			
Material	Aluminum / Copper			
Package Sealing	Epoxy Sealed (Standard)			
	Hermetically Sealed (Optional)			

* P1dB, P3dB and Psat power test signal: 200 μ s pulse width with 10% duty cycle.

* For average CW power testing or increased duty cycle, a 5dB back off from Psat is required unless water/oil cooling system is applied.

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Absolute Maximum Ratings

Supply Voltage	+13Vdc
RF Input Power (RFIN) Pin_max = Psat - Gainsat	Psat – Gain

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 Up Procedure

Step 1	Connect ground
Step 2	Connect input and output with 50 Ohm source/load. (in band VSWR<1.9:1 or >10dB return loss)
Step 3	Connect +12V
Power OFF Procedure	
Step 1	Turn off +12V
Step 2	Remove RF connection
Step 3	Remove ground

Environmental Specifications and Test Standards

Parameter	Standard	Description
Operational Temperature	MIL-STD-39016	-45°C~+85°C
Storage Temperature		-55°C~+125°C
Thermal Shock		1 Hour@ -45°C → 1 Hour @ +85°C (5 Cycles)
Random Vibration		Acceleration Spectral Density 6 (m/s) Total 92.6 RMS
Electrical & Temperature Burn In		Temperature +85°C 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	MIL-STD-883	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)

Note: The operating temperature for the unit is specified at the package base. It is the user's responsibility to ensure the part is in an environment capable of maintaining the temperature within the specified limits



Ordering Information

Part No.	Description
R35G70GSC	35GHz~70GHz Wide Band Ultra High Frequency 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?

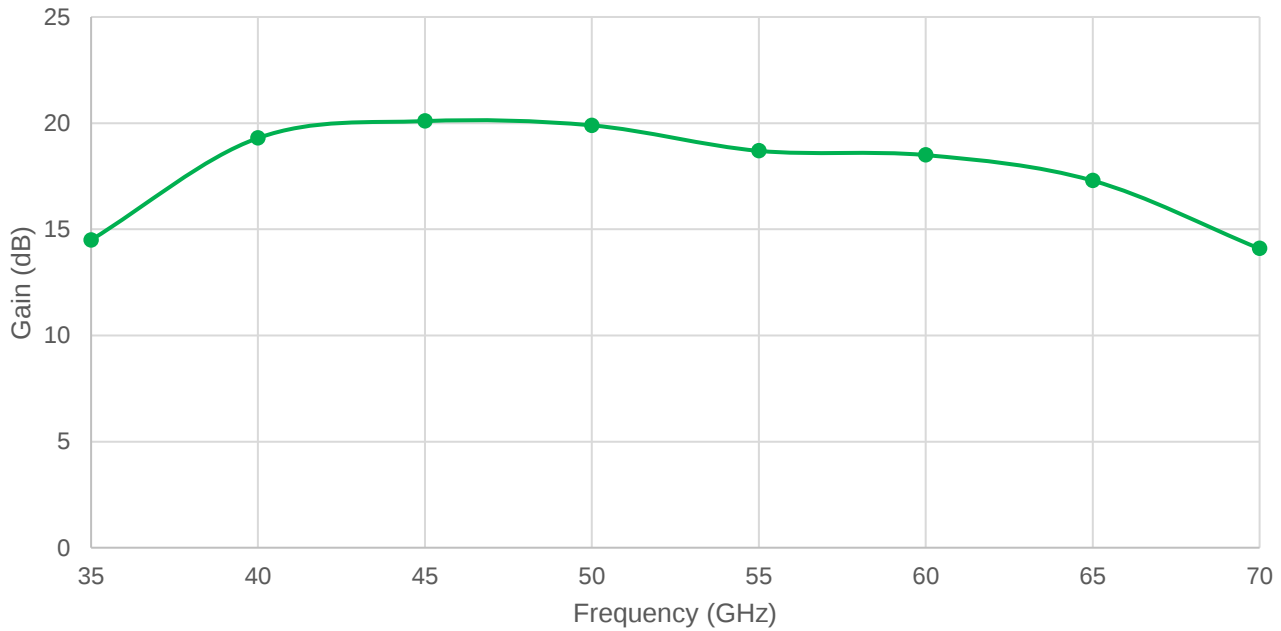
Each of RF-Lambda amplifiers will go through power and temperature stress testing.

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

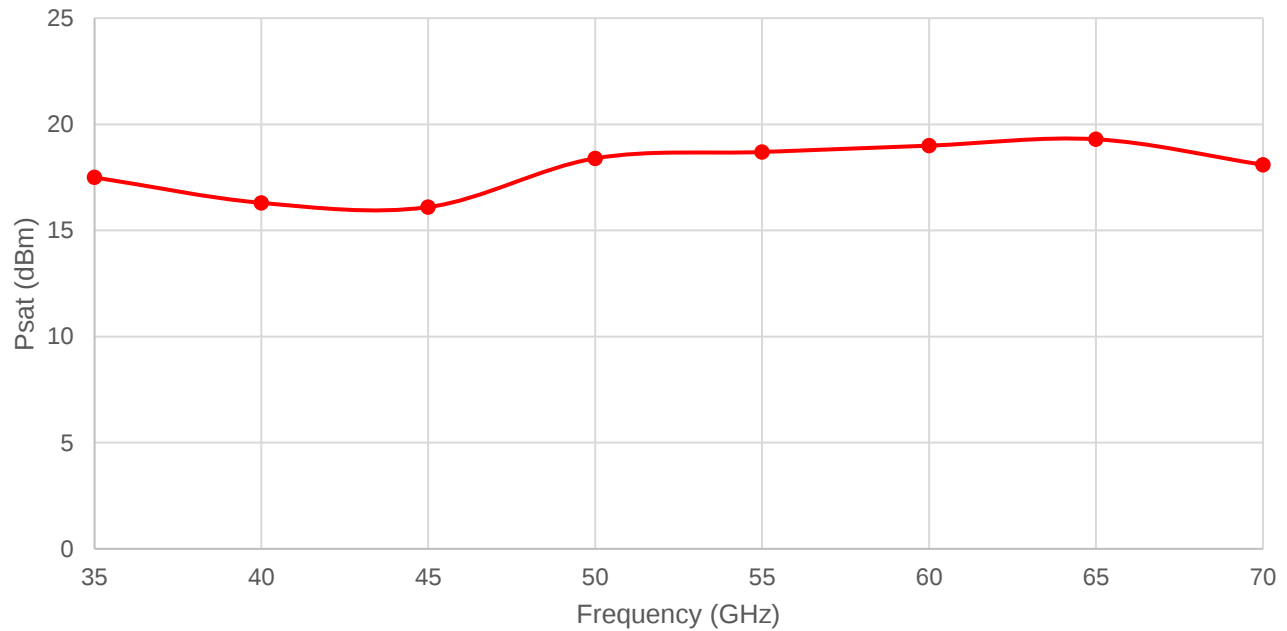


Typical Performance Plots

Gain vs Frequency

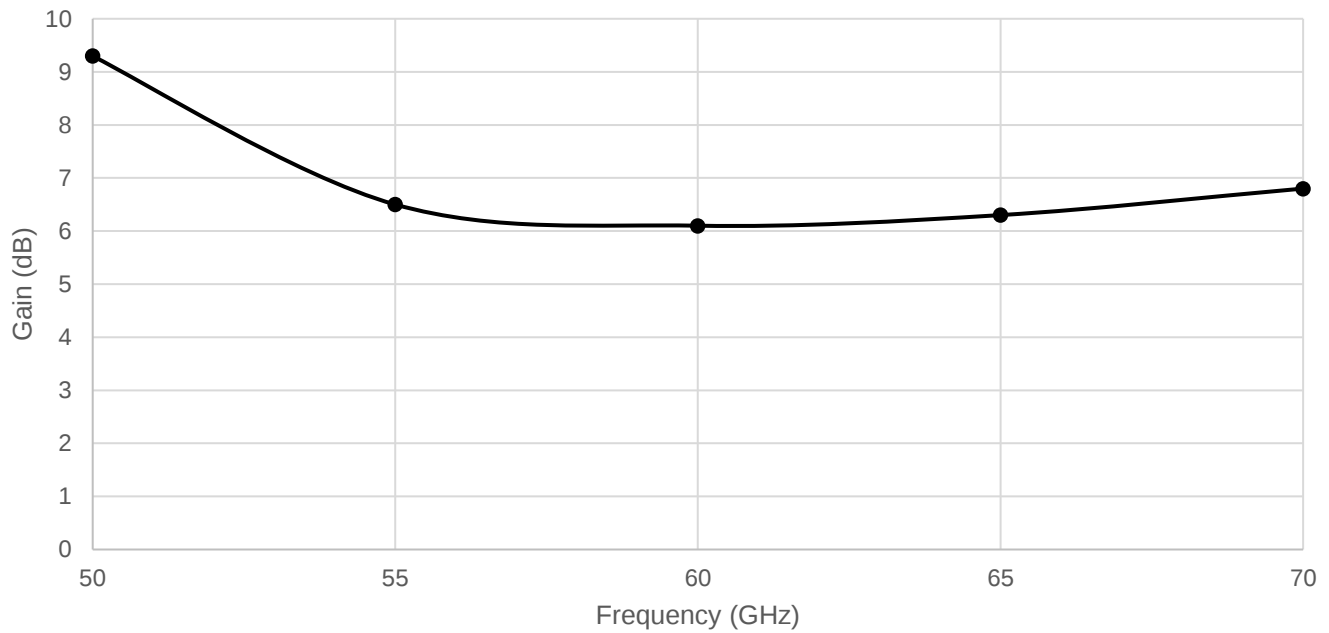


P1dB vs Frequency





Noise Figure vs Frequency

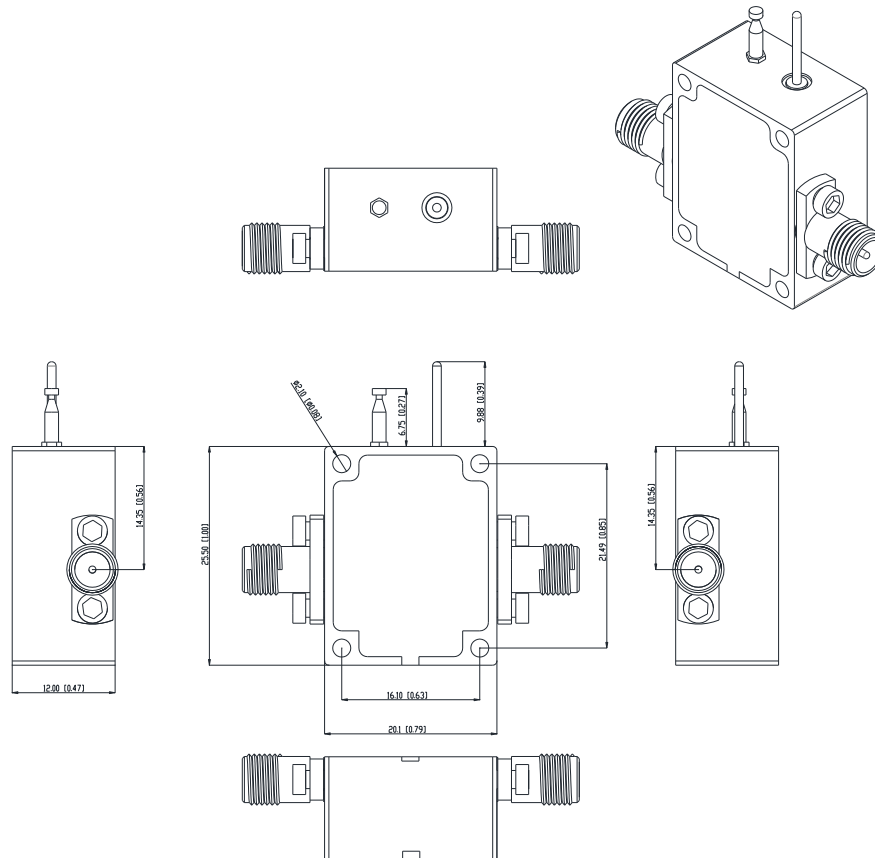




R35G70GSC

Outline Drawing:

All Dimensions in mm [inches]



Heat Sink required during operation (Sold Separately)



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RF-Lambda products are not warranted or authorized for use as critical components in medical, life-saving, or life sustaining applications, or other applications where a failure would reasonably be expected to cause severe personal injury or death.

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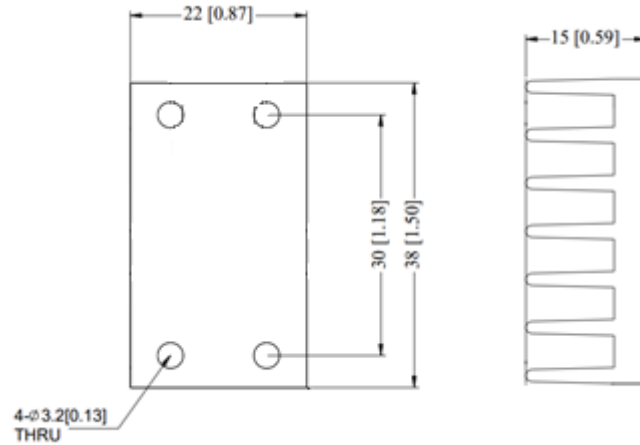
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Heatsink Outline Drawing:

All Dimensions in mm [inches]



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