



# RF-LAMBDA

LEADER OF RF BROADBAND SOLUTIONS

## RPNA01G07GA

### 1W Front End Over Drive Protected Wide Band LNA 1GHz~7GHz



#### Features

- Gain: 42dB Typical
- Noise Figure: 1.2dB Typical
- P1dB Output Power: +20dBm Typical
- Supply Voltage: +24V

#### Typical Applications

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

Electrical Specifications, TA = +25°C, Vcc = +24V

| Parameter                                      | Min.                                                  | Typ. | Max. | Min. | Typ. | Max. | Units  |
|------------------------------------------------|-------------------------------------------------------|------|------|------|------|------|--------|
| Frequency Range                                | 1                                                     |      | 2    | 2    |      | 7    | GHz    |
| Gain                                           | 29                                                    | 42   |      | 36   | 42   |      | dB     |
| Gain Flatness                                  |                                                       | ±6.0 |      |      | ±3.5 | ±4.5 | dB     |
| Gain Variation Over Temperature<br>(-45 ~ +85) |                                                       | ±2.0 |      |      | ±2.0 |      | dB     |
| Noise Figure                                   |                                                       | 1.5  | 3.3  |      | 1.2  | 2.0  | dB     |
| Input VSWR                                     |                                                       | 3    |      |      | 1.5  | 2.5  | :1     |
| Output VSWR                                    |                                                       | 5    |      |      | 1.4  | 2.0  | :1     |
| Input Power (dBm)                              |                                                       |      | 30   |      |      | 30   | dBm    |
| Output 1dB Compression Point (P1dB)            | 16                                                    | 20   |      | 20   | 22   |      | dBm    |
| Saturated Output Power (Psat)                  |                                                       | 22   |      |      | 25   |      | dBm    |
| Output Third Order Intercept (IP3)             |                                                       | 28   |      |      | 33   |      | dBm    |
| Supply Current (Vcc=+24V)                      |                                                       | 200  | 300  |      | 200  | 300  | mA     |
| Isolation S12                                  |                                                       | -65  |      |      | -65  |      | dB     |
| Weight                                         | 2.3                                                   |      |      |      |      |      | Ounces |
| Impedance                                      | 50                                                    |      |      |      |      |      | Ohms   |
| Input / Output Connectors                      | SMA-Female                                            |      |      |      |      |      |        |
| Finish                                         | Standard: Gold 40 micron; Nickel 220 micron thickness |      |      |      |      |      |        |
|                                                | Option: Gold 80 micron; Nickel 180 micron thickness   |      |      |      |      |      |        |
| Material                                       | Aluminum                                              |      |      |      |      |      |        |
| Package Sealing                                | Epoxy Sealed (Standard)                               |      |      |      |      |      |        |
|                                                | Hermetically Sealed (Optional)                        |      |      |      |      |      |        |

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### Absolute Maximum Ratings

|                      |         |
|----------------------|---------|
| Operating Voltage    | +24~28V |
| RF Input Power@(50Ω) | +30dBm  |

### Biasing Up Procedure

|                     |                          |
|---------------------|--------------------------|
| Step 1              | Connect Ground Pin       |
| Step 2              | Connect input and output |
| Step 3              | Connect +24V biasing     |
| Power OFF Procedure |                          |
| Step 1              | Turn off +24V biasing    |
| Step 2              | Remove RF connection     |
| Step 3              | Remove Ground.           |

### Environmental Specifications and Test Standards

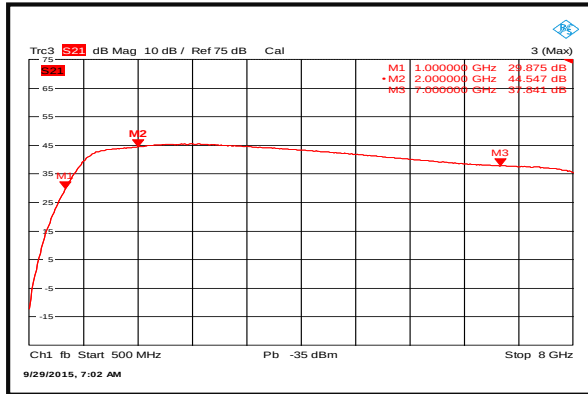
| Parameter                        | Standard      | Description                                                                                                                                                                                                     |
|----------------------------------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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)<br>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<br>2. Weight <=20g, 100g Half sine wave for 6ms, Speed variation 3.75m/s<br>3. Total 18 times (6 directions, 3 repetitions per direction). |
| Altitude                         | MIL-STD-883   | Standard: 30,000 Ft (Epoxy Sealed Controlled Environment)<br>Optional: Hermetically Sealed (60,000 ft. 1.0 PSI min)                                                                                             |
| Hermetically Sealed (Optional)   |               | MIL-STD-883 (For Hermetically Sealed Units)                                                                                                                                                                     |

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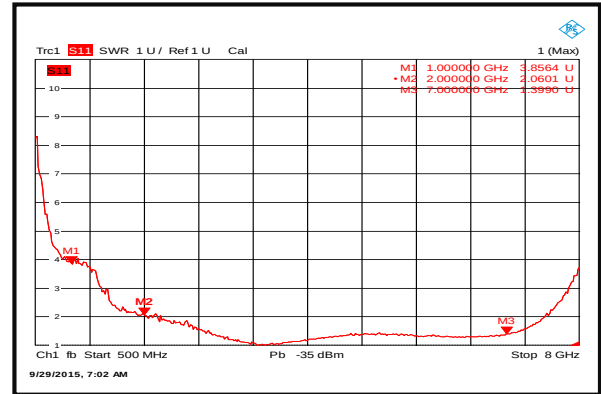


### Typical Performance Plots

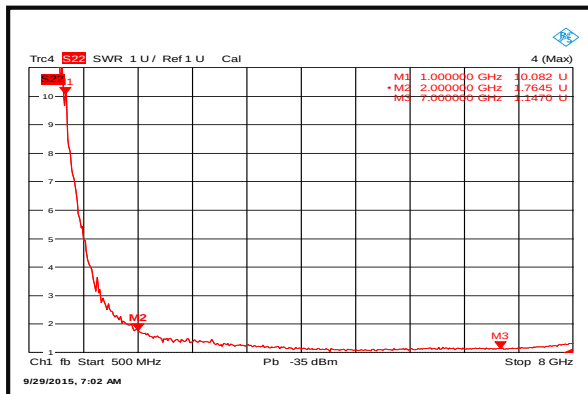
#### Gain



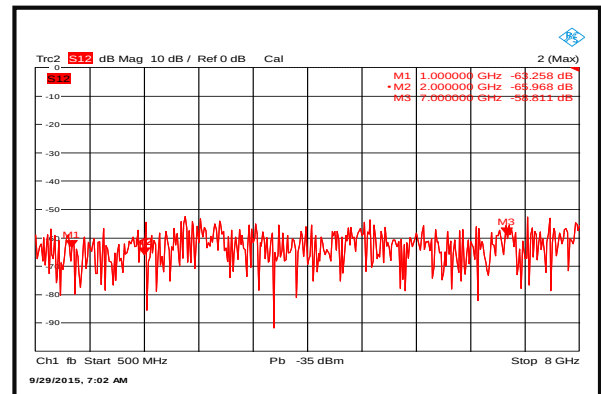
#### Input VSWR



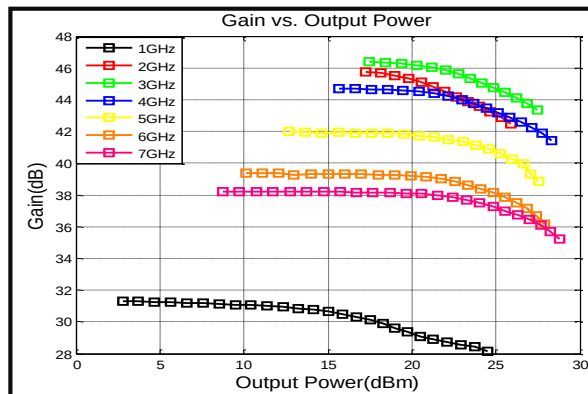
#### Output VSWR



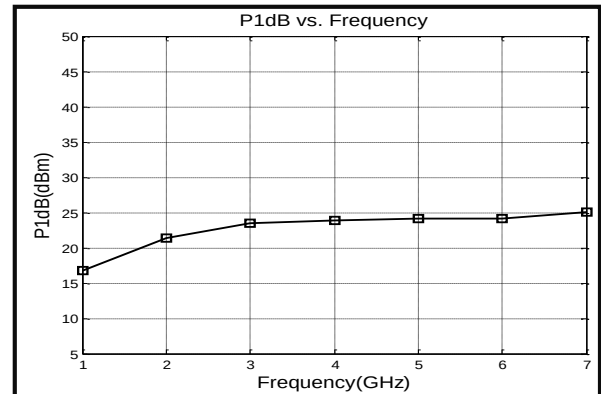
#### Isolation



#### Gain vs. Output Power

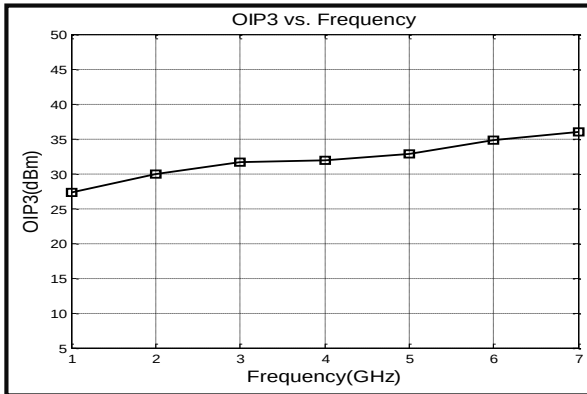


#### P1dB vs. Frequency

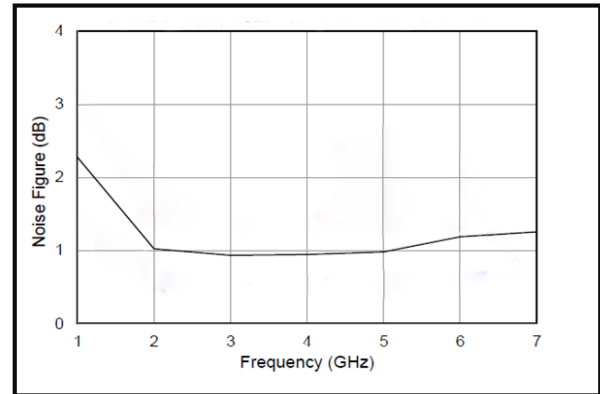




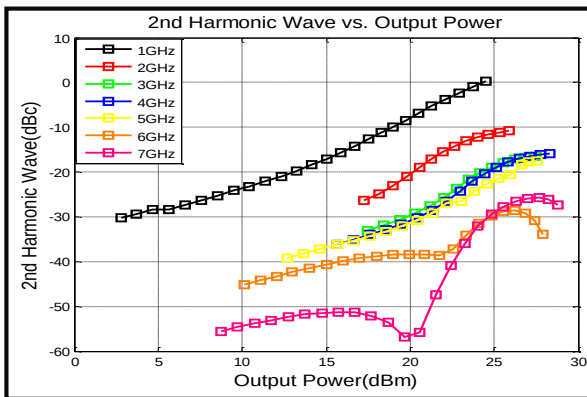
### Output Third Order Intercept (IP<sub>3</sub>)



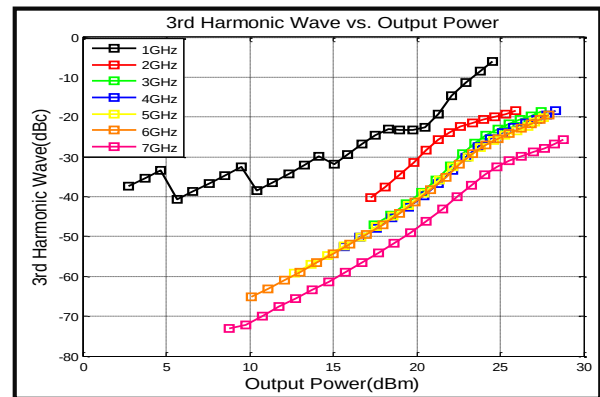
### Noise Figure



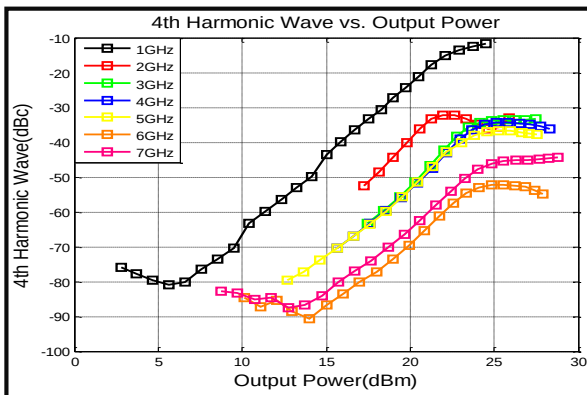
### 2nd Harmonic Wave Output Power



### 3rd Harmonic Wave Output Power



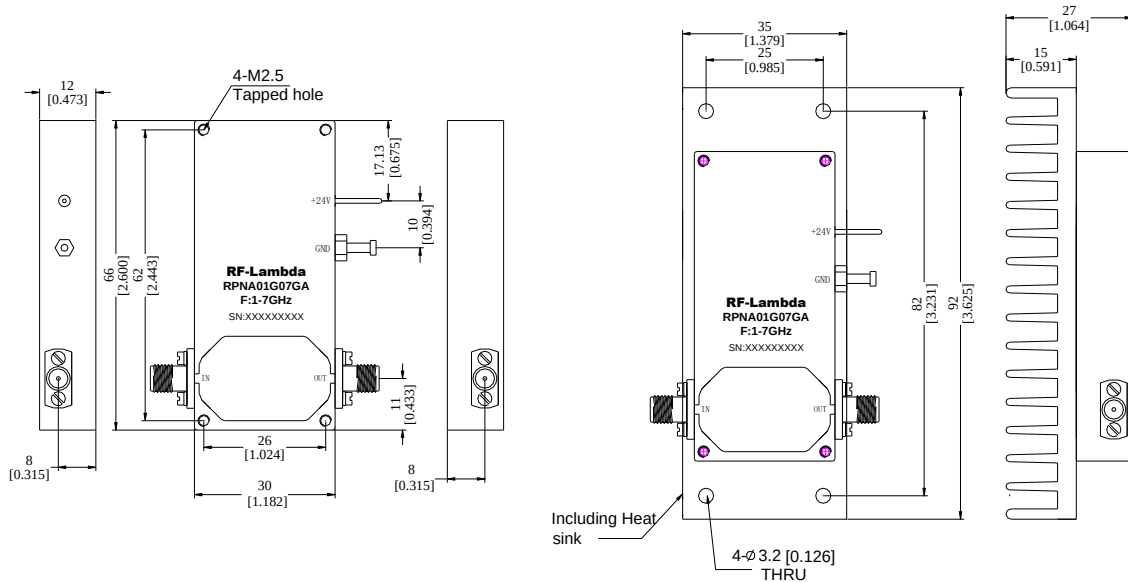
### 4th Harmonic Wave Output Power





### Outline Drawing:

All Dimensions in mm [inches]



Heat Sink required during operation (Sold Separately)



### Ordering Information

| Part No.    | ECCN  | Description                |
|-------------|-------|----------------------------|
| RPNA01G07GA | EAR99 | 1-7GHz Low Noise Amplifier |

### Important Notice

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