WLA01-6525A

100 – 175 MHz LOW NOISE WIDE BAND AMPLIFIER

REV A
February 2010

Key Features

- 100 ~ 175 MHz
- 0.55 dB NF
- 26.0 dBm output IP_3
- 63.0 dB Gain
- +/-0.2 dB Gain Flatness
- 13.0 dBm P_{1dB}
- 1.25:1 VSWR
- Single power supply
- >34 years MTBF
- Unconditional stable
- RoHS compliant

Product Description

WLA01-6525A 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 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

- Quantum Physics
- VHF

Specifications

Summary of the electrical specifications WLA01-6525A at room temperature

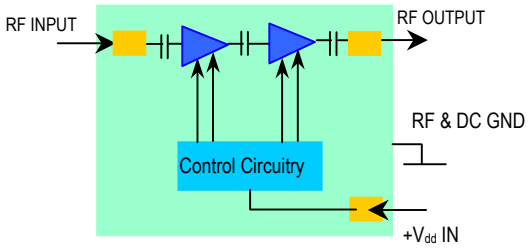
Index	Testing Item	Symbol	Test Constraints	Min	Nom	Max	Unit
1	Gain	S_{21}	100 – 175 MHz	41	63	65	dB
2	Gain Variation	ΔG	100 – 175 MHz		+/- 0.2	+/-0.5	dB
3	Input Return Loss	S_{11}	100 – 175 MHz	16	20		dB
4	Output Return Loss	S_{22}	100 – 175 MHz	16	20		dB
5	Reverse Isolation	S_{12}	100 – 175 MHz		75		dB
6	Noise figure	NF	100 – 175 MHz		0.55	0.70	dB
7	Output Power 1dB compression Point	P_{1dB}	100 – 175 MHz		13		dBm
8	Output-Third-Order Interception point	IP_3	Two-Tone, P_{out} +0 dBm each, 1 MHz separation	25	28		dBm
9	Current Consumption	I_{dd}	At any V_{dd} value		70		mA
10	Power Supply Voltage	V_{dd}		+4.7	6.0	+9.0	V
11	Thermal Resistance	$R_{th,c}$	Junction to case, last stage RF transistor			220	°C/W
12	Operating Temperature	T_o		-40		+85	°C
13	Maximum Average RF Input Power	$P_{IN, MAX}$	DC – 6 GHz			10	dBm

Absolute Maximum Ratings

Parameters	Units	Ratings
DC Power Supply Voltage	V	10
Drain Current	mA	100
Total Power Dissipation	mW	900
RF Input Power	dBm	10
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	WLA01-6525A

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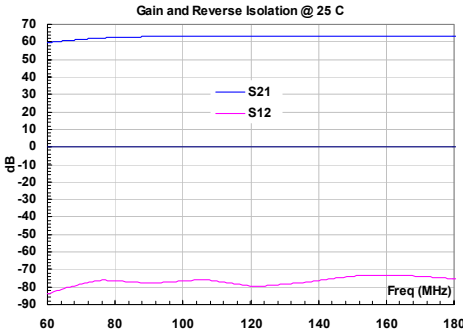
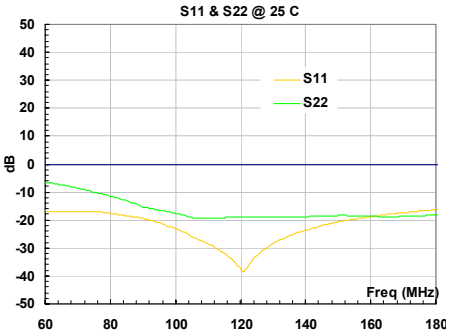
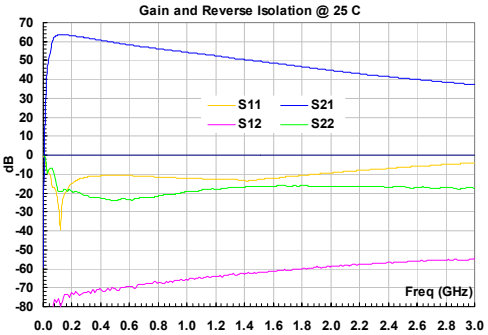
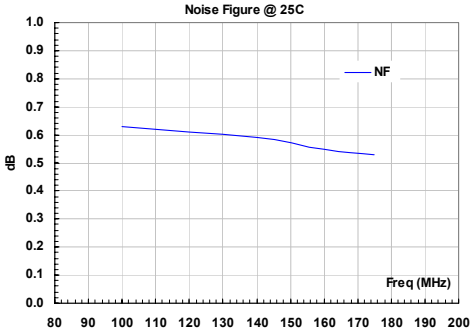
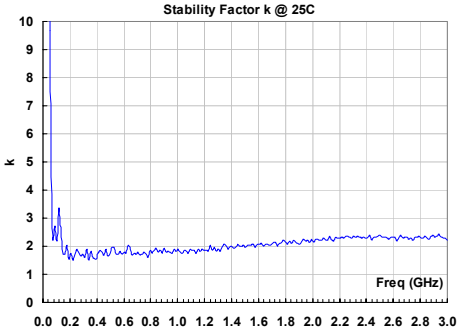
Typical Data





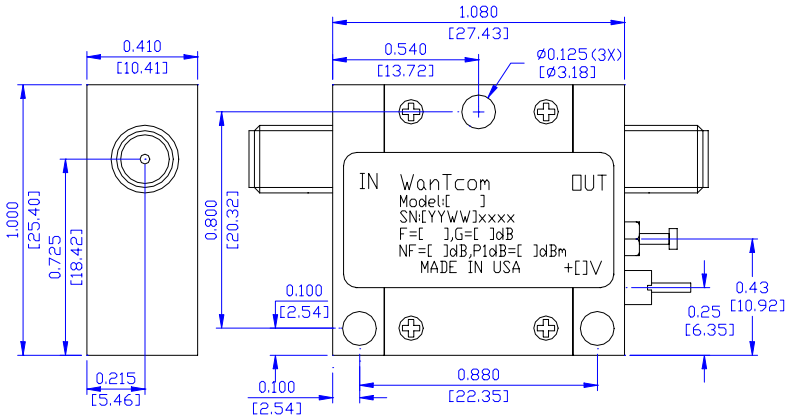






Outline, WP-5 Housing

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



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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.

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