

## Q/V/W Band RF Amplifier 71GHz ~ 76GHz



Note: The photo is for illustration purposes only.  
Please refer to the outline drawing.

### Features

- Gain: 24dB Typical
- P1dB Output Power: +17dBm Typical
- Supply Voltage: +5V

### Typical Applications

- Wireless Infrastructure
- Military & Aerospace
- Test and Measurement

### Electrical Specifications, TA = +25 °C, Vcc = +5V

| Parameter                                        | Min.                           | Typ. | Max. | Units  |
|--------------------------------------------------|--------------------------------|------|------|--------|
| Frequency Range                                  | 71                             |      | 76   | GHz    |
| Gain                                             | 20                             | 24   |      | dB     |
| Gain Flatness                                    |                                | ±1.0 |      | dB     |
| Gain Variation Over Temperature<br>(-40°C~+85°C) |                                | ±1.5 |      | dB     |
| Input VSWR                                       |                                | 2.5  |      | : 1    |
| Output VSWR                                      |                                | 2.5  |      | : 1    |
| Output 1dB Compression Point (P1dB)              | 16                             | 17   |      | dBm    |
| Saturated Output Power (Psat)                    |                                | 19   |      | dBm    |
| Output Third Order Intercept (OIP3)              |                                | 25   |      | dBm    |
| Supply Current (Vcc=+5V)                         |                                | 160  | 220  | mA     |
| Isolation S12                                    |                                | -40  |      | dB     |
| Weight                                           | /                              |      |      | Ounces |
| Impedance                                        | 50                             |      |      | Ohms   |
| Input / Output Connectors                        | WR12                           |      |      |        |
| Finish                                           | Gold Plated                    |      |      |        |
| Material                                         | Aluminum                       |      |      |        |
| Package Sealing                                  | Epoxy Sealed (Standard)        |      |      |        |
|                                                  | Hermetically Sealed (Optional) |      |      |        |

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**Absolute Maximum Ratings**

|                   |       |
|-------------------|-------|
| Operating Voltage | +7V   |
| RF Input Power    | +3dBm |

**Biasing Up Procedure**

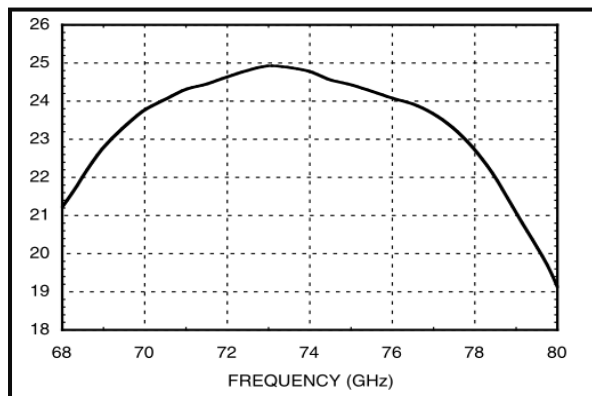
|                     |                          |
|---------------------|--------------------------|
| Step 1              | Connect Ground Pin       |
| Step 2              | Connect input and output |
| Step 3              | Connect +5V biasing      |
| Power OFF Procedure |                          |
| Step 1              | Turn off +5V biasing     |
| Step 2              | Remove RF connection     |
| Step 3              | Remove Ground.           |

**Environmental Specifications and Test Standards**

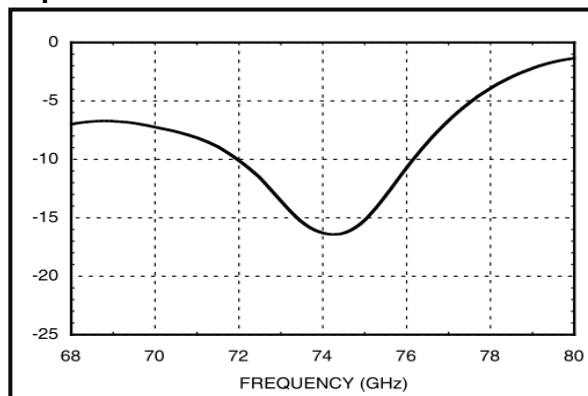
| Parameter                      | Description                                                                                                                                                                                                     |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operational Temperature        | -40°C~+85°C<br>(Case Temperature)                                                                                                                                                                               |
| Storage Temperature            | -50°C~+105°C                                                                                                                                                                                                    |
| Thermal Shock                  | -40°C → +85°C<br>(5 Cycles / 10 hours)                                                                                                                                                                          |
| Random Vibration               | MIL-STD-202G<br>Table 214-I, Test Condition Letter C<br>1.5 Hours Per Axis                                                                                                                                      |
| High 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                       | 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)                                                                                                                                                                     |

Typical Performance Plots

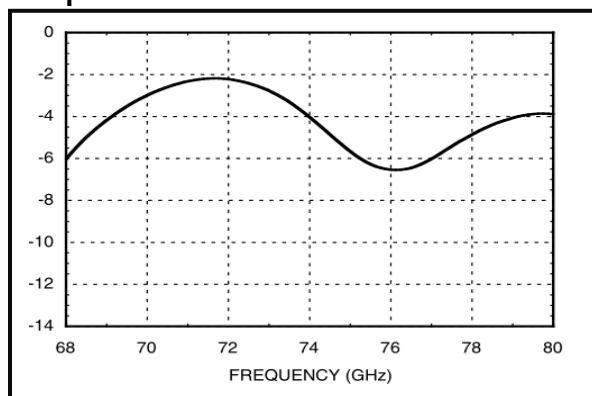
**Gain**



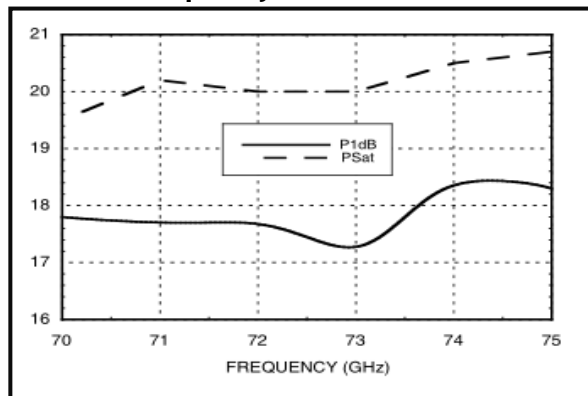
**Input Return loss**



**Output Return loss**



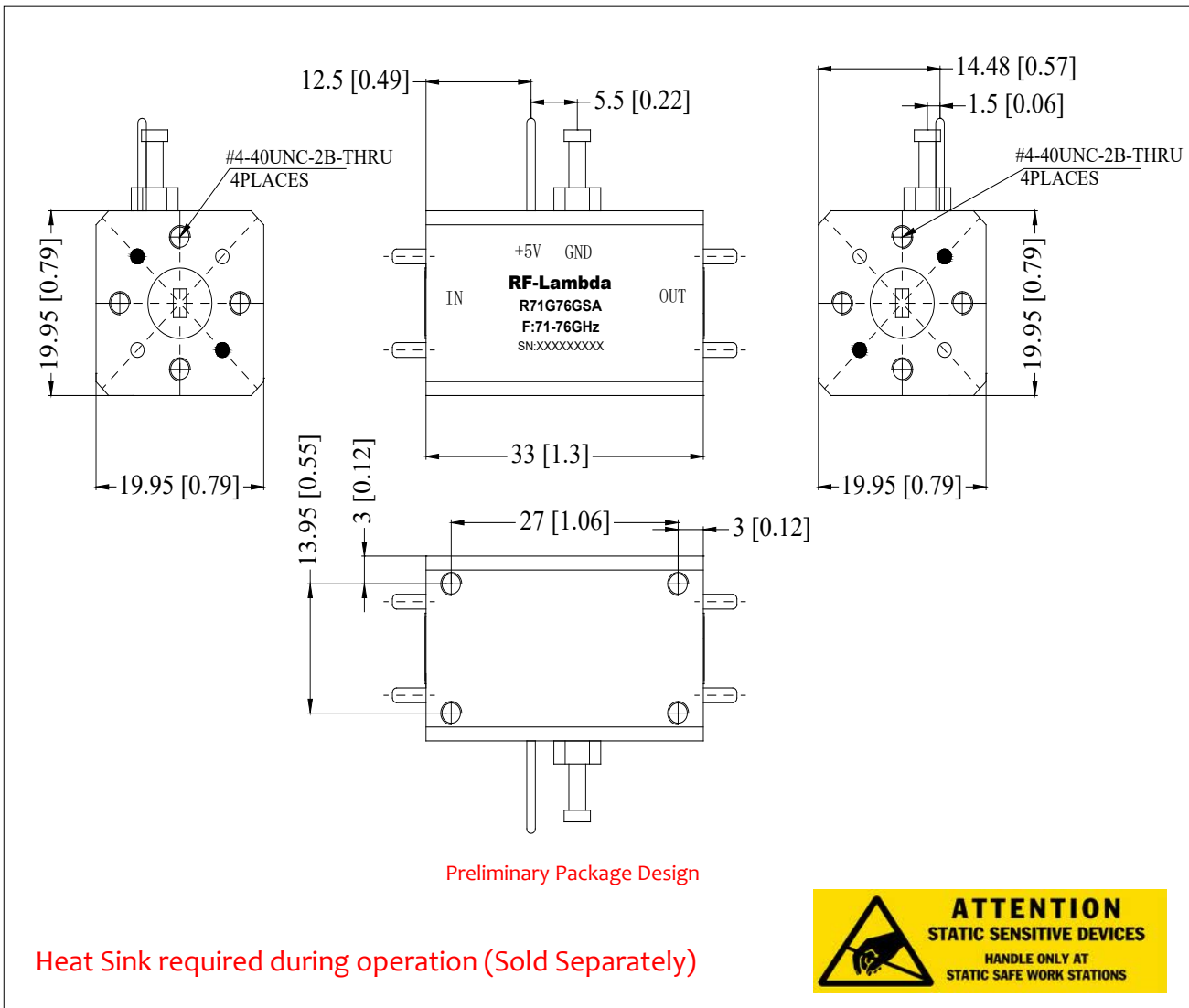
**P1dB vs. Frequency**



### Outline Drawing:

All Dimensions in mm [inches]

Housing Tolerances  $\pm 0.1$  [0.004]



### Ordering Information

| Part No.  | Description                        |
|-----------|------------------------------------|
| R71G76GSA | 71 ~ 76GHz Q/V/W Band RF Amplifier |

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