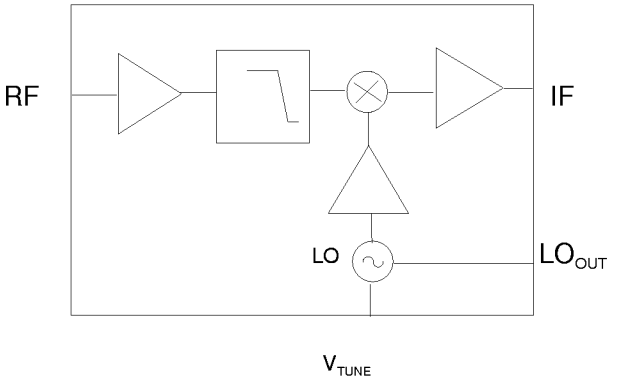
AWR0900
900 MHz Receiver MMIC
Preliminary
Rev 3

ANADIGICS®
Your GaAs IC Source

FEATURES

- Monolithic Downconverter
- On Chip Oscillator/Image Filter
- 3 dB Noise Figure
- 15 dB Conversion Gain
- Single + 5 V Supply
- Power Down Capability
- Small Surface Mount Package
- Low Power Consumption

FUNCTIONAL BLOCK DIAGRAM



The ANADIGICS Wireless receiver IC is a fully monolithic downconverter intended for cellular and cordless telephones, and wireless local area network (LAN) applications in the 900 MHz frequency range.
The high level of integration enables wireless manufacturers to produce, in high volume, receivers with reduced component count and minimal tuning, resulting in higher reliability and lower cost.
The very small package and low current consumption make the AWR0900 ideal for both hand held and battery operated applications.

ABSOLUTE MAXIMUM RATINGS

PARAMETER	MIN.	MAX.	UNITS
Power Supply	0	+ 8	V
V_{RF}	- 5	0	V
V_{TUNE}	0	+ 10	V
Case Temperature	- 55	+ 85	^{o}C
Storage Temperature	- 55	+ 150	^{o}C
Input Power V_{TUNE}		+ 17	dBm
Input Power (Other Ports)		+ 10	dBm
Thermal Resistance		70	$^{o}C/W$

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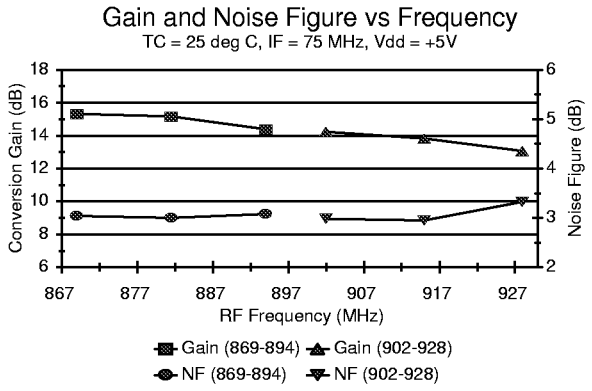
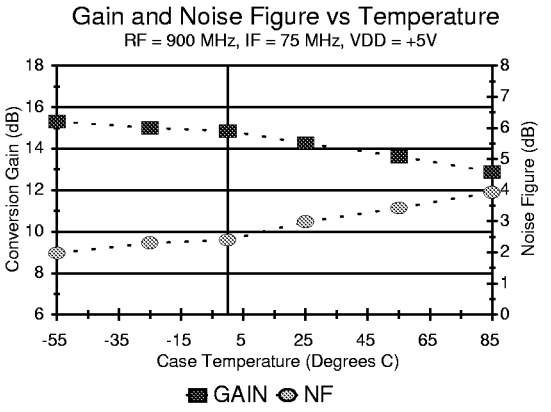
Electrical Specs
(V_{DD} = + 5V; RF = 882MHz, LO = 957 MHz, IF = 75 MHz, Temp = 25°C)

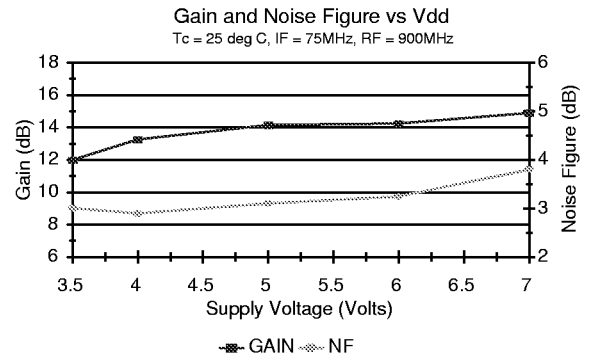
PARAMETER	MIN.	TYP.	MAX.	UNITS
Frequency Range RF LO IF	 864 900	 75	 928 1200	 MHz
Conversion Gain	14	15		dB
Noise Figure		3.0	4.0	dB
Input 3rd Order Intercept (IIP_3)	- 8.0	- 5.0		dBm
Image Rejection (75MHz IF)	6.0	7.0		dB
VCO Phase Noise (10 KHz Offset)[1]		- 88	- 82	dBc/Hz
LO Output Level (to PLL)[3]	- 10.0	- 7.5		dBm
LO to RF Leakage		- 30	- 25	dBm
Input Impedance	See Smith Chart			
Output Impedance	See Smith Chart			
Power Supply Current (+ 5V)		15	22	mA
Operating Temperature	- 30		+ 70	°C
Operating Supply Voltage	3.5	5.0	5.5	Volts
Power down current[2] (Oscillator & Buffers "on")		6.0	8.0	mA

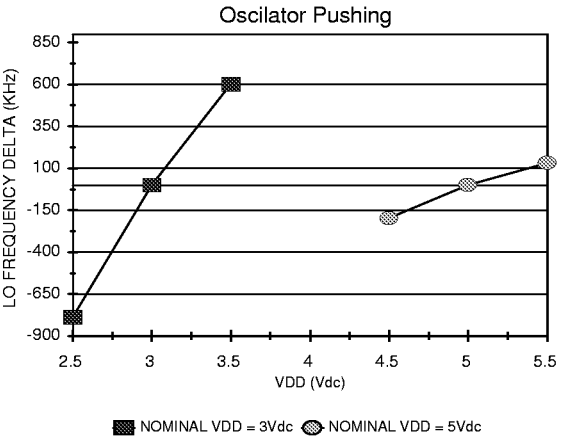
1. Locked with P.L.L., loop bandwidth = 1 KHz.
2. Powered Down, Pin 8 not grounded (Switch Open): Powered up, Pin 8 grounded (Switch Closed).
3. Measured @ LO output using ANADIGICS test fixture over - 50 to + 85°C temperature range.

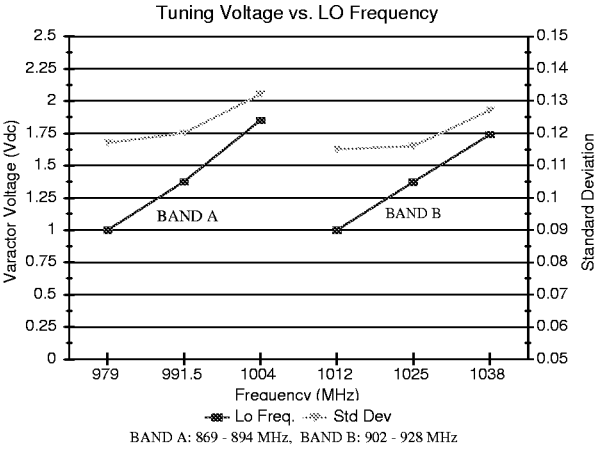
AWR0900 - TYPICAL PERFORMANCE

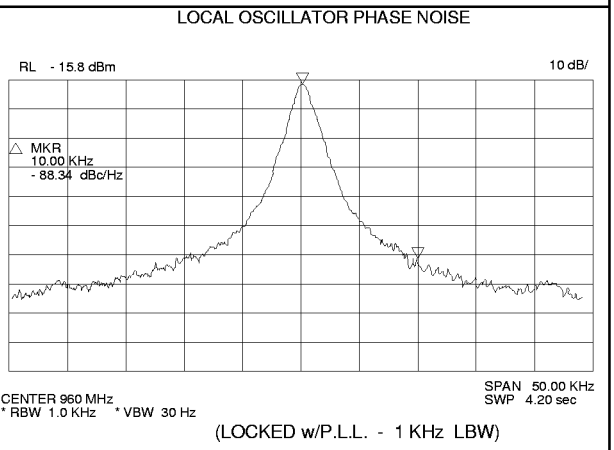












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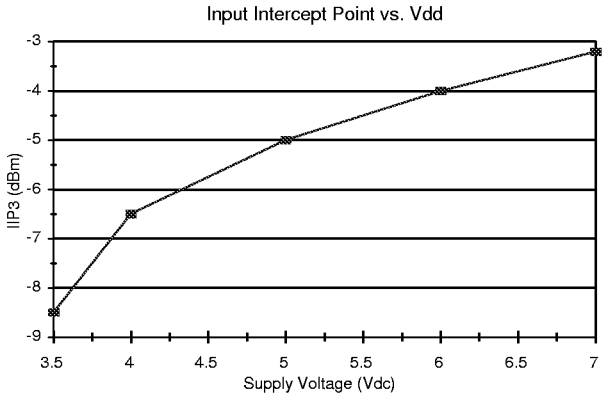
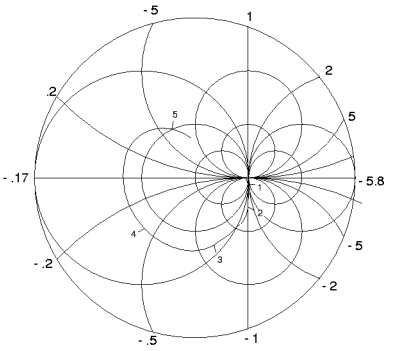


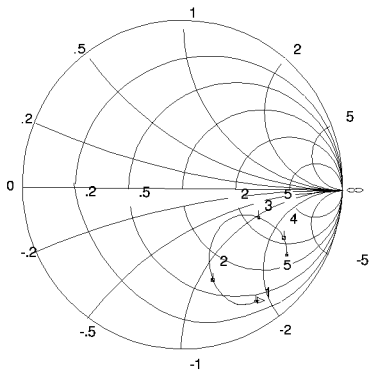
LO IMPEDANCE



1:	0.180 GHz	- 900 Ω - 718.46 J Ω
2:	0.250 GHz	- 37.53 Ω - 182.22 j Ω
3:	1.00 GHz	- 18.61 Ω - 63.95 j Ω
4:	1.50 GHz	- 8.41 Ω - 20.59 j Ω
5:	2.84 GHz	- 0.017 Ω + 33.14 j Ω

MEASURED IN 50 Ω SYSTEM

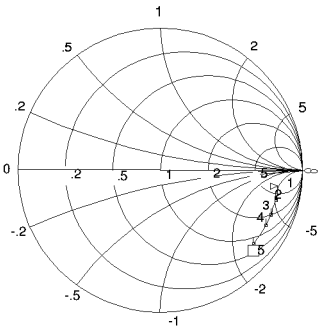
RF INPUT IMPEDANCE



1.	0.80 GHz	37.75 Ω - 89.77 J Ω
2.	0.90 GHz	47.30 Ω -54.45 j Ω
3	1.00 GHz	111.37 Ω -25.69 j Ω
4	1.10 GHz	121.76 Ω - 98.15 j Ω
5	1.20 GHz	102.43 Ω -111.09 j Ω

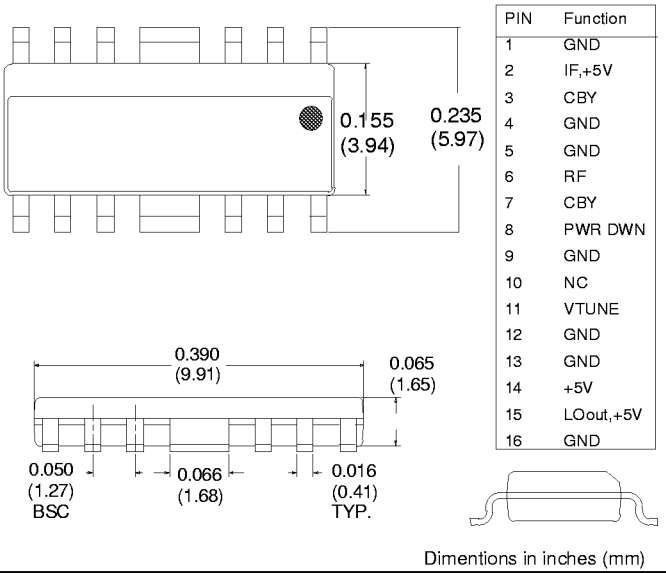
MEASURED IN 50 Ω SYSTEM

IF OUTPUT IMPEDANCE



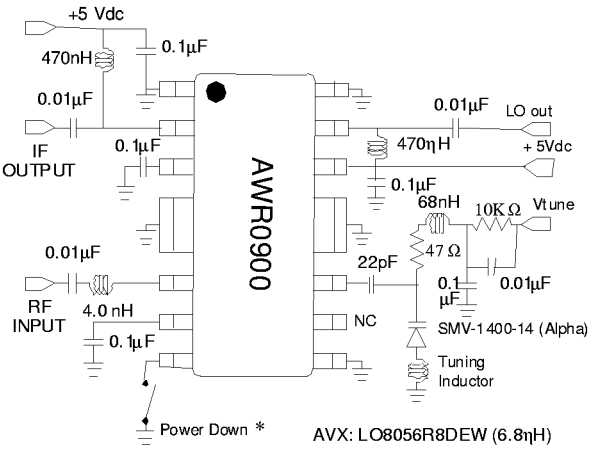
1:	0.050 GHz	306.25 Ω - 322.73 J Ω
2:	0.075 GHz	168.72 Ω -279.87 j Ω
3:	0.100 GHz	116.45 Ω -242.54 j Ω
4:	0.150 GHz	58.68 Ω - 180.14 j Ω
5 :	0.200 GHz	31.95 Ω -133.28 j Ω

MEASURED IN 50 Ω SYSTEM



PIN	Function
1	GND
2	IF,+5V
3	CBY
4	GND
5	GND
6	RF
7	CBY
8	PWR DWN
9	GND
10	NC
11	VTUNE
12	GND
13	GND
14	+5V
15	LOout,+5V
16	GND

Dimentions in inches (mm)



AVX: LO8056R8DEW (6.8ηH)

* See note 2

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