



# WLLA0110A

## 0.1- 1.1 GHz LOW NOISE LIMITER AMPLIFIER

REV B  
September 2016

### Key Features



- 50 Ohm Impedance
- 0.1 ~ 1.1 GHz Up to 1.8 GHz
- 0.60 dB Noise Figure
- 34.0 dBm Output IP<sub>3</sub>
- 22.0 dB Gain
- 18.0 dBm P<sub>1dB</sub>
- 20.0 dB Return Losses
- Built-in Limiter
- Single Power Supply
- >34 Years MTBF
- RoHS Compliant

### Product Description

WLLA0110A is integrated with WanTcom proprietary low noise amplifier technology, high frequency micro electronic assembly techniques, and high reliability design to realize optimum low noise figure, wideband matching, and high linearity performances together. With single DC voltage operation, the amplifier has optimal input and output matching in the specified frequency range at 50-Ohm impedance system. The amplifier has standard SMA Female connectorized Gold plated WP-10E housing.

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

CAUTION:



ELECTROSTATIC DISCHARGE SENSITIVE

### Applications

- Mobile Infrastructures
- GPS
- CATV/DBS
- WiMAX
- Security System
- Measurement
- Fixed Wireless



### Specifications

Summary of the electrical specifications at room temperature

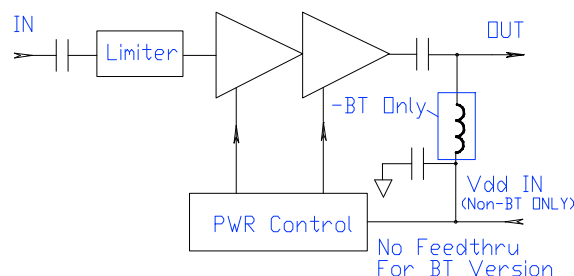
Index	Testing Item	Symbol	Test Constraints	Min	Nom	Max	Unit
1	Gain	S <sub>21</sub>	0.1 – 1.1 GHz	20	22	24	dB
2	Gain Variation	ΔG	0.1 – 1.1 GHz		+/- 0.8		dB
3	Input Return Loss	S <sub>11</sub>	0.1 – 1.1 GHz	16	20		dB
4	Output Return Loss	S <sub>22</sub>	0.1 – 1.1 GHz	16	20		dB
5	Reverse Isolation	S <sub>12</sub>	0.1 – 1.1 GHz	20	22		dB
6	Noise figure	NF	0.1 – 1.1 GHz		0.60	0.8	dB
7	Output Power 1dB Compression Point	P <sub>1dB</sub>	0.1 – 1.1 GHz	16	18		dBm
8	Output-Third-Order Interception Point	IP <sub>3</sub>	Two-Tone, P <sub>out</sub> = +0 dBm each, 1 MHz separation	30	34		dBm
9	Current Consumption	I <sub>dd</sub>	V <sub>dd</sub>	55	60	70	mA
10	Power Supply Voltage	V <sub>dd</sub>	WLLA0110A	+4.7	+5	+5.3	V
			WLLA0110B	+8		+16	
11	Thermal Resistance	R <sub>th,c</sub>	Junction to case			220	°C/W
12	Operating Temperature	T <sub>o</sub>		-40		+85	°C
13	Maximum Average RF Input Power	P <sub>IN, MAX</sub>	DC – 6.0 GHz			30	dBm

### Absolute Maximum Ratings

Parameters	Units	Ratings
DC Power Supply Voltage	V	-0.5, 6.0 (+16 for WLLA0110B)
Drain Current	mA	75
Total Power Dissipation	mW	450
RF Input Power	dBm	30
Channel Temperature	°C	150
Storage Temperature	°C	-65 ~ 150
Operating Temperature	°C	-54 ~ 100
Thermal Resistance	°C/W	220

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

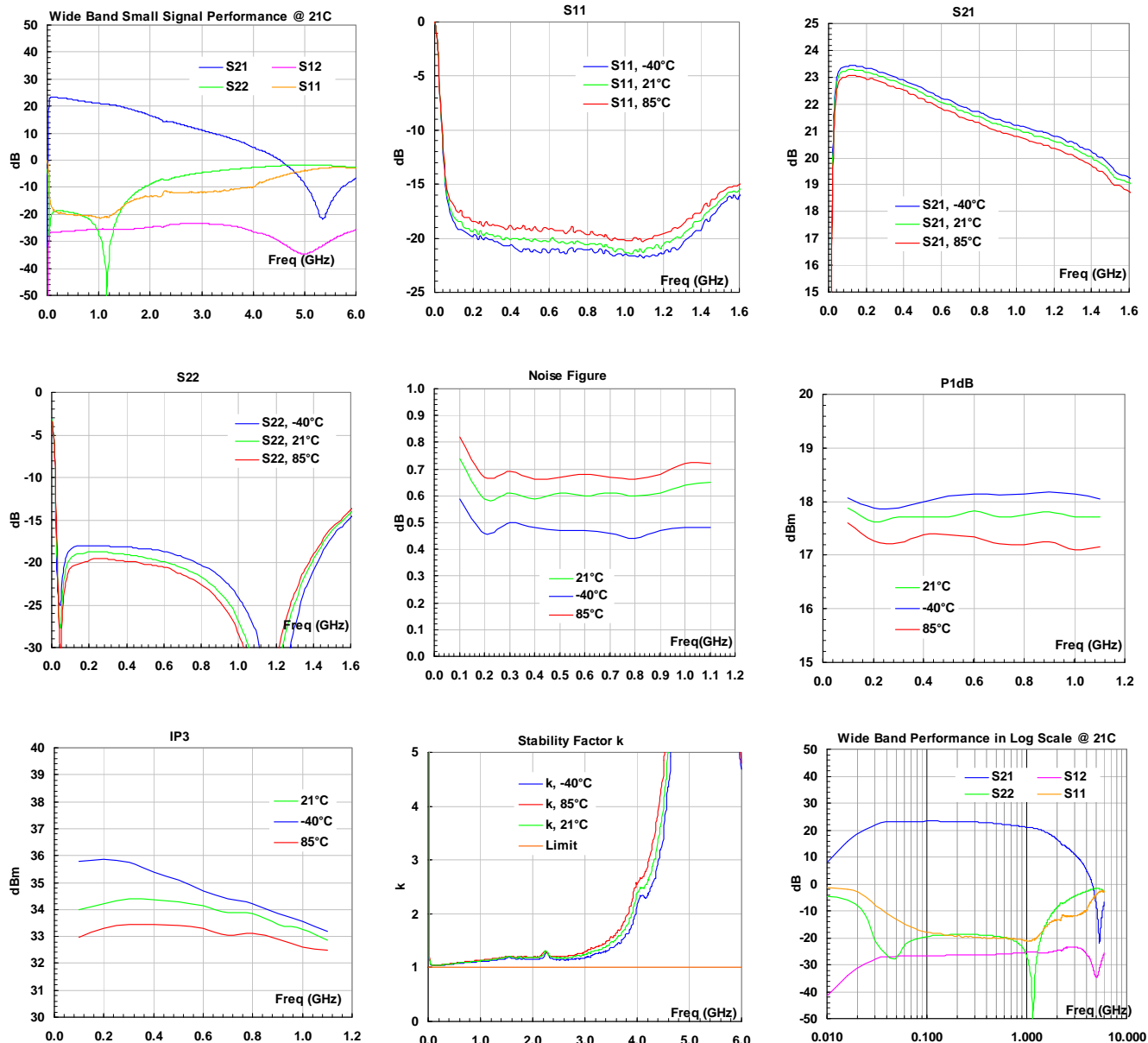
### Functional Block Diagram



### Ordering Information

Model Number	Without Output Bias-T	With Output Bias-T
V <sub>dd</sub> = +5.0	WLLA0110A	WLLA0110ABT
V <sub>dd</sub> = +8.0 ~ +16.0V	WLLA0110B	WLLA0110BBT

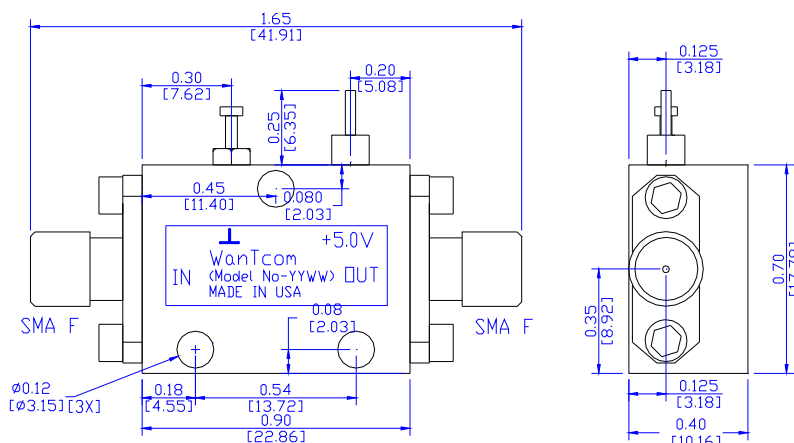
Specifications and information are subject to change without notice.

**Typical Data**

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## Outline, WP-10E Housing



UNITS: INCH Tolerance: X.XX +/- 0.010"  
[mm] X.XXX +/- 0.005"

Base Material: Brass.  
Finish: Gold Plating.  
RF I/O: SMA Female

UNITS: INCH  
[mm]  
BODY: Brass  
Finish: Gold Plating  
RF Connectors: SMA F Gold  
V<sub>dd</sub> PWR: Feed through

## Application Notes:

### SMA Torque Wrench Selection

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

### DC Power Line Connection

Strip the insulation layer at the end of a 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 turn 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. It is always helpful to use different color wires for DC wire and ground wire, such as red and black one.

### 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.

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