



### Wide Band Low Noise Amplifier 16GHz~33GHz



#### Features

- Gain: 37dB Typical
- Noise Figure: 2.6dB Typical
- P1dB Output Power: +23dBm Typical
- Supply Voltage: +12V @300mA
- 50 Ohm Matched

#### Typical Applications

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

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

| Parameters                                  | Min.                                                  | Typ. | Max. | Min. | Typ. | Max. | Units  |
|---------------------------------------------|-------------------------------------------------------|------|------|------|------|------|--------|
| Frequency Range                             | 16                                                    |      | 22   | 22   |      | 33   | GHz    |
| Gain                                        | 31                                                    | 35   |      | 33   | 37   |      | dB     |
| Gain Flatness                               |                                                       | ±1.0 | ±1.5 |      | ±1.0 | ±1.5 | dB     |
| Gain Variation Over Temperature (-45 ~ +85) |                                                       | ±1.0 |      |      | ±1.5 |      | dB     |
| Noise Figure                                |                                                       | 3.5  | 5.0  |      | 3.0  | 4.0  | dB     |
| Input VSWR                                  |                                                       | 1.8  | 2.4  |      | 2.0  | 2.4  | : 1    |
| Output VSWR                                 |                                                       | 1.6  | 2.0  |      | 1.8  | 2.2  | : 1    |
| Output 1dB Compression Point (P1dB)         | 19                                                    | 23   |      | 19   | 24   |      | dBm    |
| Saturated Output Power (Psat)               |                                                       | 25   |      |      | 26   |      | dBm    |
| Output Third Order Intercept (IP3)          |                                                       | 29   |      |      | 28   |      | dBm    |
| Supply Current (Vcc=+12V)                   |                                                       | 300  | 350  |      | 300  | 350  | mA     |
| Isolation S12                               |                                                       | -55  |      |      | -50  |      | dB     |
| Weight                                      | 3.17                                                  |      |      |      |      |      | Ounces |
| Impedance                                   | 50                                                    |      |      |      |      |      | Ohms   |
| Input / Output Connectors                   | 2.92-Female                                           |      |      |      |      |      |        |
| Finishing                                   | Standard: Gold 40 micron; Nickel 220 micron thickness |      |      |      |      |      |        |
|                                             | Option: Gold 80 micron; Nickel 180 micron thickness   |      |      |      |      |      |        |
| Material                                    | Aluminum                                              |      |      |      |      |      |        |
| Package Sealing                             | Epoxy Sealing (Standard)                              |      |      |      |      |      |        |
|                                             | Hermetically Sealed (Optional)                        |      |      |      |      |      |        |



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## RLNA16G32G

### Absolute Maximum Ratings

|                   |         |
|-------------------|---------|
| Operating Voltage | +12V±5% |
| RF Input Power    | -5dB m  |

### Biasing Up Procedure

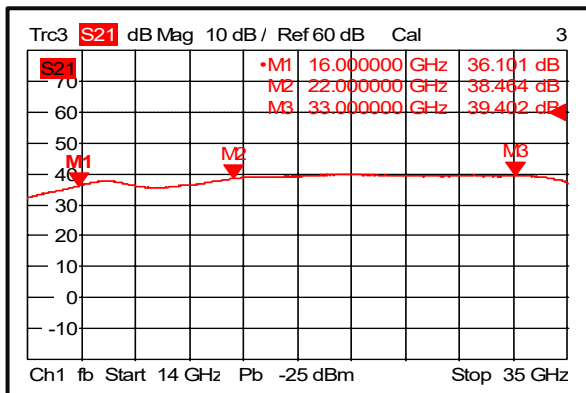
|                     |                          |
|---------------------|--------------------------|
| Step 1              | Connect Ground Pin       |
| Step 2              | Connect input and output |
| Step 3              | Connect +12V biasing     |
| Power OFF Procedure |                          |
| Step 1              | Turn off +12V biasing    |
| Step 2              | Remove RF connection     |
| Step 3              | Remove Ground.           |

### Environmental Specifications

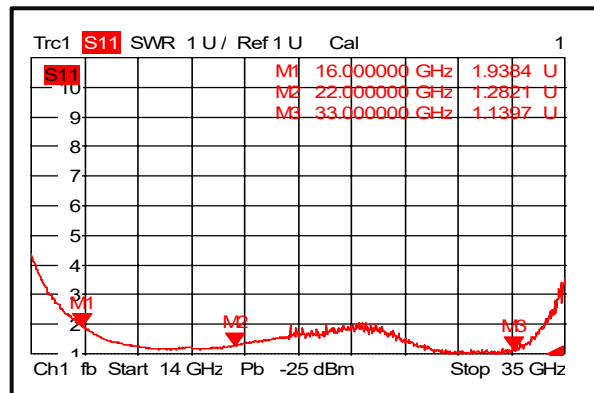
|                              |                                                                                        |
|------------------------------|----------------------------------------------------------------------------------------|
| Operational Temperature (°C) | -45 to +85                                                                             |
| Storage Temperature (°C)     | -55 to +125                                                                            |
| Altitude                     | 30,000 ft.<br>(Epoxy Sealed Controlled environment)                                    |
|                              | 60,000 ft. 1.0psi min<br>(Hermetically Sealed Un-controlled environment)<br>(Optional) |
| Vibration                    | 25g RMS (15 degrees 2KHz)<br>endurance, 1 hour per axis                                |
| Humidity                     | 100% RH at 35c, 95%RH at 40°C                                                          |
| Shock                        | 20G for 11msec half sine wave,<br>3 axis both directions                               |

### Typical Performance Plots

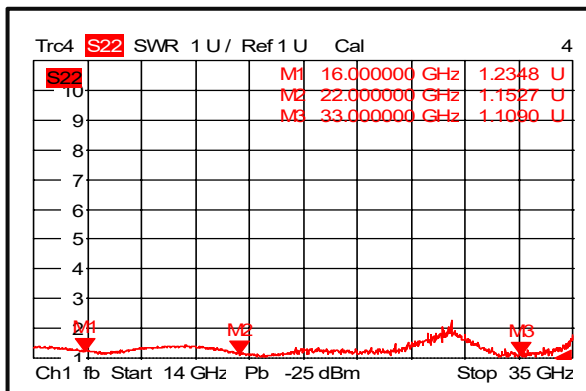
#### Gain



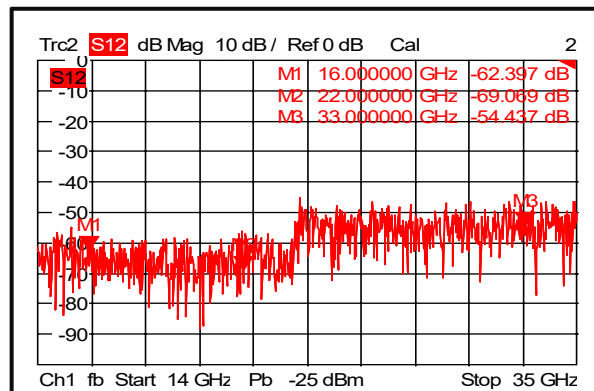
#### Input VSWR



#### Output VSWR



#### Isolation



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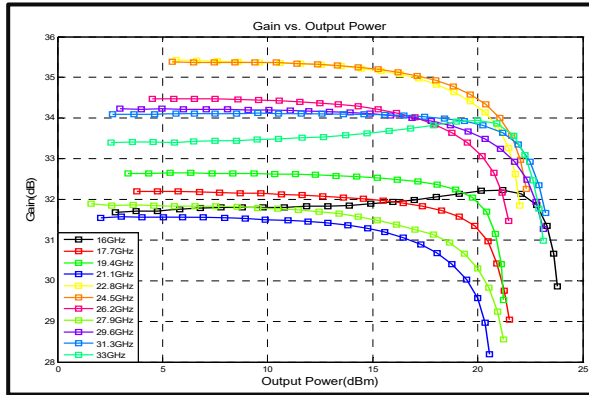


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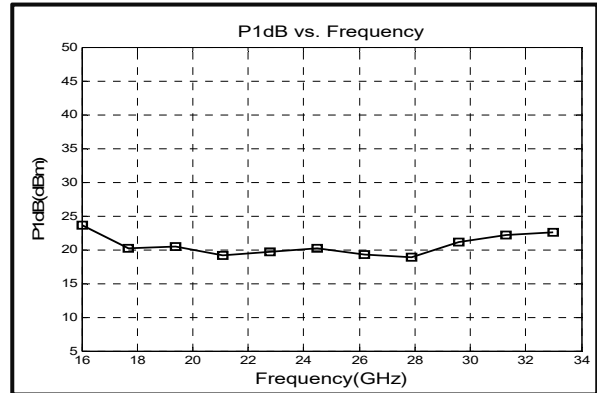
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## RLNA16G32G

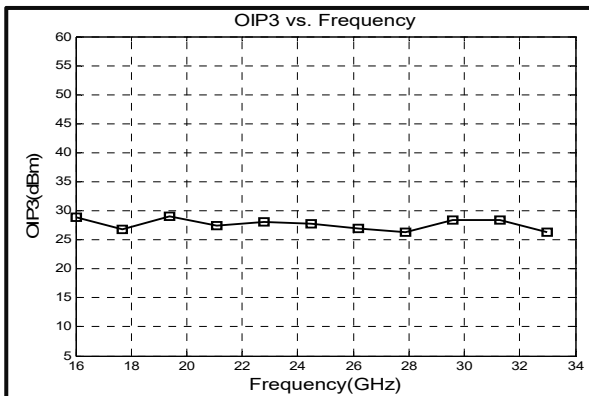
### Gain vs. Output Power



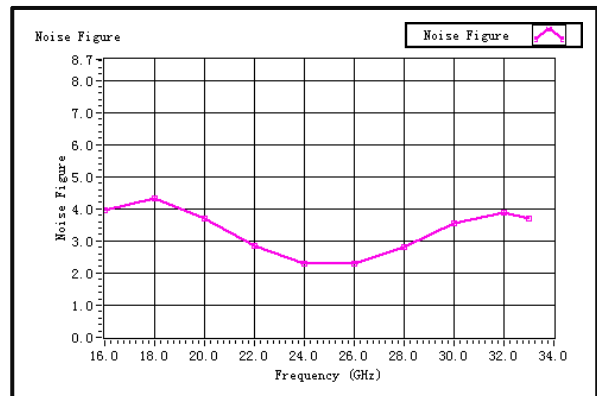
### P1dB vs. Frequency



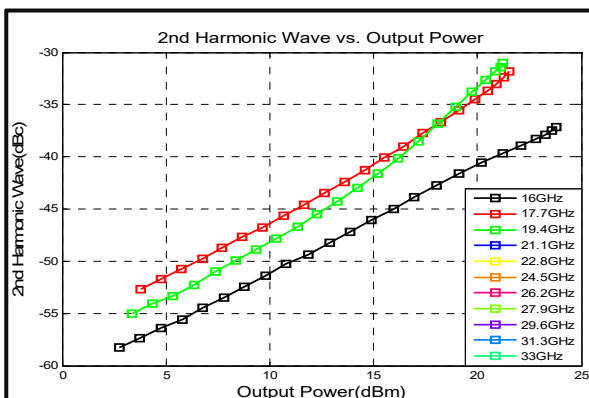
### Output Third Order Intercept (IP3)



### Noise Figure



### 2nd Harmonic Wave Output Power



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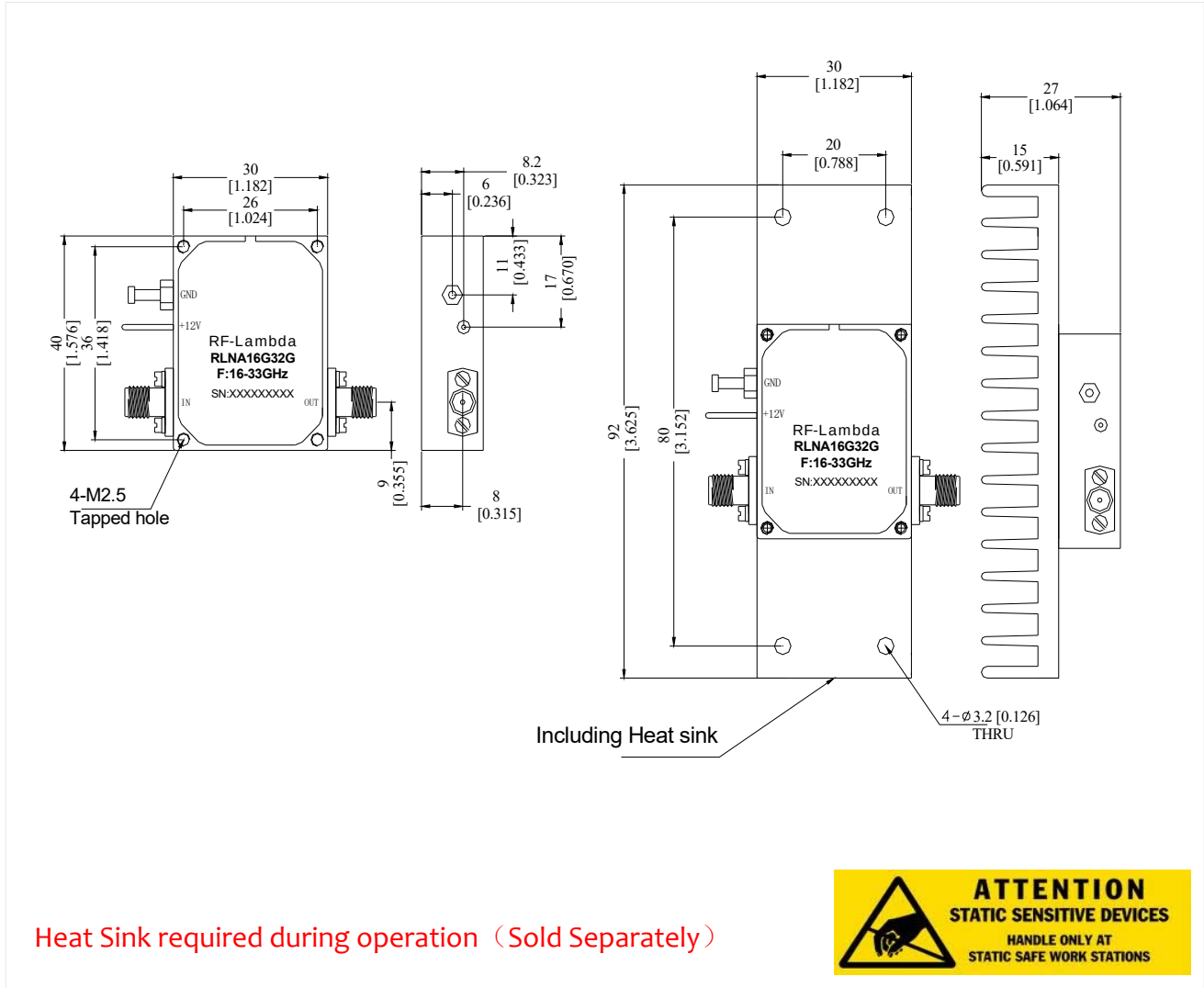
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## RLNA16G32G

### Outline Drawing:

All Dimensions in mm [inches]



### Ordering Information

| Part No.   | ECCN  | Description                  |
|------------|-------|------------------------------|
| RLNA16G32G | EAR99 | 16-33GHz Low Noise Amplifier |

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