



# WHM0913AE

## 0.9- 1.3 GHz LOW NOISE WIDE BAND AMPLIFIER

REV A  
August 2008

### Key Features



- 0.9 ~ 1.3 GHz
- 0.70 dB Noise Figure
- 30.0 dBm Output IP<sub>3</sub>
- 18.0 dB Gain
- +/-1.0 dB Gain Flatness
- 15.0 dBm P<sub>1dB</sub>
- 1.35:1 VSWR Fully Matched
- Single Power Supply
- >300 Years MTBF
- RoHS Compliant
- MLS-1 Moisture Sensitivity Level

### Product Description

WHM0913AE integrates WanTcom proprietary low noise amplifier technologies, high frequency micro electronic assembly techniques, and high reliability designs to realize optimum low noise figure, wideband, and high performances together. With single +5.0V DC operation, the amplifier has optimal input and output matching in the specified frequency range at 50-Ohm impedance system. The amplifier has standard 0.25" x 0.20" x 0.06" surface mount package.

The amplifier is designed to meet the rugged standard of MIL-STD-883.

### Applications

- Mobile Infrastructures
- GPS
- Avionics
- Defense
- Security System
- Measurement
- Fixed Wireless

### Specifications

# Preliminary

Summary of the key electrical specifications at room temperature

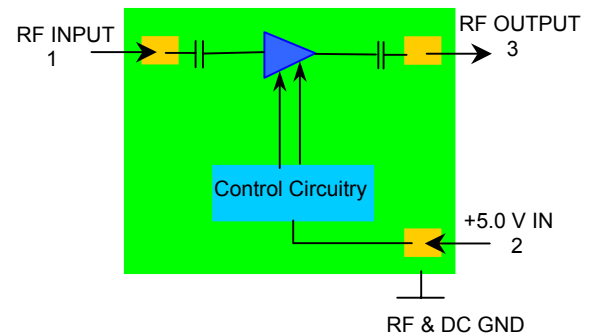
Index	Testing Item	Symbol	Test Constraints	Min	Nom	Max	Unit
1	Gain	S <sub>21</sub>	0.9 – 1.3 GHz		18		dB
2	Gain Variation	ΔG	0.9 – 1.3 GHz		+/-1.0		dB
3	Input VSWR	SWR <sub>1</sub>	0.9 – 1.3 GHz		1.35:1	1.5:1	Ratio
4	Output VSWR	SWR <sub>2</sub>	0.9 – 1.3 GHz		1.35:1	1.5:1	Ratio
5	Reverse Isolation	S <sub>12</sub>	0.9 – 1.3 GHz	20	22		dB
6	Noise Figure	NF	0.9 – 1.3 GHz		0.7	0.9	dB
7	Output Power 1dB Compression Point	P <sub>1dB</sub>	0.9 – 1.3 GHz	13	15		dBm
8	Output-Third-Order Interception point	IP <sub>3</sub>	Two-Tone, P <sub>out</sub> = 0 dBm each, 1 MHz separation	26	30		dBm
9	Current Consumption	I <sub>dd</sub>	V <sub>dd</sub> = +5.0 V		50		mA
10	Power Supply Operating Voltage	V <sub>dd</sub>		+4.5	+5	+5.5	V
11	Thermal Resistance	R <sub>th,c</sub>	Junction to case			215	°C/W
12	Operating Temperature	T <sub>o</sub>		-55		+100	°C
13	Maximum Average RF Input Power	P <sub>IN, MAX</sub>	DC – 6.0 GHz			10	dBm

### Absolute Maximum Ratings

Parameters	Units	Ratings
DC Power Supply Voltage	V	7.0
Drain Current	mA	80
Total Power Dissipation	mW	400
RF Input Power	dBm	10
Channel Temperature	°C	150
Storage Temperature	°C	-65 ~ 150
Operating Temperature	°C	-55 ~ +100
Thermal Resistance	°C/W	215

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

### Functional Block Diagram



### Ordering Information

<b>Model Number</b>	WHM0913AE
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Waffle pack with the capacity of 100 pieces (10 x 10) is used for the packing. Contact factory for tape and reel packing option for higher volume order.

Specifications and information are subject to change without notice.

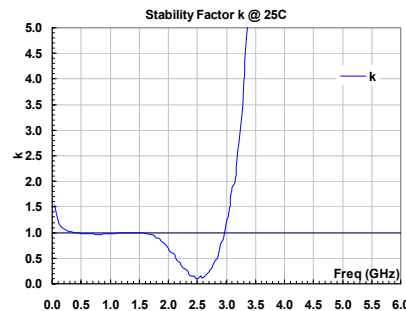
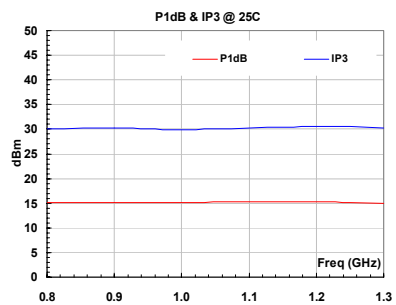
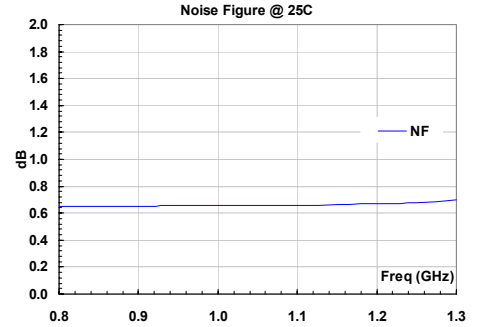
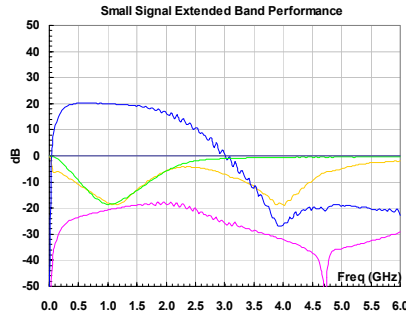
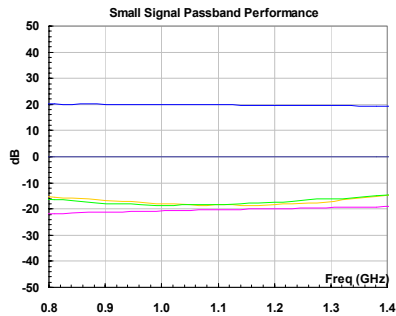


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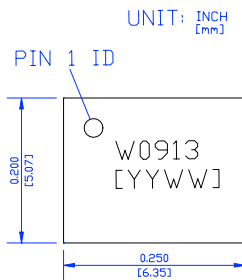
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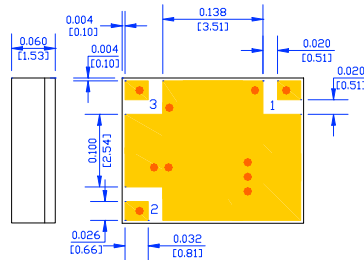
### Typical Data



### Outline, WHM-11

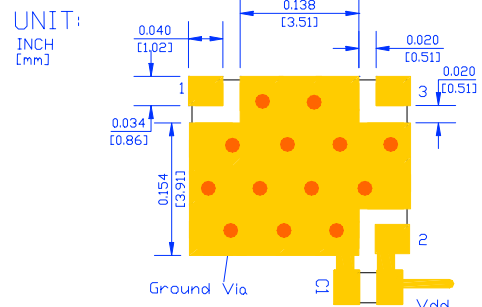


PIN	1	2	3	Center
FCFN	IN	Vdd	OUT	GND



NOTES:  
1) Center pad finish: 1 micro inch max emersion gold plating.

### Foot Print/Motherboard Layout



NOTE:

1. THE BACKSIDE NEEDS TO BE METAL GROUND LAYER
2. GROUND METALLIC VIA DIAMETER IS 0.024" (0.61 mm);
3. C1 IS 0.01 UF OR LARGER VALUE CAPACITOR
4. MATERIAL: FR-4, 4000-13, FROM NELCO
5. USE PROPER WIDTH FOR 50-OHM LINES FOR OTHER PCB MATERIAL

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