



## Wide Band Low Noise Amplifier 50 - 69GHz



### Features

- Gain: 22 dB Typical
- P1dB : +15dBm Typical
- Supply Voltage: +12V

### Typical Applications

- Wireless Infrastructure
- Military & Aerospace
- Test and Measurement

Electrical Specifications, TA = +25°C, Vcc = +12V

Parameter	Typical	Typical	Typical	Typical	Units
Frequency Range	50~55	55~60	60~66	66~69	GHz
Gain	22	21	23	17	dB
Gain Variation Over Temperature	±3	±3	±3	±3	dB
Input Return Loss	15	15	10	13	dB
Output Return Loss	15	15	20	20	dB
Output 1dB Compression Point (P1dB)	14	15	15	14	dBm
Saturated Output Power (Psat)	15	17	17	15	dBm
Supply Current (Vcc = +12V)	120				mA
DC Voltage	12				V
Isolation S12	60	65	50	45	dB
Maximum Input Power	Psat - Gain				dBm
Weight	2.65				ounces
Impedance	50				Ohms
Input / Output Connectors	1.85mm – Female				
Finish	Gold Plated				
Material	Aluminum / Copper				

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**Absolute Maximum Ratings**

Supply Voltage	+12.5 VDC
RF Input Power	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 input and output with 50 Ohm source/load. (in band VSWR<1.9:1 or >10dB return loss)
Step 2	Connect Ground Pin
Step 3	Connect VDC
<b>Power OFF Procedure</b>	
Step 1	Turn Off VDC
Step 2	Remove RF Connection
Step 3	Remove Ground

**Environmental Specifications and Test Standards**

Parameter	Standard	Description
Operational Temperature	MIL-STD-39016	-45°C~+55°C (Case Temperature less than +85C)
Storage Temperature		-50°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		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)

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

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Ordering Information	
Part No.	Description
R50G69GSB	50GHz~69GHz Low Noise 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.

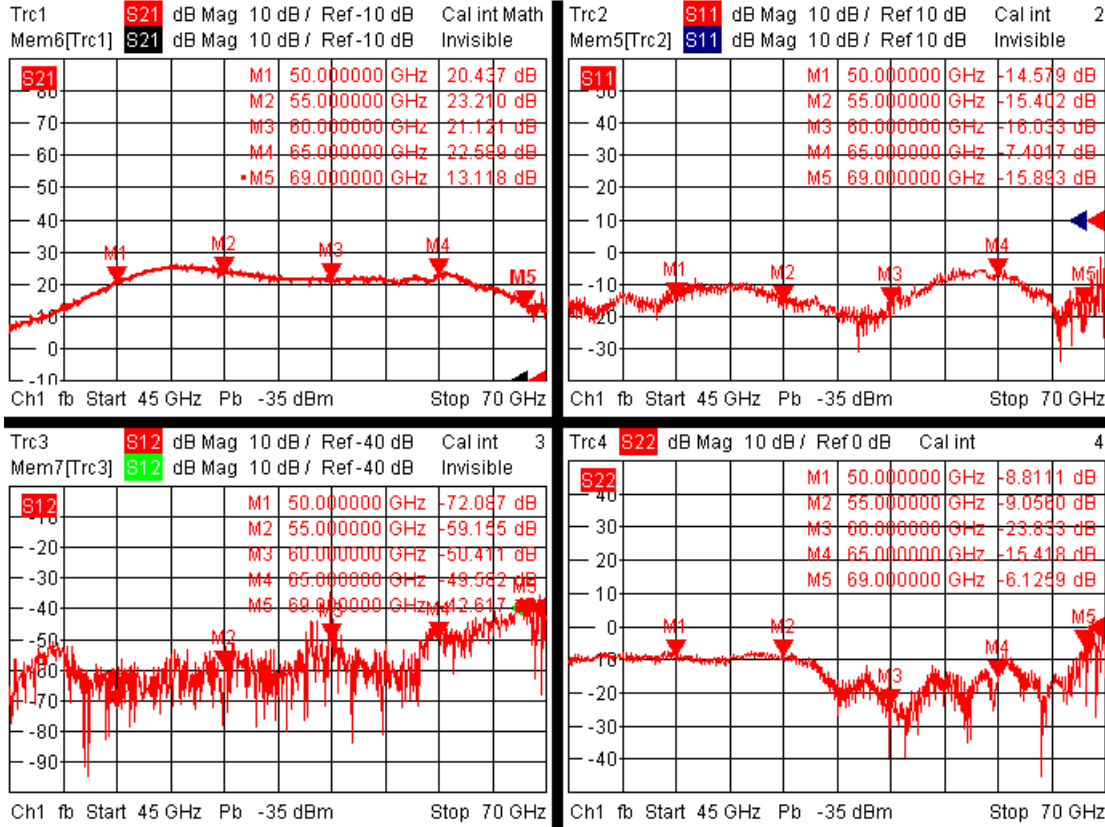
Proper electrostatic discharge (ESD) precautions are recommended to avoid performance degradation or loss of functionality.

#### 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.



Wideband S-Parameters

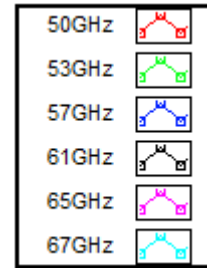
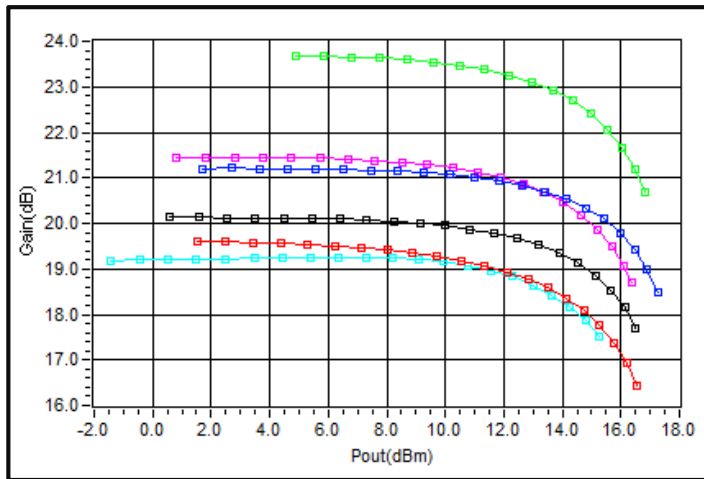


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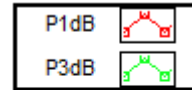
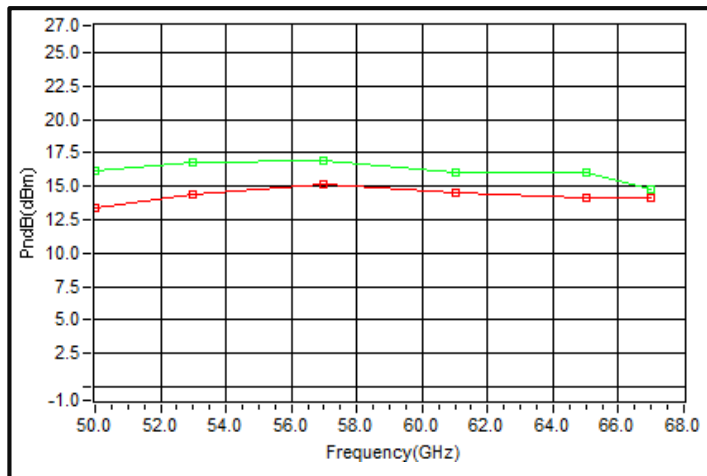
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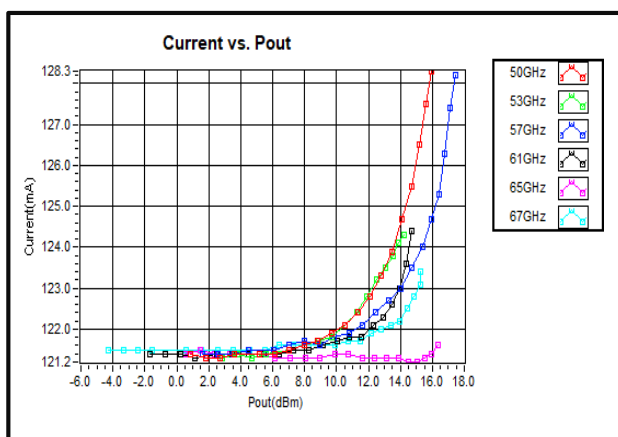
**Gain vs. Pout**



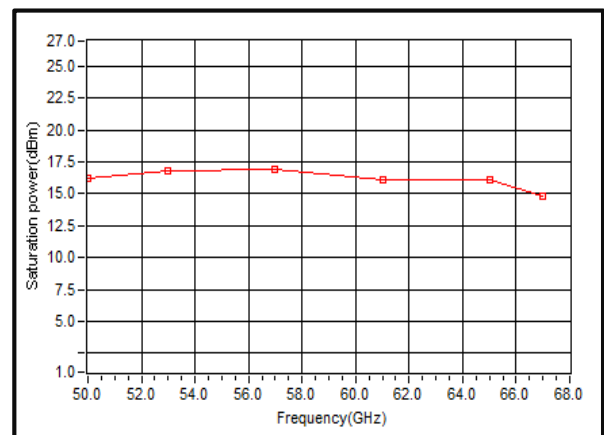
**P1dB and P3dB vs. Frequency**



**Current vs. Pout**



**Psat vs. Frequency**

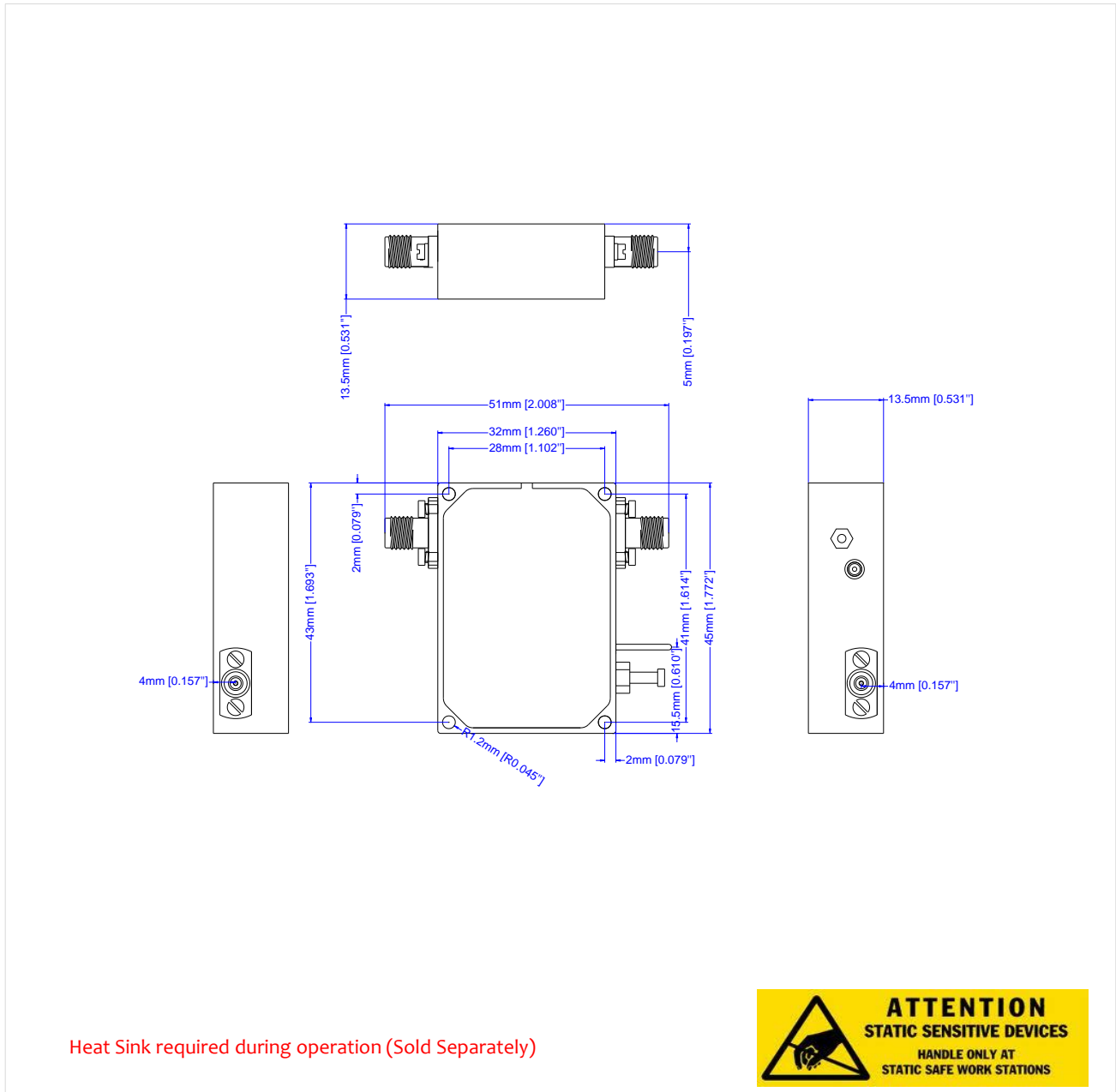


**Wide Band Low Noise Amplifier 50-69GHz**



**Outline Drawing:**

All Dimensions in mm [inches]



Heat Sink required during operation (Sold Separately)



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**Important Notice**

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