

# Broadband Low Noise RF Amplifier (LNA)



50kHz-20GHz, 28 dB gain

DATASHEET

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This LNA broadband Low Noise RF Amplifier provides output power up to 16 dBm with a gain of 28 dB across a frequency range of 50kHz to 20GHz. It features a noise figure (NF) of 3 dB within the 0.1-20GHz range. The amplifier operates on +12V DC at 160 mA and is equipped with a SMA Female connector.

## Features

- Frequency: 50kHz-20GHz
- Small signal gain: 28dB
- NF=3dB
- Vout=4.48Vpp

## Applications

- 5G Communication
- Test Equipment
- Optical Modulator Driver
- Radar System

## Specifications

| Parameter                   | Min     | Typical     | Max  | Unit |
|-----------------------------|---------|-------------|------|------|
| Frequency Range             | 0.00005 |             | 20   | GHz  |
| Gain                        | 26      | 28          |      | dB   |
| NF (0.1-20GHz)              |         | 3           | 5    | dB   |
| Input Power                 |         | -20         | -10  | dBm  |
| P1dB                        |         | +15         |      | dBm  |
| Psat                        |         | +16         |      | dBm  |
| Drain Supply                | +8V     | +12         | +15  | V    |
| Current                     |         | 160         |      | mA   |
| Input Return Loss           |         | -10         |      | dB   |
| Output Return Loss          |         | -10         |      | dB   |
| Spec Temp                   |         | 25          |      | °C   |
| Drain Supply                |         | +18         |      | V    |
| RF Input Power              |         | +15         |      | dBm  |
| Operating Temperature(note) | -40     |             | +85  | °C   |
| Storage Temperature         | -55     |             | +125 | °C   |
| Input Port                  |         | SMA Female  |      |      |
| Output Port                 |         | SMA Female  |      |      |
| Case Material               |         | Copper      |      |      |
| Finish                      |         | Gold Plated |      |      |
| Weight (Without Heatsink)   |         | 80          |      | g    |
| Size                        |         | See outline |      |      |

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Rev 10/24/24

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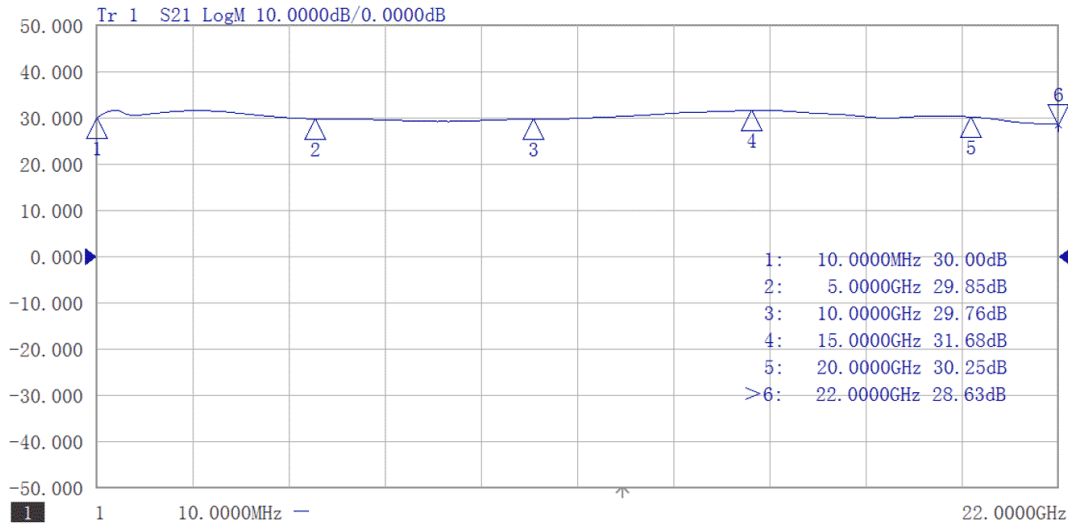


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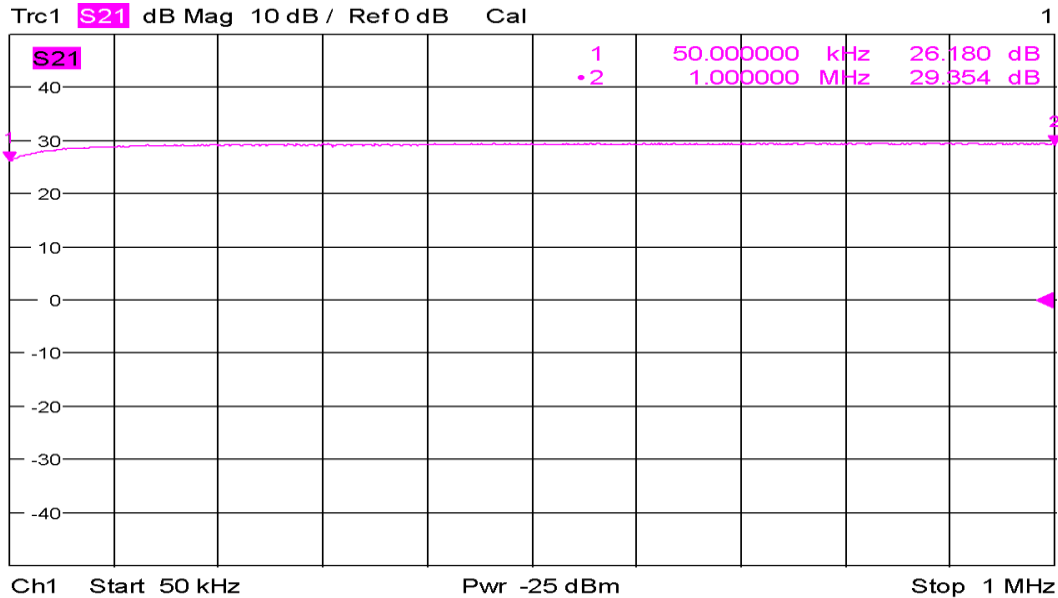
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### Test Data (25°C)

#### Gain vs Frequency 10MHz-20GHz



#### Gain vs Frequency 50kHz-1MHz



Date: 30.AUG.2021 18:16:21

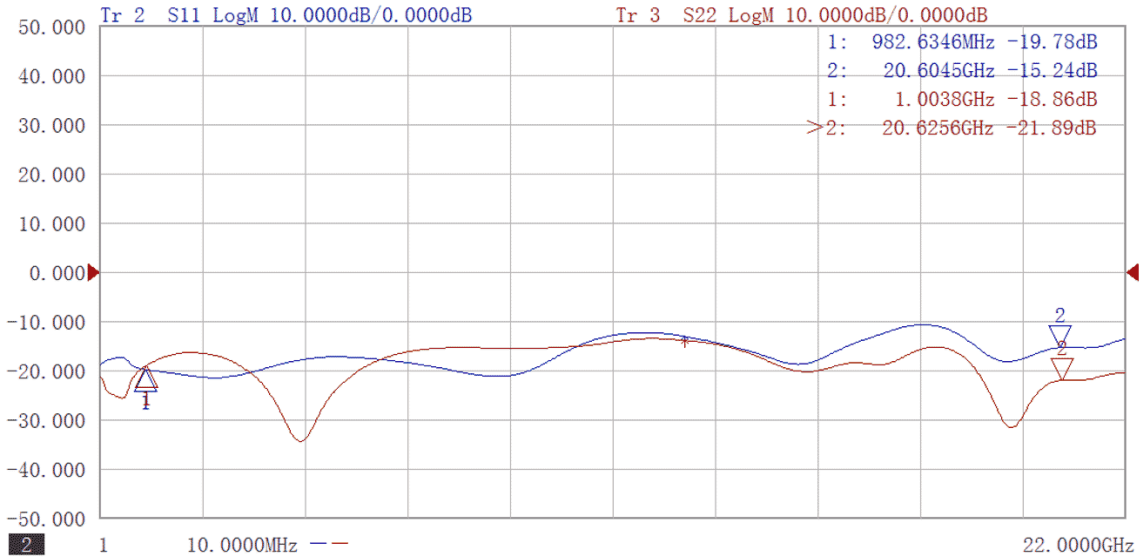
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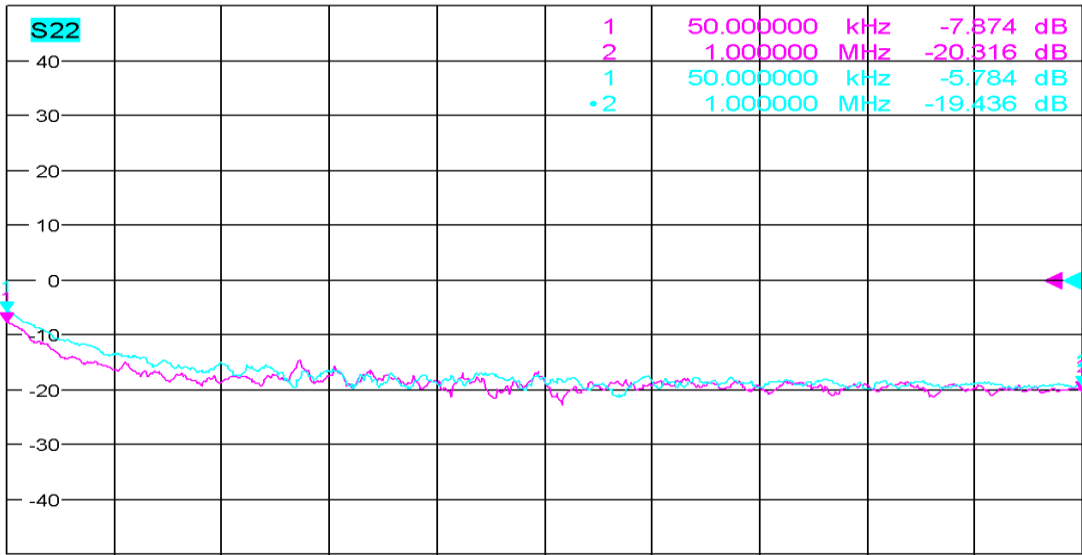
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### Return Loss vs Frequency 10MHz-20GHz



### Return Loss vs Frequency 50kHz-1MHz

Trc1 S11 dB Mag 10 dB / Ref 0 dB Cal Smo 1  
 Trc2 S22 dB Mag 10 dB / Ref 0 dB Cal Smo



Ch1 Center 525 kHz Pwr -25 dBm Span 950 kHz

Date: 30.AUG.2021 18:32:06

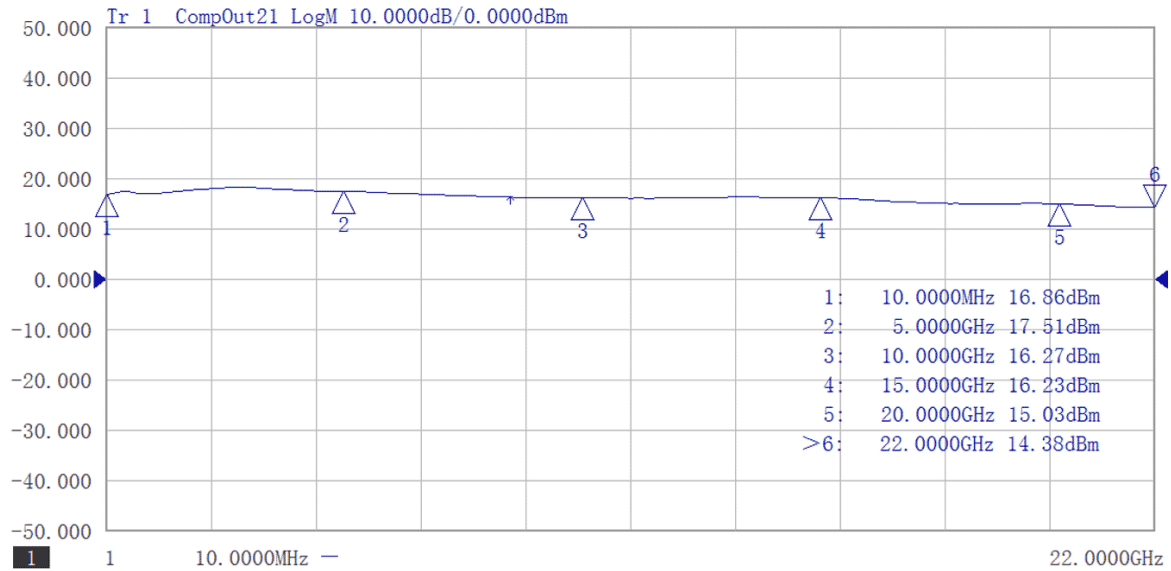
# Broadband Low Noise RF Amplifier (LNA)



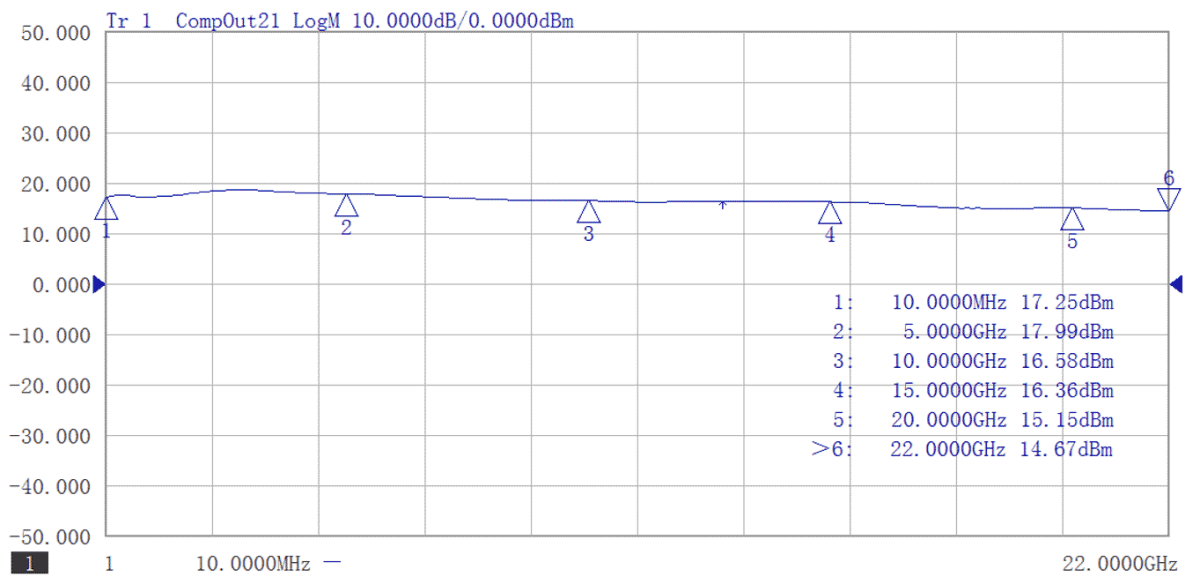
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### P1dB vs Frequency



### P3dB vs Frequency



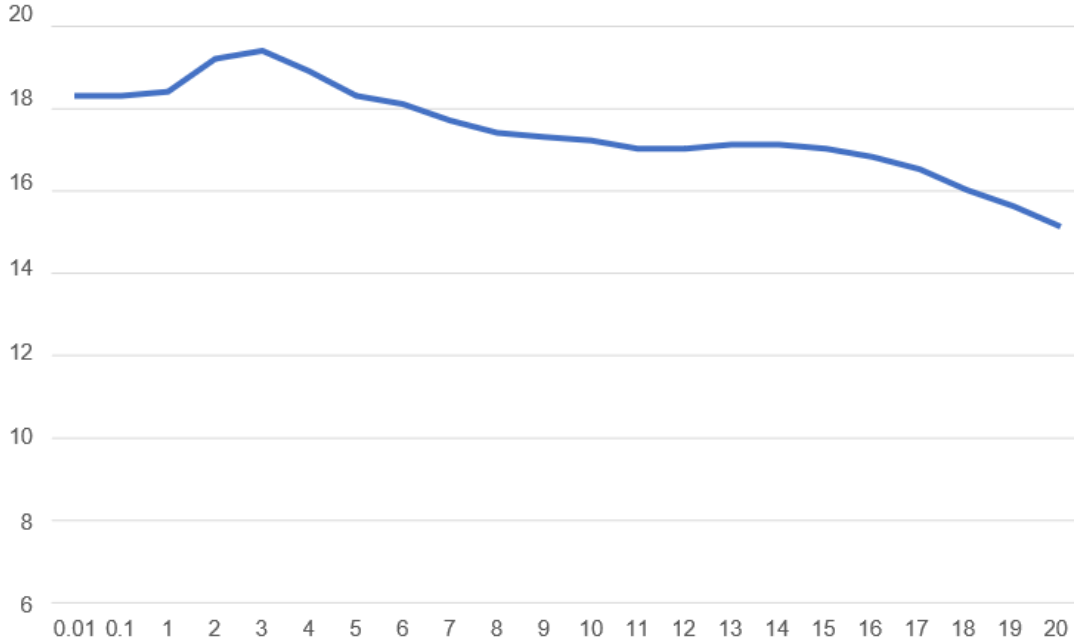
# Broadband Low Noise RF Amplifier (LNA)



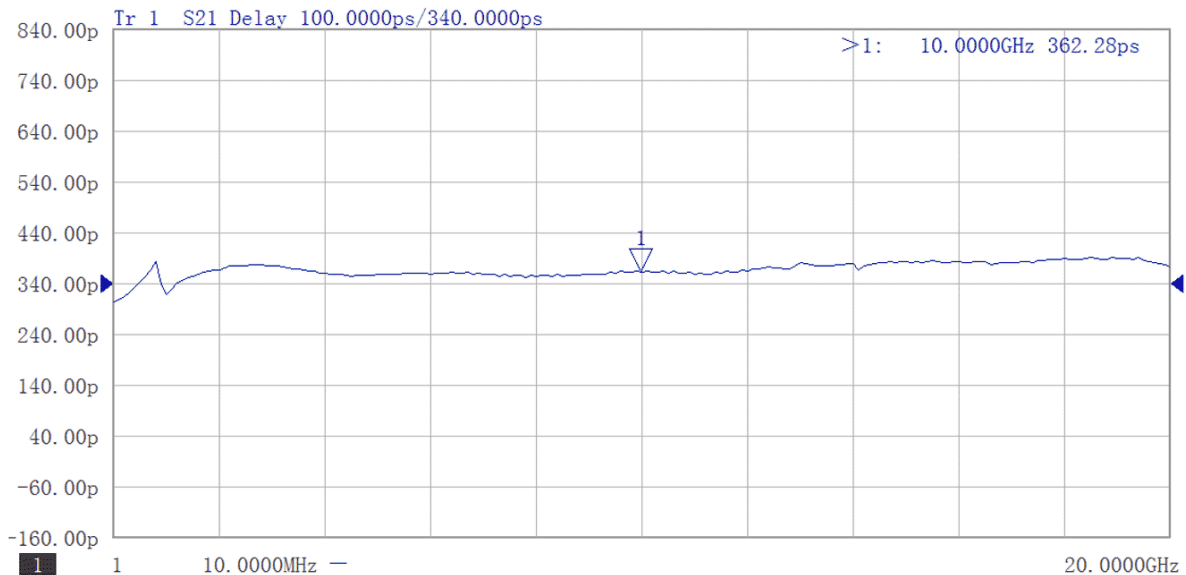
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## DATASHEET

**Psat vs Frequency at Pin=-5dBm from 10MHz-20GHz**



**Phase delay vs Frequency**



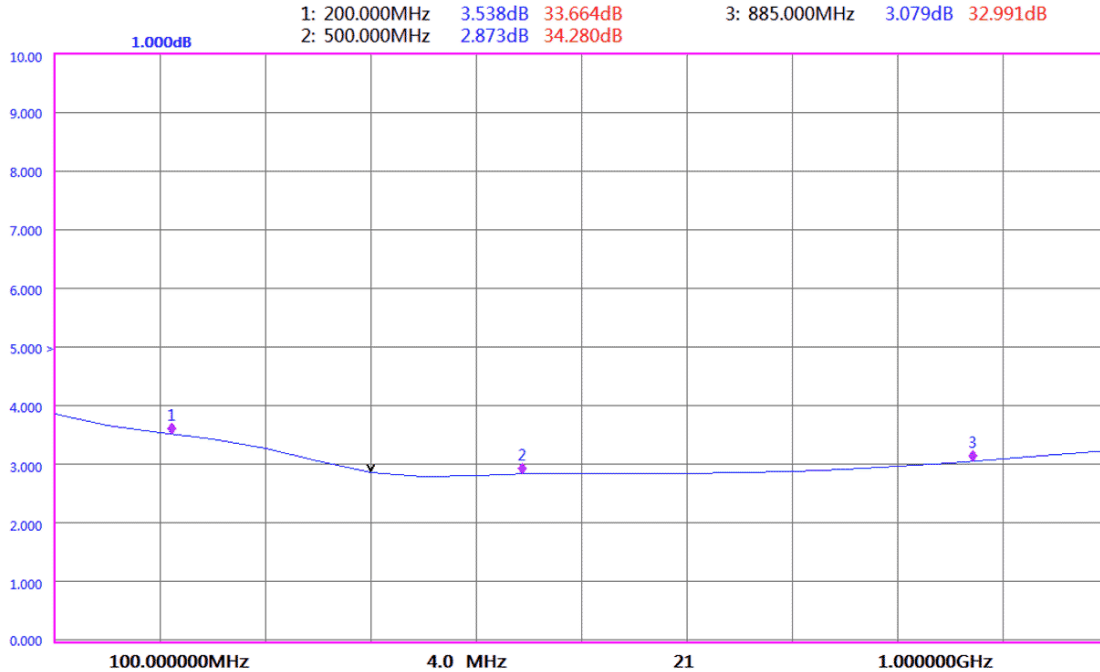
# Broadband Low Noise RF Amplifier (LNA)



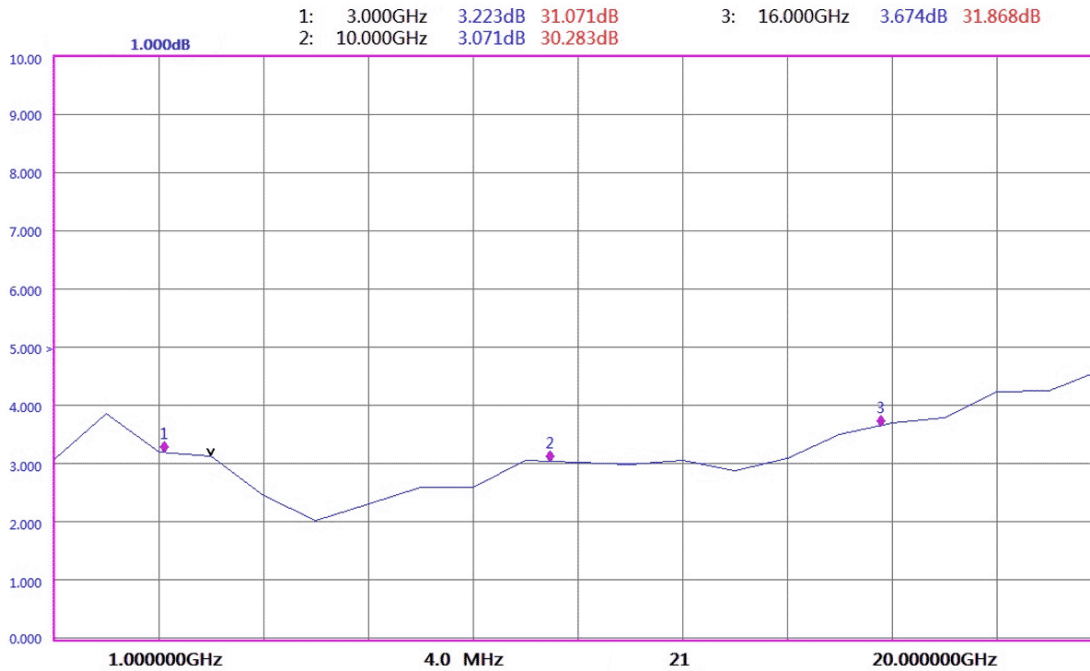
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### NF test vs Frequency 10MHz-1GHz



### NF test vs Frequency 1-20GHz



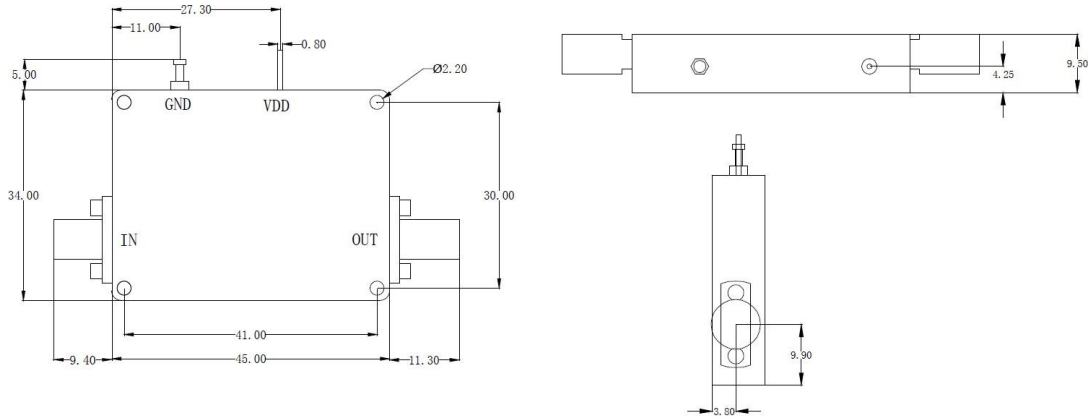
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### Dimensions (mm)

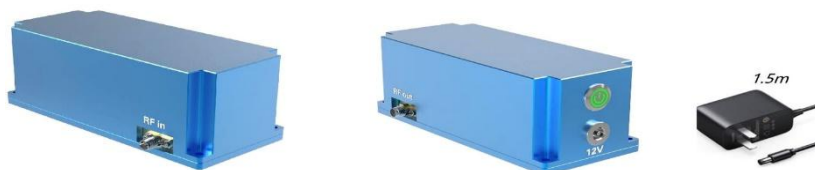
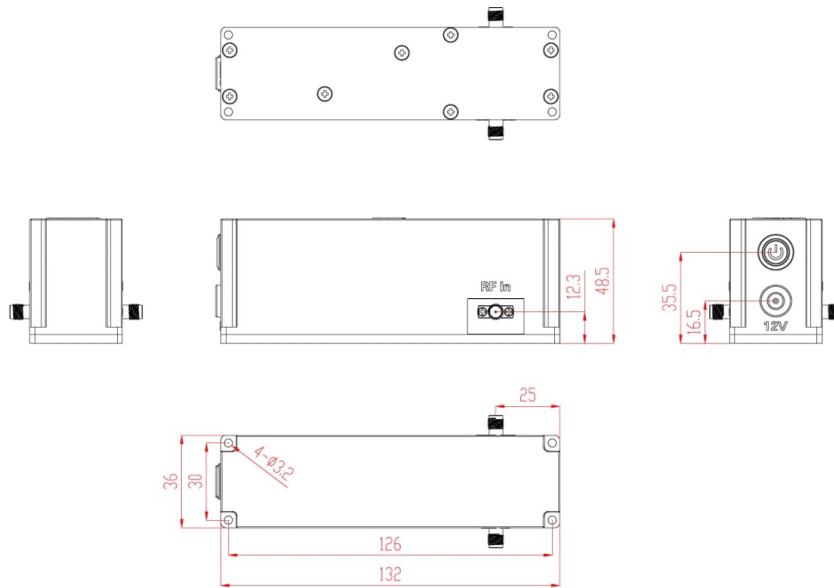


|             | <26.5GHz | <40GHz | <50GHz | <67GHz |
|-------------|----------|--------|--------|--------|
| Connector   | SMA      | 2.92mm | 2.4mm  | 1.85mm |
| Length of a | 9.4mm    | 9.5mm  | 10.8mm | 11.3mm |

Note: Female Default. Contact with us for other types.

Standard module outline, Heat sink required if case temp exceeds 50°C

### -LCBT Option Dimension (mm)



Module \*

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### Ordering Information (Part Number)

| Prefix       | Low Frequency | High Frequency | Gain      | NF      | P1dB       | Module*           |
|--------------|---------------|----------------|-----------|---------|------------|-------------------|
| <b>LNAM-</b> | 50kHz = 0005  | 20GHz = 20     | 28dB = 28 | 3dB = 3 | 15dBm = 15 | No = 0<br>Yes = 1 |