



WHM0003BE

10- 1000 MHz LOW NOISE WIDE BAND AMPLIFIER

REV A
June, 2015

Key Features



- 50 Ohm Impedance
- 10 – 1000 MHz
- 0.7 dB Noise Figure
- 30.0 dBm Min Output IP₃
- 21.0 dB Gain
- +/-0.5 dB Gain Flatness
- 15 dBm P_{1dB}
- 1.35:1 VSWR Fully Matched
- Single Power Supply
- >300 Years MTBF
- RoHS Compliance
- MSL-1 Moisture Sensitivity Level

Product Description

WHM0003BE is integrated with WanTcom proprietary low noise amplifier technologies, high frequency micro electronic assembly techniques, and high reliability designs to achieve optimum low noise figure, wideband, and high performances together. With single +3.3V 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 0.25" x 0.07" surface mount package.

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

CAUTION:



ELECTROSTATIC DISCHARGE SENSITIVE

Applications

- Mobile Infrastructures
- Cellular
- VHF & UHF
- Defense
- Security System
- Measurement
- Fixed Wireless
- Avionics



Specifications

Preliminary

Summary of the key electrical specifications at room temperature

Index	Testing Item	Symbol	Test Constraints	Min	Nom	Max	Unit
1	Gain	S ₂₁	20 – 600 MHz	19	21		dB
2	Gain Variation	ΔG	20 – 600 MHz		+/-0.5	+/-1.0	dB
3	Input Return Loss	S ₁₁	20 – 600 MHz	14	16		dB
4	Output Return Loss	S ₂₂	20 – 600 MHz	14	16		dB
5	Reverse Isolation	S ₁₂	20 – 600 MHz	16			dB
6	Noise Figure	NF	50 – 600 MHz		0.70	0.90	dB
			20 – 50 MHz		0.85	1.10	
7	Output Power 1dB Compression Point	P _{1dB}	20 – 600 MHz	13	15		dBm
8	Output-Third-Order Interception Point	IP ₃	Two-Tone, P _{out} = 0 dBm each, 1 MHz separation	26	30		dBm
9	Current Consumption	I _{dd}	V _{dd} = +3.3 V		40		mA
10	Power Supply Operating Voltage	V _{dd}		+3.0	+3.3	+3.6	V
11	Thermal Resistance	R _{th,c}	Junction to case			215	°C/W
12	Operating Temperature Range	T _o		-40		+85	°C
13	Maximum Input CW RF Power	P _{IN, MAX}	DC – 6.0 GHz			13	dBm

Absolute Maximum Ratings

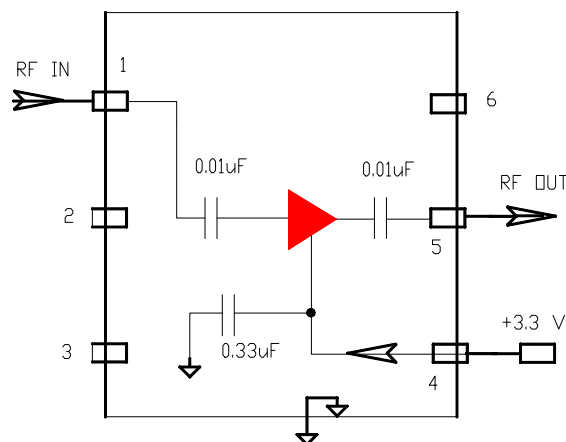
Parameters	Units	Ratings
DC Power Supply Voltage	V	-0.5 ~ +5.0
Drain Current	mA	70
Total Power Dissipation	mW	150
Input CW RF Power	dBm	13
Channel Temperature	°C	150
Storage Temperature	°C	-65 ~ 150
Operating Temperature	°C	-55 ~ +100
Thermal Resistance	°C/W	215

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

Ordering Information

Model Number	WHM0003BE
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Functional Block Diagram



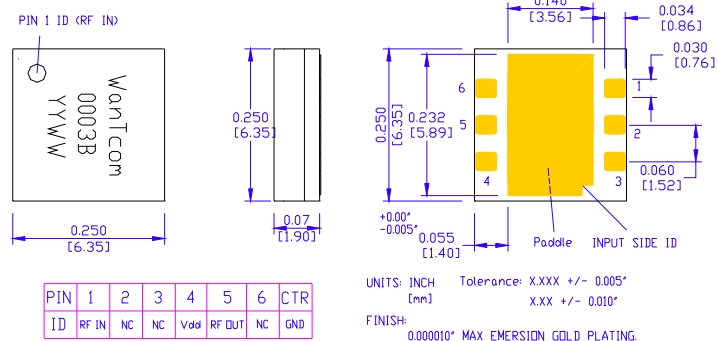
Specifications and information are subject to change without notice.

ESD tube with the capacity of 25 pieces is used for the packing. Contact factory for tape and reel packing option for higher volume order.

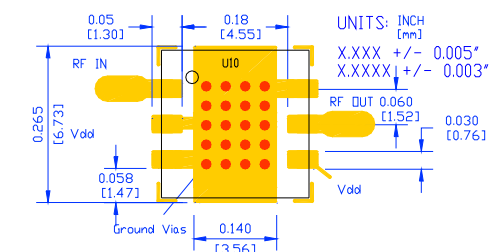
Typical Data

Preliminary

Outline



Foot Print/Motherboard Layout



NOTE:

1. THE BACKSIDE NEEDS TO BE METAL GROUND LAYER
2. GROUND VIA DIAMETER IS 0.024" (0.61 mm);
3. C1 IS 0.01 UF OR LARGER VALUE CAPACITOR
4. MATERIAL: FR-4, 4000-13, or RD4003, etc.
5. USE PROPER WIDTH FOR 50-OHM LINES FOR OTHER PCB MATERIAL

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Application Notes: