



RF-LAMBDA

The power beyond expectations

RAMP28G42GA

Ka Band 2W Power Amplifier 28GHz~42GHz



Features

- Wideband Solid State Power Amplifier
- Psat: + 34dBm
- Gain: 34 dB
- Supply Voltage: 110/220 VAC
- 50 Ohm Matched.

Typical Applications

- Wireless Infrastructure
- Short Haul / High Capacity Links
- RF Microwave and Vsat
- Military & Aerospace Applications
- Test Instrumentation

Electrical Specifications, $T_A=25^\circ\text{C}$

Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	28 – 35			35 – 42			GHz
Gain		33			35		dB
Noise Figure		8			7		dB
Gain Flatness		±7			±8		dB
Gain Variation Over Temperature (-45°C ~ +85°C)		±3			±3		dB
Input Return Loss		15			10		dB
Output Return Loss		7			8		dB
Saturated Output Power (Psat)		34.5			34.5		dBm
Isolation S12	60	70		60	70		dB
Input Max Power (No damage)	Psat –Gain			Psat – Gain			dBm
Weight	7500						g
Impedance	50						Ohms
Input / Output Connectors	2.92 mm-Female						
Finish	Gold Plating						
Material	Aluminum / Copper						
Package Sealing	Epoxy and Screw Tight Sealing (Standard)						
	Hermetically Sealed (Optional with extra charge)						

* P1dB, P3dB and Psat power test signal: 200μs 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	110/220 VAC
RF Input Power (RFIN) Pin_max = Psat - Gainsat	Psat – Gain
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 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 AC Plug
Step 3	Flip power switch to on position
Power OFF Procedure	
Step 1	Flip power switch to off position
Step 2	Remove AC plug
Step 3	Disconnect Input and output

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

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.	ECCN	Description
RAMP28G42GA	3A001.b.2.c	28GHz~42GHz 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 fragile 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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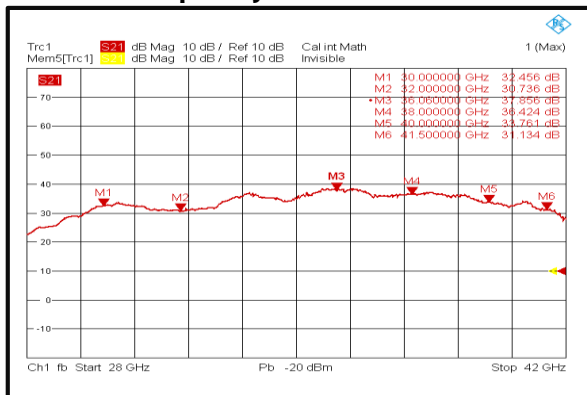


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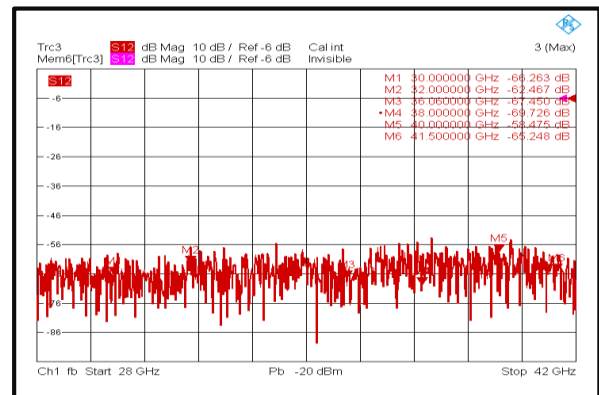
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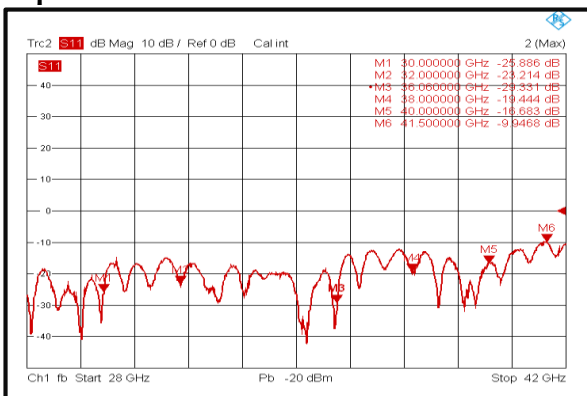
Gain vs. Frequency



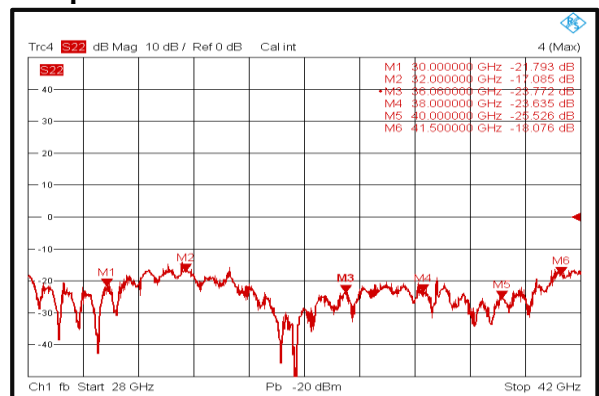
Isolation



Input Return Loss



Output Return Loss



Note: Input / Output return loss measurements include attenuators to protect equipment

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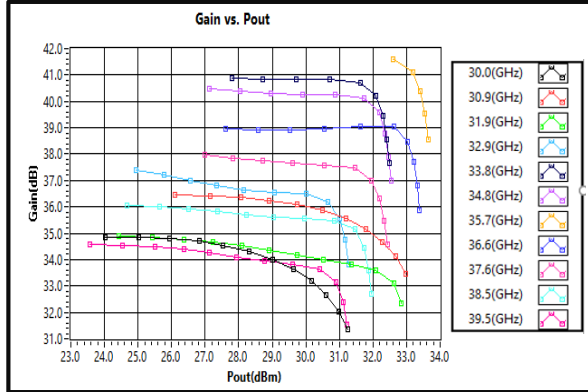


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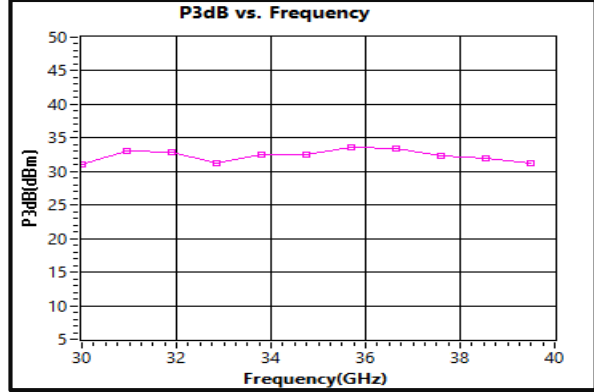
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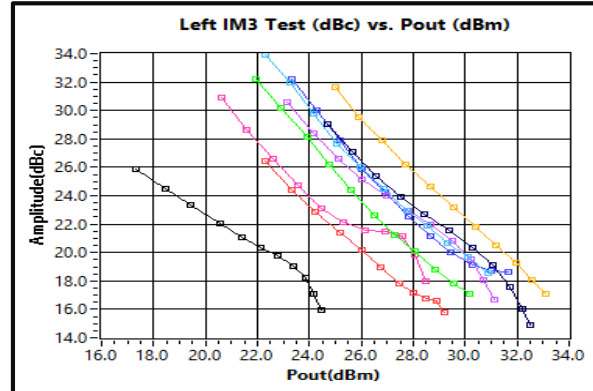
Gain vs. Output Power 30GHz-40GHz



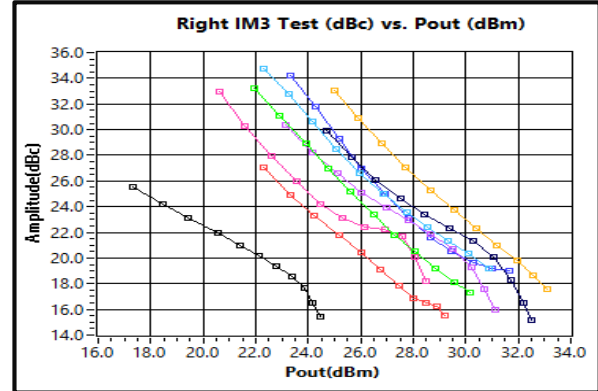
P3dB vs. Frequency 30GHz-40GHz



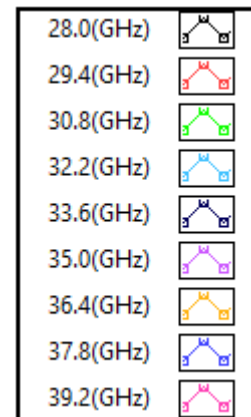
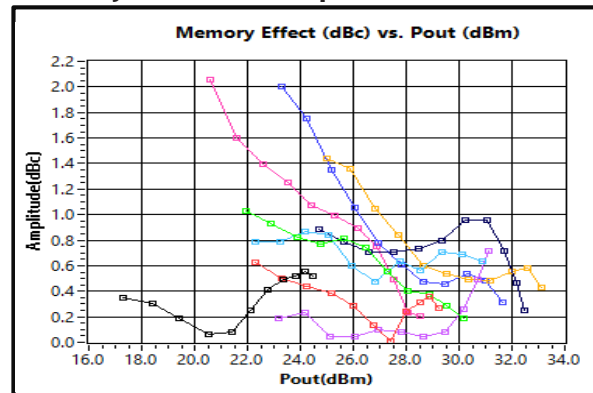
Left IM3 vs. Output Power 28GHz-40GHz



Right IM3 vs. Output Power 28GHz-40GHz



Memory Effect vs. Output Power 28GHz-40GHz



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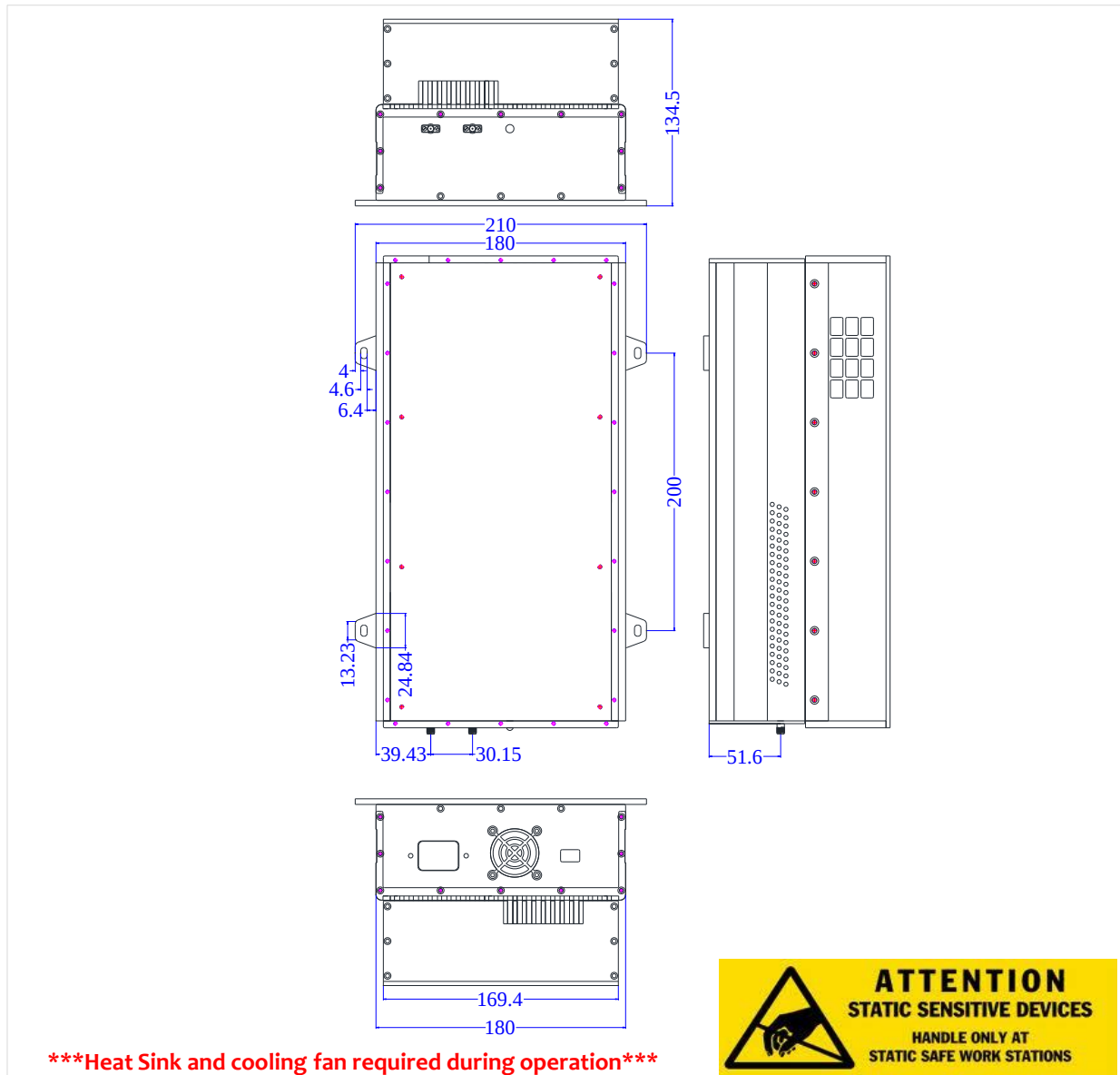
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Amplifier Outline Drawing:

All Dimensions in mm



Important Notice

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