



WBA0006-65A

10 – 600 MHz 66 dB GAIN LOW NOISE WIDE BAND AMPLIFIER

REV A
November 2015

Key Features



- 10 ~ 600 MHz
- 0.65 dB Noise Figure
- 33.0 dBm Output IP₃
- **66.0 dB Gain**
- +/-0.50 dB Gain Flatness
- 18.0 dBm P_{1dB}
- 1.35:1 VSWR
- Single Power Supply
- >34 Years MTBF
- Unconditional Stable
- RoHS Compliant

Product Description



WBA0006-65A 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, high linearity, and unconditional stable performances together. With single DC power 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-202g.

Applications

- Mobile Infrastructures
- Cellular
- CATV/DBS
- Defense
- Security System
- Measurement
- Fixed Wireless



Specifications

Summary of the electrical specifications at room temperature

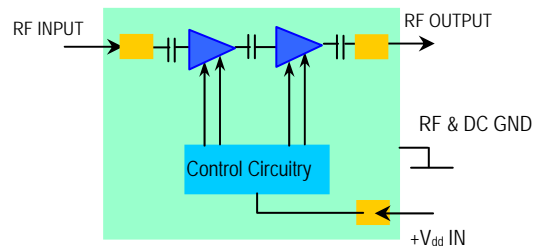
Index	Testing Item	Symbol	Test Constraints	Min	Nom	Max	Unit
1	Gain	S ₂₁	10 – 600 MHz	65	66		dB
2	Gain Variation	ΔG	10 – 600 MHz		+/- 0.5	+/-1.0	dB
3	Input VSWR	SWR ₁	10 – 600 MHz		1.35:1	1.5:1	Ratio
4	Output VSWR	SWR ₂	10 – 600 MHz		1.35:1	1.5:1	Ratio
5	Reverse Isolation	S ₁₂	10 – 600 MHz		60		dB
6	Noise figure	NF	10 – 50 MHz			1.3	dB
			50 – 600 MHz		0.65	0.90	
7	Output Power 1dB compression Point	P _{1dB}	10 – 600 MHz	16	18		dBm
8	Output-Third-Order Interception point	IP ₃	Two-Tone, P _{out} +0 dBm each, 1 MHz separation	29	33		dBm
9	Current Consumption	I _{dd}			100		mA
10	Power Supply Voltage	V _{dd}	WBA0006-65A	+4.7	+5	+5.3	V
			WBA0006-65B	+7.0		+16	
11	Thermal Resistance	R _{th,c}	Junction to case			220	°C/W
12	Operating Temperature	T _o		-40		+85	°C
13	Maximum RF CW Input Power	P _{IN, MAX}	DC – 6 GHz			15	dBm

Absolute Maximum Ratings

Parameters	Units	Ratings
DC Power Supply Voltage	V	6.0 (+16V for WBA0006-65B)
Drain Current	mA	120
Total Power Dissipation	mW	600
RF CW Input Power	dBm	15
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	Feature
WBA0006-65A	V _{dd} = +5.0V
WBA0006-65B	V _{dd} = +7.0 ~ +16.0V

Specifications and information are subject to change without notice.

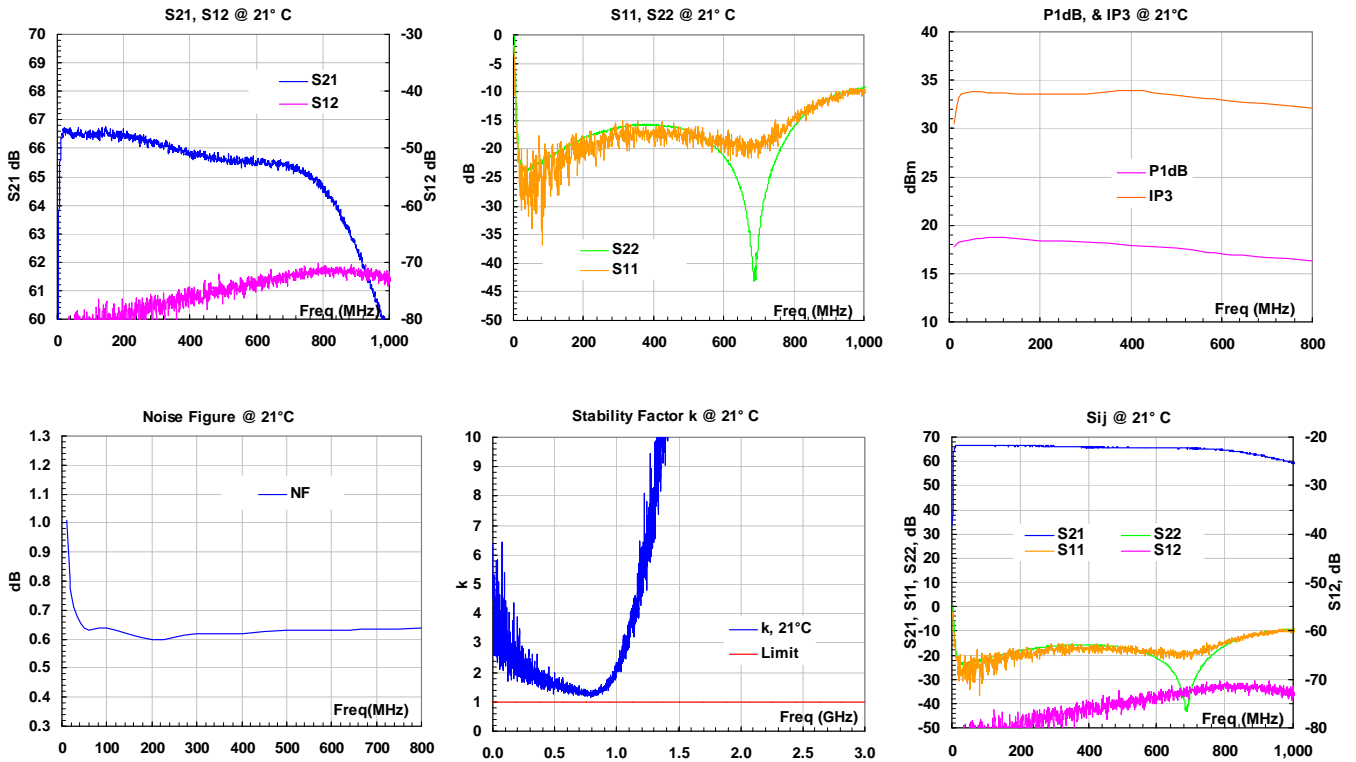


WBA0006-65A

10 – 600 MHz 66 dB GAIN LOW NOISE WIDE BAND AMPLIFIER

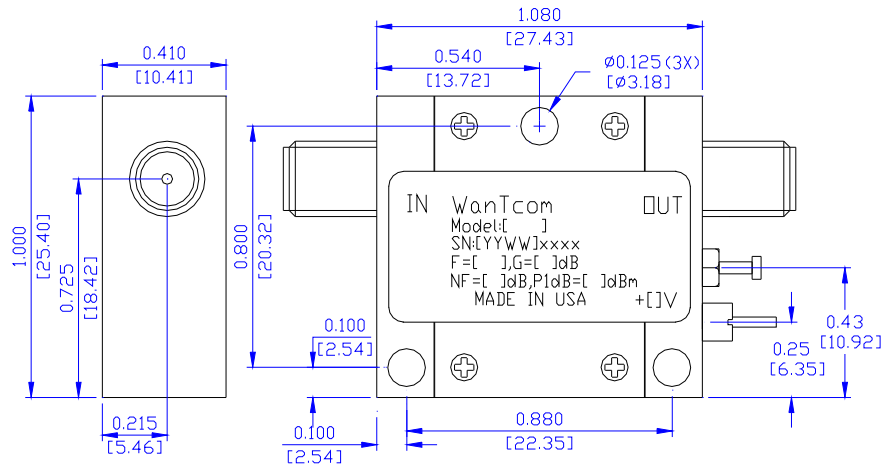
REV A
November 2015

Typical Data



Outline, WP-5 Housing

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



Specifications and information are subject to change without notice.



Application Notes:

A. Testing The Amplifier

Due to extreme high gain of more than 4 millions times, the input power level to the amplifier must be set at – 60 dBm or lower! Too high input power will saturate the amplifier and causes inaccurate measured performance.

B. 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.

C. 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.

D. 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.
