WBA80180B

8 - 18 GHz LOW NOISE WIDE BAND AMPLIFIER

REV D
March 2015

Key Features

- 50 Ohm Impedance
- 8.0 ~ 18.0 GHz
- 2.0 dB Noise Figure
- 19.0 dBm Output P_{sat}
- 35.0 dB Gain
- +/-1.5 dB Gain Flatness
- 1.8:1 VSWR
- Single Power Supply
- >34 years MTBF
- RoHS Compliant

Product Description

CAUTION: ELECTROSTATIC DISCHARGE SENSITIVE

WBA80180B 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 excellent gain flatness 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 field replaceable SMA connectorized WP-10D Gold plated housing.

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

Applications

- Microwave Radio
- Satellite VSAT & DBS
- 802.16 & 802.20 WiMAX
- WLL & MMDS
- Test Instrument

Specifications

Summary of the electrical specifications WBA80180B at room temperature

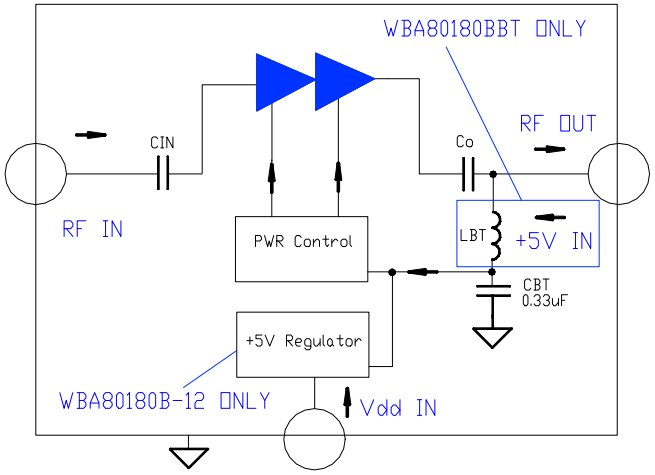
Index	Testing Item	Symbol	Test Constraints	Min	Nom	Max	Unit
1	Gain	S_{21}	8.0 – 18.0 GHz		35		dB
2	Gain Variation	ΔG	8.0 – 18.0 GHz		+/- 1.0		dB
3	Input VSWR	SWR_1	8.0 – 18.0 GHz		1.8:1	2.4:1	Ratio
4	Output VSWR	SWR_2	8.0 – 18.0 GHz		1.4:1	2.0:1	Ratio
5	Reverse Isolation	S_{12}	8.0 – 18.0 GHz	45			dB
6	Noise Figure	NF	8.0 – 18.0 GHz		2.0	2.5	dB
7	Output Power Saturation	P_{sat}	8.0 – 18.0 GHz		19		dBm
8	Current Consumption	I_{dd}	V_{dd}= +5 V or +9V ~ +16V		160		mA
9	Power Supply Voltage	V_{dd}	WBA80180B	+4.7	+5	+5.3	V
			WBA80180B-12, heat sink is required	+9.0		+16.0	V
10	Operating Temperature	T_o		-40		+85	°C
11	Maximum CW RF Input Power	$P_{IN, MAX}$	8.0 – 18.0 GHz			15	dBm

Absolute Maximum Ratings

Parameters	Unit	Ratings
DC Power Supply Voltage	V	-0.5 ~ +6.0 (+16V for WBA80180B-12)
Drain Current	mA	200
Total Power Dissipation	W	1
CW RF Input Power	dBm	15
Channel Temperature	°C	175
Storage Temperature	°C	-55 ~ 125
Operating Temperature	°C	-40 ~ 85

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

Functional Block Diagram



Ordering Information

Model Number	DC Voltage	Output Bias-T
WBA80180B	+5 V	WBA80180BBT
WBA80180B-12	+9 V ~ +16V	Not Available

Specifications and information are subject to change without notice.

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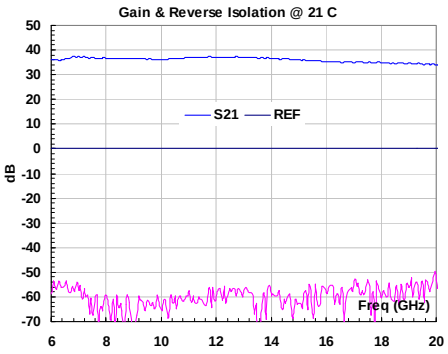
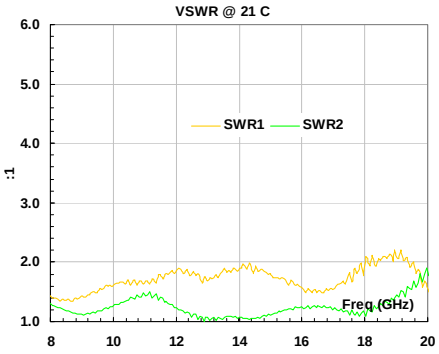
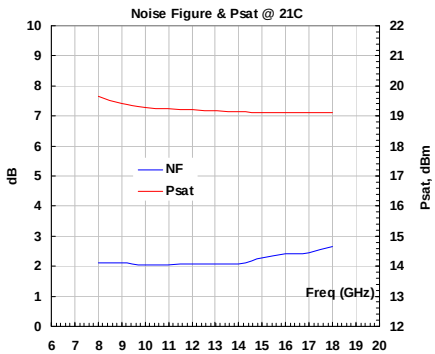
Typical Data



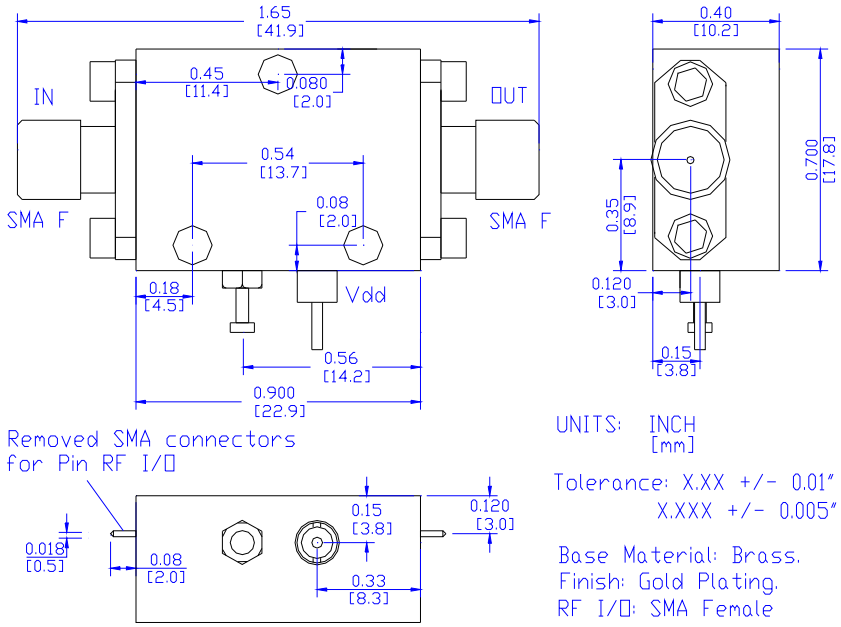




*The measured noise figure includes the input SMA connector loss. The noise figure shall be around 0.1 dB lower without Input SMA connector.

Outline, WP-10D Housing

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



For the pin type input and output application, remove the input and output SMA connectors.

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. 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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