# ILA300350A

## 3.0 – 3.5 GHz LOW NOISE AMPLIFIER

**REV A**
**March 2014**

## Key Features

- 50 Ohm Impedance
- 3.0 ~ 3.5 GHz
- 1.2 dB Noise Figure
- 25 dB Gain
- 1.35:1 VSWR
- 12 dBm $P_{1dB}$
- Precision Machined Housing
- Single DC Power Supply
- Meet MIL-STD-202g

## Applications

- S & C Bands
- Receiver Amplifiers
- RF Bench Tests
- Mobile Base Station Applications

## Absolute Maximum Ratings

| Parameters | Units | Ratings |
|---|---|---|
| DC Power Supply Voltage | V | -0.5,32 |
| RF Input CW Power | dBm | 10 |
| Storage Temperature | °C | -40 ~ +85 |
| Operating Temperature | °C | -40 ~ +85 |

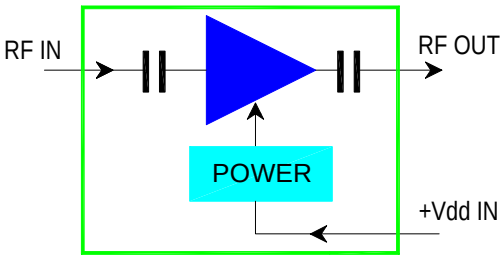
Operation of this device beyond any one of these parameters may cause permanent damage.

## Specifications

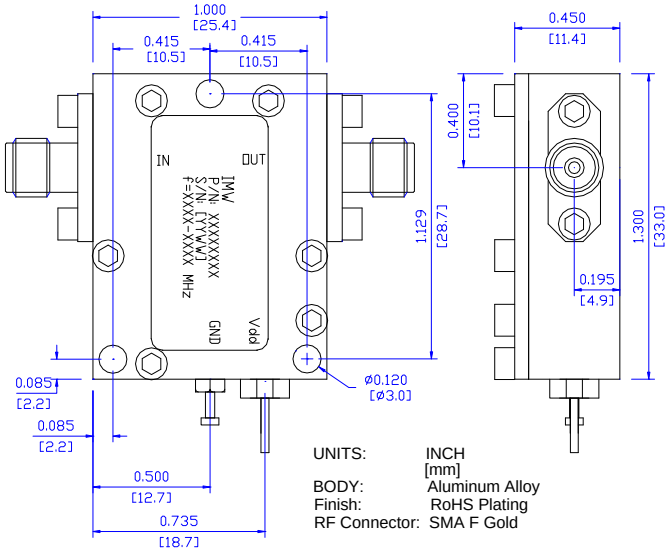
Summary of the key electrical specifications at 25°C

| Index | Testing Item | Symbol | Test Constraints | Min | Nom | Max | Unit |
|---|---|---|---|---|---|---|---|
| 1 | Frequency Range | BW | 50 Ohm Impedance | 3.0 | | 3.5 | GHz |
| 2 | Gain | $S_{21}$ | 3.0 – 3.5 GHz | 23 | 25 | 27 | dB |
| 3 | Gain Variation | ΔG | 3.0 – 3.5 GHz | | +/- 0.5 | | dB |
| 4 | VSWR | $SWR_i$ | 3.0 – 3.5 GHz, all RF ports | | 1.35:1 | 1.5:1 | Ratio |
| 5 | Reverse Isolation | $S_{12}$ | 3.0 – 3.5 GHz | | 40 | | dB |
| 6 | Noise Figure | NF | 3.0 – 3.5 GHz | | 1.2 | 1.5 | dB |
| 7 | Output Power 1dB Compression Point | $P_{1dB}$ | 3.0 – 3.5 GHz | 9 | 12 | | dBm |
| 8 | Output-Third-Order Interception Point | $IP_3$ | Two-Tone, $P_{out}$ = 0 dBm each, 1 MHz Separation | 22 | 25 | | dBm |
| 9 | Current Consumption | $I_{dd}$ | $V_{dd}$ = +14.0 V | | 55 | | mA |
| 10 | Power Supply Operating Voltage | $V_{dd}$ | | +8 | +12 | +16 | V |
| 11 | Operating Temperature | $T_o$ | | -40 | | +85 | °C |
| 12 | Thermal Resistance | $R_{th,c}$ | Junction to case | | | 215 | °C/W |

## Functional Block Diagram




## Outline, IP-3 Housing




## Ordering Information

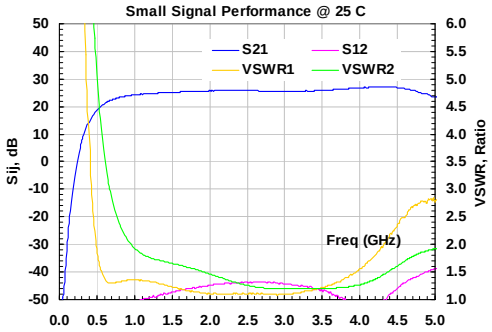
| Model Number | Connectors | |
|---|---|---|
| | IN | OUT |
| ILA300350A | SMA Female | SMA Female |

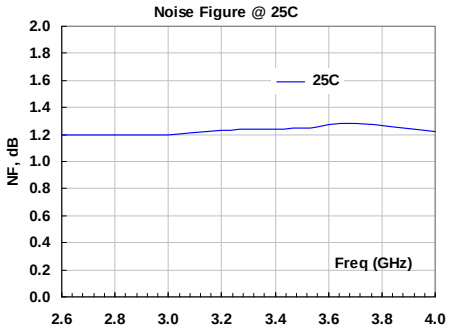
Specifications and information are subject to change without notice.

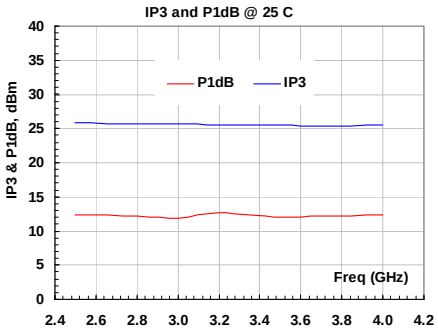


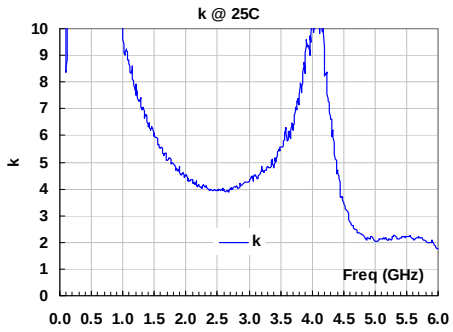
**Infiniti Microwave Inc.** Tel：+86 591 87812519 Fax: +86 591 87303613 E-mail: sales@infinitimw.com Website: www.infinitimw.com

## Typical Data




## Application Notes:

### A. SMA Torque Wrench Selection

Always use a torque wrench with 5 ~ 6 inch-lb coupling torque setting for mating the SMA cables to the amplifier. Never use torque more than 8 inch-lb wrench for tightening the mating cable to the connector. Otherwise, the permanent damage will occur to the SMA connectors of the amplifier. 8710-1582 (5 inch-lb) is one of the ideal torque wrench choice from Agilent Technology.

### B. Mounting the Amplifier

Use three pieces of #2-56 with longer than 9/16” screws for mounting the amplifier on a metal-based chase. Flat and spring washers are needed to prevent the screw loosening during the shock and vibration. Always use the appropriate torque setting of the power screwdriver to mount them.

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