WBA2040-35B

2 - 4 GHz LOW NOISE WIDE BAND AMPLIFIER

REV B
August 2018

Key Features

- 50 Ohm Impedance
- 2.0 ~ 4.0 GHz
- 0.80 dB noise figure
- 36.0 dB Gain
- +/-0.5 dB Gain Flatness
- 12.0 dBm P_{1dB}
- 1.5:1 VSWR
- Single Power Supply
- >34 years MTBF
- Unconditional stable
- RoHS Compliant

Product Description

CAUTION: ELECTROSTATIC DISCHARGE SENSITIVE

WBA2040-35B 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 +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-5 Gold plated housing.

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

Applications

- Mobile Infrastructures
- GPS
- C-band
- WiMAX
- Security System
- Measurement
- Fixed Wireless

Specifications

Summary of the electrical specifications WBA2040-35B at room temperature

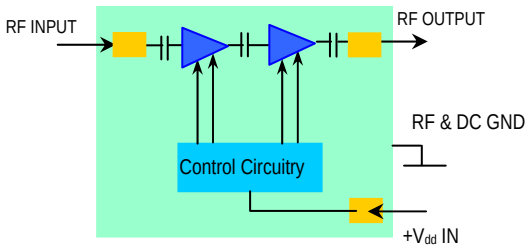
Index	Testing Item	Symbol	Test Constraints	Min	Nom	Max	Unit
1	Gain	S_{21}	2.0 – 4.0 GHz	34	36	38	dB
2	Gain Variation	ΔG	2.0 – 4.0 GHz		+/- 0.5	+/-1.0	dB
3	Input VSWR	SWR_1	2.0 – 4.0 GHz		1.5:1	1.8:1	Ratio
4	Output VSWR	SWR_2	2.0 – 4.0 GHz		1.35:1	1.5:1	Ratio
5	Reverse Isolation	S_{12}	2.0 – 4.0 GHz		42		dB
6	Noise Figure	NF	2.0 – 4.0 GHz		0.80	1.0	dB
7	Output Power 1dB Compression Point	P_{1dB}	2.0 – 4.0 GHz		12		dBm
8	Output IP_3	IP_3	Po = 0 dBm, f1 – f2 = 1 MHz, two tone	22	24		dBm
8	Current Consumption	I_{dd}	V_{dd}= +12 V		55	65	mA
9	Power Supply Voltage	V_{dd}		+7	+12	+18	V
10	Thermal Resistance	$R_{th,c}$	Junction to case			220	°C/W
11	Operating Temperature	T_o		-40		+85	°C
12	Maximum Input CW RF Power	$P_{IN, MAX}$	DC – 12 GHz			13	dBm

Absolute Maximum Ratings

Parameters	Units	Ratings
DC Power Supply Voltage	V	18
Drain Current	mA	80
Total Power Dissipation	mW	300
Input CW RF Power	dBm	13
Junction Temperature	°C	150
Storage Temperature	°C	-55 ~ 125
Operating Temperature	°C	-54 ~ 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	WBA2040-35B

Preliminary

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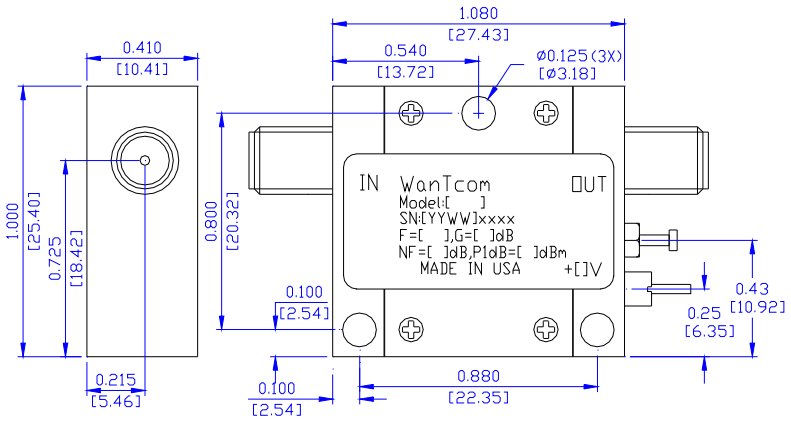
Typical Data

Outline, WP-5 Housing

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



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 connectors. 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 length should be around 0.100” to 0.200”. The 24 ~ 26 American Wire Gauge wire is suitable. Wound the stripped wire about 3/4 to 1 turn on the DC feed thru center pin. Solder the wounded wire and the center pin together. Clean the soldering joint by a Q-tip with alcohol to remove the flux and residue.

Do not use large soldering iron tip with more than 750 degree Fahrenheit to solder the wire and feed thru pin. Damage may occur to the feed thru. 0.010” size tip with 750 degree Fahrenheit temperature setting is suitable for the soldering works.

Repeat the process to solder the DC return wire on the ground turret. Higher temperature and larger tip can be used for this ground soldering.

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

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