



WBA0010-45A

10 MHz – 1.0 GHz LOW NOISE WIDE BAND AMPLIFIER

REV D
August 2016

Key Features



- 10 MHz ~ 1.0 GHz
- **+/-0.25 dB Gain Flatness**
- 20.0 dBm Output P_{1dB}
- 44.0 dB Gain
- 0.60 dB Noise Figure
- 1.25:1 VSWR
- 35.0 dBm Output IP₃
- >34 years MTBF
- Unconditional Stable
- RoHS Compliant
- Meet MIL-STD-202g

Product Description

WBA0010-45A 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 +5.0V or +12.0V 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-11 Gold plated housing.



Applications

- Mobile Infrastructures
- Cellular
- Paging System
- Measurement
- Fixed Wireless



Specifications

Summary of the electrical specifications at room temperature

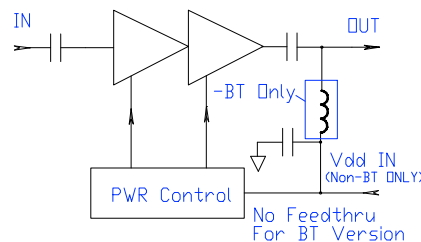
Index	Testing Item	Symbol	Test Constraints	Min	Nom	Max	Unit
1	Gain	S ₂₁	10 MHz – 1.0 GHz	42	44	46	dB
2	Gain Variation	ΔG	10 MHz – 1.0 GHz		+/- 0.25	+/-0.5	dB
3	Input VSWR	SWR ₁	10 MHz – 1.0 GHz		1.25:1	1.5:1	Ratio
4	Output VSWR	SWR ₂	10 MHz – 1.0 GHz		1.25:1	1.5:1	Ratio
5	Noise Figure	NF	10 MHz – 50 MHz		1.0	1.5	dB
			50 MHz – 1.0 GHz		0.6	0.8	
6	Reverse Isolation	S ₁₂	10 MHz – 1.0 GHz	40	50		dB
7	Output IP ₃	IP ₃	10 MHz – 1.0 GHz	30	35		dBm
8	Output Power 1dB Compression Point	P _{1dB}	10 MHz – 1.0 GHz	18	20		dBm
9	Current Consumption	I _{dd}	WBA0010-45A or WBA0010-45B		85		mA
10	Power Supply Voltage	V _{dd}	WBA0010-45A	+4.7	+5	+5.3	V
			WBA0010-45B	+8.0	+12.0	+16.0	
11	Operating Temperature	T _o		-40		+85	°C
12	Maximum Input CW RF Power	P _{IN, MAX}	DC – 6 GHz			10	dBm

Absolute Maximum Ratings

Parameters	Units	Ratings
DC Power Supply Voltage	V	-0.5/6.0 or -0.5/+16V (-B version)
Drain Current	mA	140
Total Power Dissipation	W	0.7
Input CW RF Power	dBm	10
Channel Temperature	°C	150
Storage Temperature	°C	-55 ~ 125
Operating Temperature	°C	-40 ~ 85
Thermal Resistance	°C/W	120

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

Functional Block Diagram



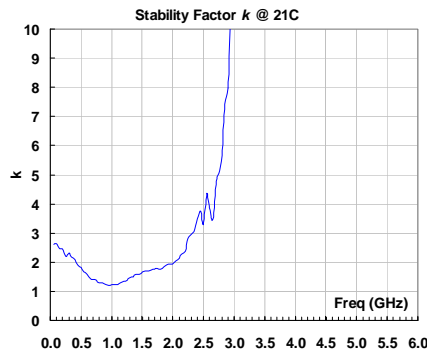
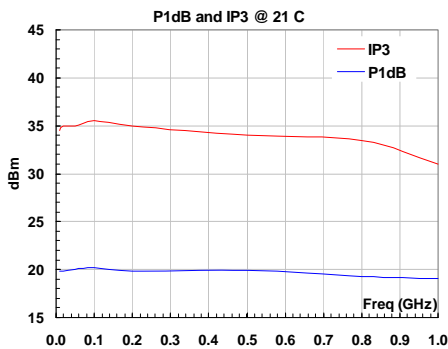
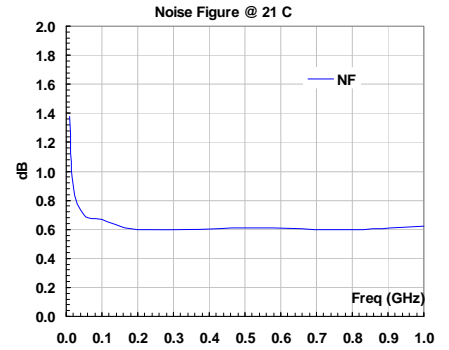
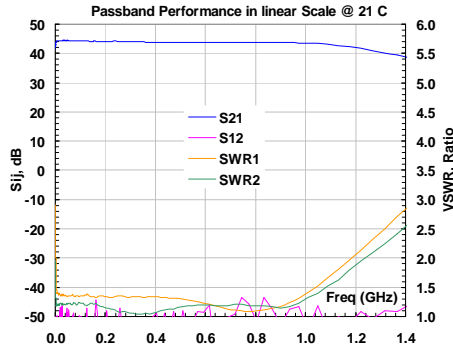
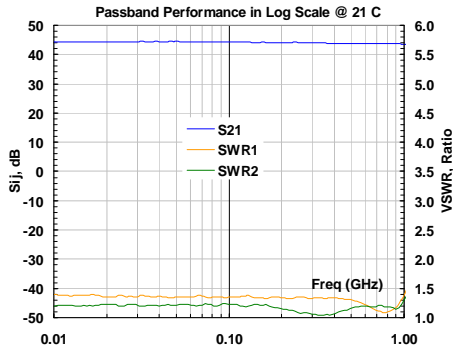
Ordering Information

DC Voltage	Without Output Bias-T	With Output Bias-T
V _{dd} = +5.0V	WBA0010-45A	WBA0010-45ABT
V _{dd} = +8.0 ~ +16.0V	WBA0010-45B	WBA0010-45BBT

Specifications and information are subject to change without notice.

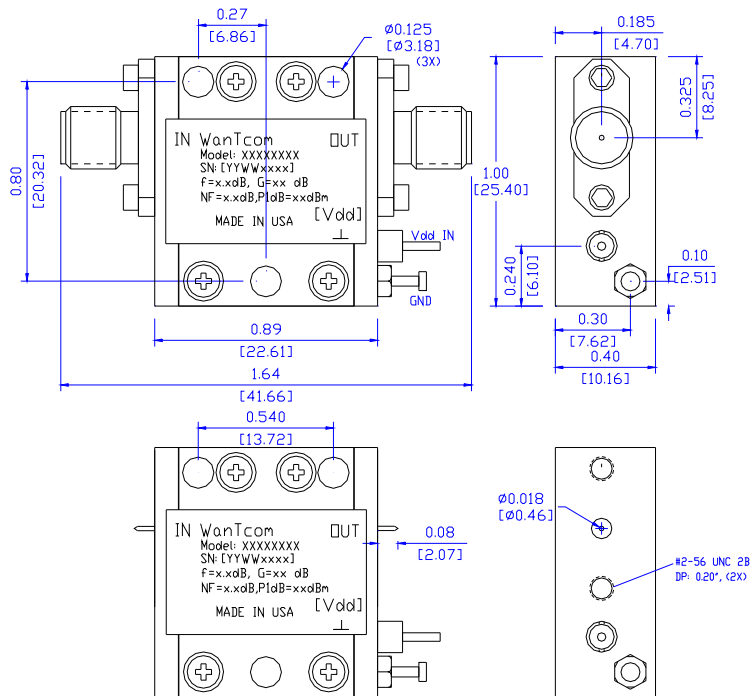


Typical Data:



Outline, WP-11 Housing

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



V_{dd} IN Pin and Ground Turret are not installed for BT versions

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Application Notes:

A. ESD Safe

Always handle the amplifier at ESD safe environment! ESD may damage the amplifier permanently.

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 may 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 turn only on the DC feed thru center pin. Solder the wounded wire and the center pin together. Make sure use smaller soldering iron tip such as 0.010" for this process soldering. Excessive heat and large tip may damage the feed thru pin. 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 with higher temperature and larger soldering tip such as 0.020".

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 tests. Always use the appropriate torque setting of the power screwdriver to mount them.
