



WLLA10-3535A

0.9 - 1.2 GHz LOW NOISE LIMITER AMPLIFIER

REV A
January 2010

Key Features



- 0.9 ~ 1.2 GHz
- **0.50 dB NF (AS Version)**
- 30.0 dBm Output IP₃
- 35.0 dB Gain
- 30 dBm Max Input RF Power
- 20.0 dBm P_{1dB}
- 1.25:1 VSWR
- Single Power Supply
- >300,000 Hours MTBF
- Unconditional Stable
- RoHS Compliant

Product Description

WLLA10-3535A integrates WanTcom proprietary low noise amplifier technology, high frequency micro electronic assembly techniques, and high reliability design to realize optimum low noise figure, wideband, high linearity, and unconditional stable performances together. With single +5.0V DC operation, the amplifier has optimal input and output matching in the specified frequency range at 50-Ohm impedance system. The amplifier has standard SMA connectorized WP-5 gold plated housing.

The amplifier is designed to meet the rugged standard of MIL-STD-202.

Applications

- Mobile Infrastructures
- Avionics
- Pager
- Security System
- Measurement
- Fixed Wireless



Specifications

Summary of the electrical specifications WLLA10-3535A at room temperature

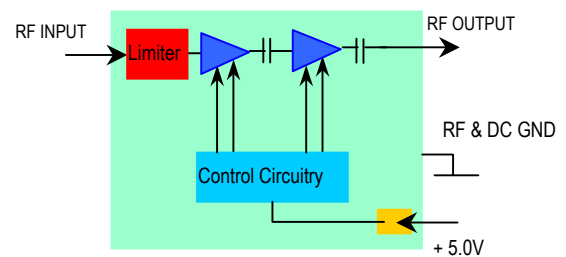
| Index | Testing Item | Symbol | Test Constraints | Min | Nom | Max | Unit |
|-------|---------------------------------------|---------------------|--|------|---------|--------|------|
| 1 | Gain | S ₂₁ | 0.9 – 1.2 GHz | 33 | 34.5 | 36 | dB |
| 2 | Gain Variation | ΔG | 0.9 – 1.2 GHz | | +/- 0.3 | +/-0.5 | dB |
| 3 | Input Return Loss | S ₁₁ | 0.9 – 1.2 GHz | 16 | 20 | | dB |
| 4 | Output Return Loss | S ₂₂ | 0.9 – 1.2 GHz | 16 | 20 | | dB |
| 5 | Reverse Isolation | S ₁₂ | 0.9 – 1.2 GHz | | 50 | | dB |
| 6 | Noise figure | NF | 0.9 – 1.2 GHz, WLLA10-3535A | | 0.60 | 0.70 | dB |
| | | | 0.9 – 1.2 GHz, WLLA10-3535AS | | 0.50 | 0.60 | |
| 7 | Output Power 1dB compression Point | P _{1dB} | 0.9 – 1.2 GHz | 19 | 20 | | dBm |
| 8 | Output-Third-Order Interception point | IP ₃ | Two-tone, P _{out} =+0 dBm each, 1 MHz sep. | 28 | 30 | | dBm |
| 9 | Current Consumption | I _{dd} | V _{dd} = +5V | | 110 | | mA |
| 10 | Power Supply Voltage | V _{dd} | | +4.8 | +5.0 | +5.2 | V |
| 11 | Thermal Resistance, Junction to Case | R _{th,c} | Per Last stage transistor V _{ds} = 4.0V, I _{ds} = 70 mA, | | | 220 | °C/W |
| 12 | Operating Temperature | T _o | -- | -40 | | +85 | °C |
| 13 | Maximum CW RF Input Power | P _{IN,MAX} | DC – 6 GHz | | | 30 | dBm |

Absolute Maximum Ratings

| Parameters | Units | Ratings |
|-------------------------|-------|-----------|
| DC Power Supply Voltage | V | 6.0 |
| Drain Current | mA | 120 |
| Total Power Dissipation | mW | 700 |
| RF Input Power, CW | dBm | 30 |
| Channel Temperature | °C | 150 |
| Storage Temperature | °C | -55 ~ 125 |
| Operating Temperature | °C | -40 ~ 85 |
| Thermal Resistance | °C/W | 220 |

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

Functional Block Diagram



Ordering Information

| Model Number | NF (dB) |
|---------------|---------|
| WLLA10-3535A | 0.60 |
| WLLA10-3535AS | 0.50 |

Preliminary

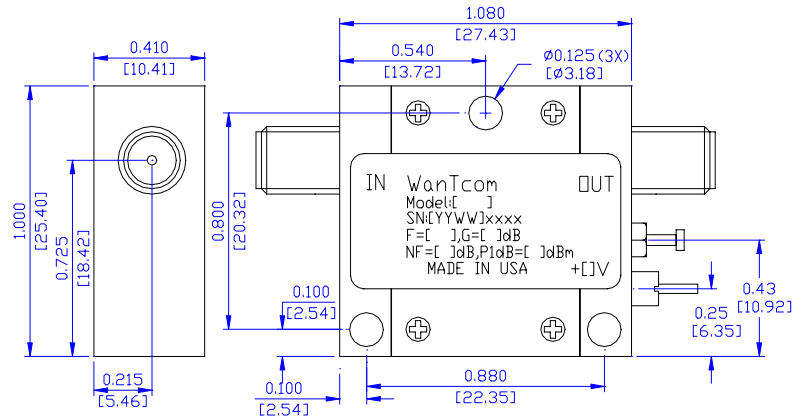
Specifications and information are subject to change without notice.



Typical Data

Outline, WP-5 Housing

UNITS: INCH
 [mm]
 BODY: Brass
 Finish: Gold Plating
 RF Connector: SMA F Gold
 V_{dd} PWR: Feed through



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. DC Power Line Connection

Strip the insulation layer at the end of DC power supply wire. The stripped distance should be in the range of 0.100" to 0.200". The 24 ~ 26 American Wire Gauge wire is suitable. Wound the stripped terminal wire about 1 to 2 turns on the DC feed thru center pin. Solder the wounded wire and the center pin together. Clean the soldering area by Q-tip with alcohol to remove the flux and residue.

Repeat the process to solder the DC return wire on the ground turret.

C. Mounting the Amplifier

Use three pieces of #4-40 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.
