



# WBA19-3038A

## 1.7- 2.0 GHz LOW NOISE BALANCE AMPLIFIER

REV B  
August 2009

### Key Features



- 1.7 ~ 2.0 GHz
- 0.8 dB noise figure
- 38.0 dBm output IP<sub>3</sub>
- 30.0 dB Gain
- 22.0 dBm P<sub>1dB</sub>
- 1.22:1 VSWR
- Single power supply
- >34 years MTBF
- Unconditional stable
- Full Alarm Capabilities
- RoHS compliant

### Product Description

WA19-3038A 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 +7.0V to +15V 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-1 clear plated housing.

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

### Applications

- Mobile Infrastructures
- Measurement
- Fixed Wireless

### Ordering Information

Model No.	WA19-3038A
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### Specifications

Summary of the electrical specifications WA19-3038A at room temperature

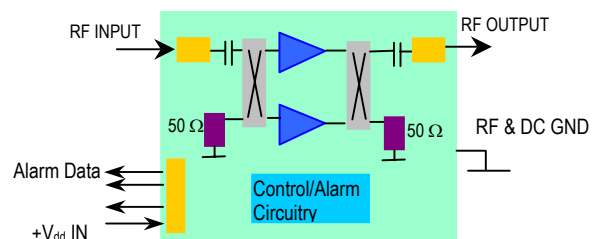
Index	Testing Item	Symbol	Test Constraints	Min	Nom	Max	Unit
1	Gain	S <sub>21</sub>	1.7 – 2.0 GHz		30		dB
2	Gain Variation	ΔG	20 MHz Bandwidth		+/-0.2	+/-0.25	dB
3	Input Return Loss	SWR <sub>1</sub>	1.7 – 2.0 GHz	18	20		dB
4	Output Return Loss	SWR <sub>2</sub>	1.7 – 2.0 GHz	18	20		dB
5	Reverse Isolation	S <sub>12</sub>	1.7 – 2.0 GHz	40			dB
6	Noise figure	NF	1.7 – 2.0 GHz		0.8	0.85	dB
7	Output Power 1dB compression Point	P <sub>1dB</sub>	1.7 – 2.0 GHz	20	22		dBm
8	Output-Third-Order Interception point	IP <sub>3</sub>	Two-Tone, P <sub>out</sub> +0 dBm each, 1 MHz separation	37	38		dBm
9	Current Consumption	I <sub>dd</sub>	V <sub>dd</sub> = +5 V		200		mA
10	Power Supply Voltage	V <sub>dd</sub>		+7		+15	V
11	Operating Temperature	T <sub>o</sub>	Base Plate	-40		+85	°C
12	Maximum Average RF Input Power	P <sub>IN, MAX</sub>	1.7 – 2.0 GHz			15	dBm
13	Soft Alarm TTL Output	V <sub>s</sub>	Normal/Fail, +/- 30% I <sub>d1</sub> or I <sub>d2</sub>	4.70/0.0			V
	Soft Alarm Open Collector Output	V <sub>so</sub>	Normal/Fail, External 10K to an external +V <sub>cc</sub>	Low/High			
	Hard Alarm TTL Output	V <sub>h</sub>	Normal/Fail, +/- 30% I <sub>dd</sub>	4.70/0.0			V
	Hard Alarm Open Collector Output	V <sub>ho</sub>	Normal/Fail, External 10K to an external +V <sub>cc</sub>	Low/High			
	Branch 1 Alarm TTL Output	V <sub>a1</sub>	Normal/Fail, +/- 30% I <sub>d1</sub>	4.70/0.0			V
	Branch 2 Alarm TTL Output	V <sub>a2</sub>	Normal/Fail, +/- 30% I <sub>d2</sub>	4.70/0.0			V

### Absolute Maximum Ratings

Parameters	Units	Ratings
DC Power Supply Voltage	V	+16V
Drain Current	mA	250
Total Power Dissipation	W	3.75
RF Input Power	dBm	15
Channel Temperature	°C	150
Storage Temperature	°C	-55 ~ 150
Operating Temperature	°C	-55 ~ +100

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

### Functional Block Diagram



Specifications and information are subject to change without notice.

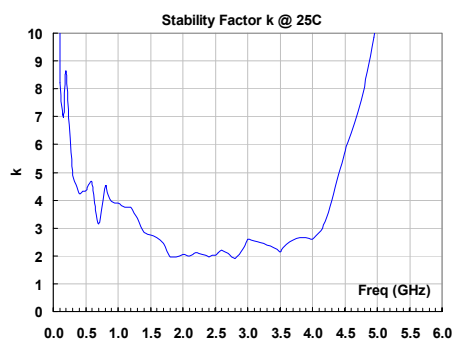
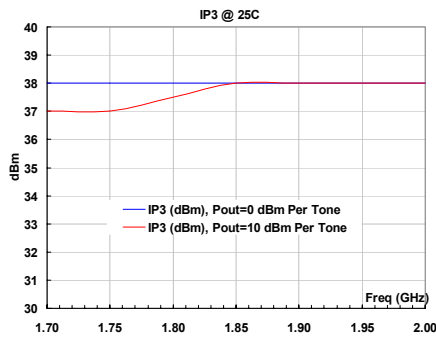
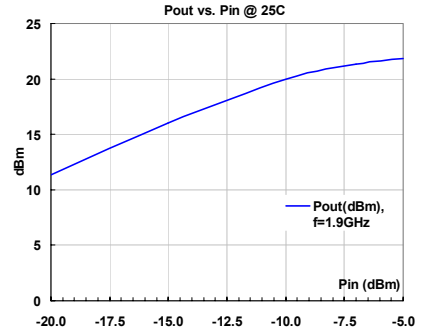
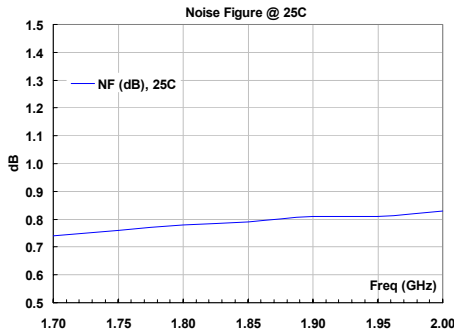
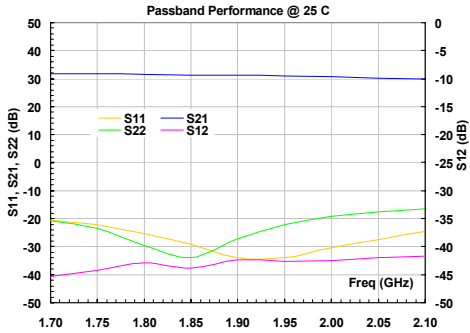


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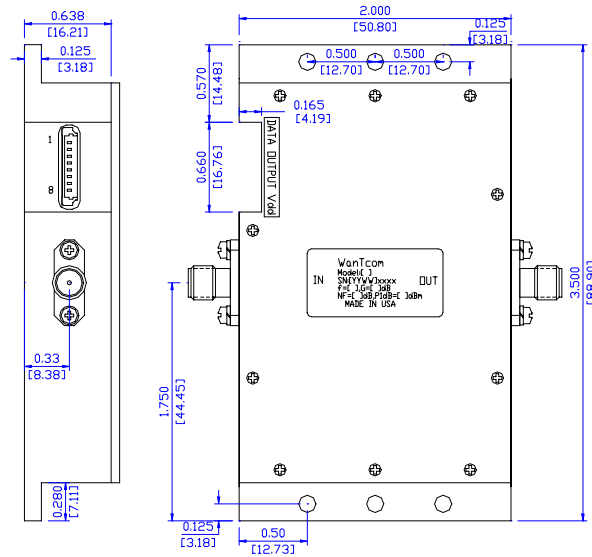
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### Typical Data



### Outline, WP-1D Housing

UNITS: INCH  
[mm]  
BODY: Aluminum Alloy  
Finish: Clear Plating  
RF Connector: SMA F  
DATA OUTPUT/V<sub>dd</sub>: Molex, 53048-0810



DATA OUTPUT:

PIN	FUNCTION
1	Hard Alarm
2	Alarm 1
3	Soft Alarm DC
4	Hard Alarm DC
5	Soft Alarm
6	Alarm 2
7	Ground
8	V <sub>dd</sub>

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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. Mounting the Amplifier

Use six pieces of #4-40 with longer than 3/8" 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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