



RF-LAMBDA

The power beyond expectations

R23M02GSB

Low Noise Amplifier 2.3-2.7GHz NF: 1.1dB



- Wireless Infrastructure
- Customer Premise Equipment
- Fixed Wireless
- WiMAX & WiBro
- Tower Mounted Amplifiers
- Noise Figure: 1.1 dB
- Output IP₃: +31 dBm
- Gain: 20 dB
- Low Loss & Failsafe Bypass Path
- Single Supply: +3V or +5V
- 50 Ohm Matched Output/Input

Electrical Specifications, $T_A = +25^\circ \text{C}$, $V_{dd} = 5V$

Parameter	LNA Mode			Bypass Mode			Units
	Min.	Typ.	Max.	Min.	Typ.	Max.	
Frequency Range	2.3 - 2.7			2.3 - 2.7			GHz
Gain	17.5	20.5		-3.0	-2.0		dB
Gain Variation Over Temperature		0.012			0.002		dB / °C
Noise Figure		1.1	1.3				dB
Input Return Loss		14			13		dB
Output Return Loss		15			13		dB
Reverse Isolation		33					dB
Power for 1dB Compression (P1dB) ^[1]		17			14		dBm
Third Order Intercept (IP3) ^[2]		31			23		dBm
Supply Current (I _{dd})		74	90		0.01		mA
Switching Speed	LNA Mode to Bypass Mode	-			6.0		ns
	Bypass Mode to LNA Mode	60			-		ns

Absolute Maximum Ratings

Drain Bias Voltage (V _{dd})	+8 Vdc
RF Input Power (RFIN)	+22 dBm
(V _{dd} = +5.0 Vdc)	LNA Mode Bypass Mode +30 dBm
Channel Temperature	150 ° C
Continuous P _{diss} (T = 85 ° C) (derate 15.85 mW/° C above 85 ° C)	1.03 mW
Thermal Resistance (channel to ground paddle)	63.08 ° C/W
Storage Temperature	-65 to +150° C
Operating Temperature	-40 to +100° C

Typical Supply Current vs. V_{dd}

V _{dd} (Vdc)	I _{dd} (mA)
+3.0	28
+5.0	74



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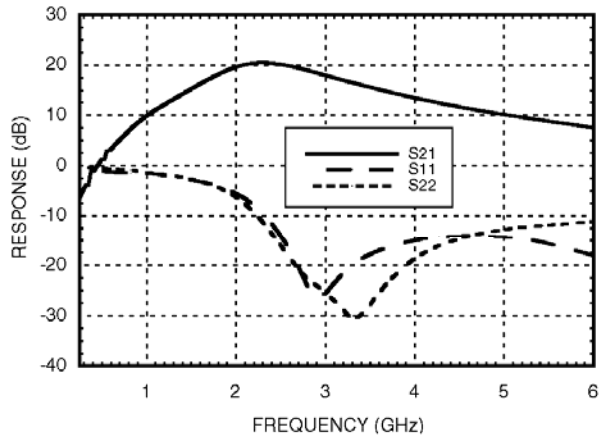
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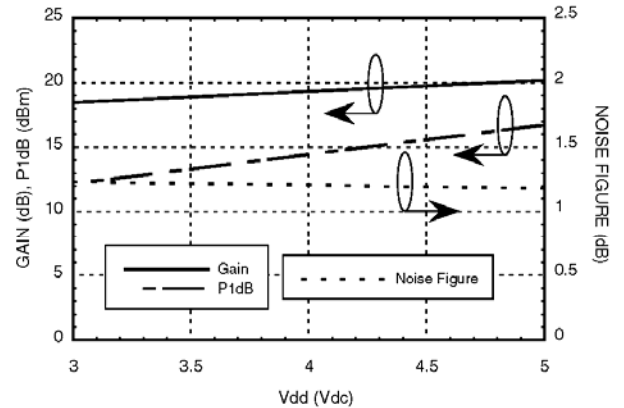
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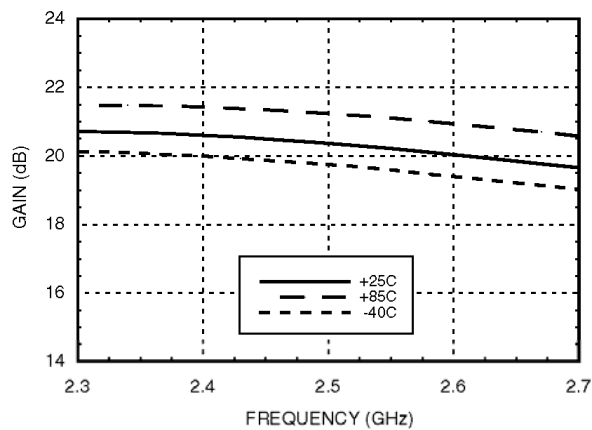
LNA Broadband Gain & Return Loss



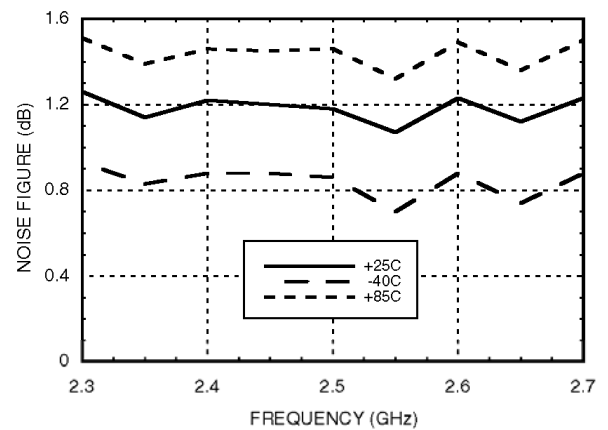
LNA Gain, Noise Figure & Power vs. Supply Voltage @ 2.5 GHz



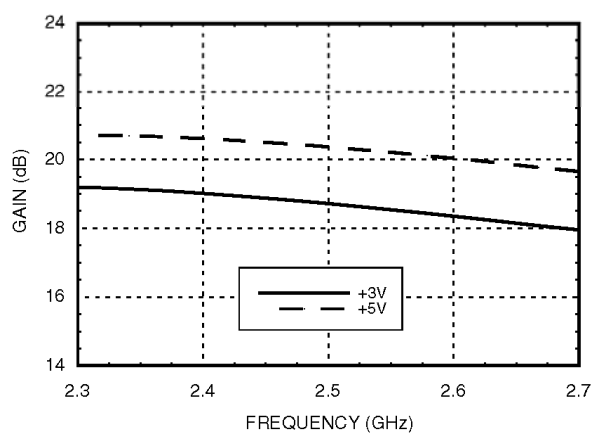
LNA Gain vs. Temperature



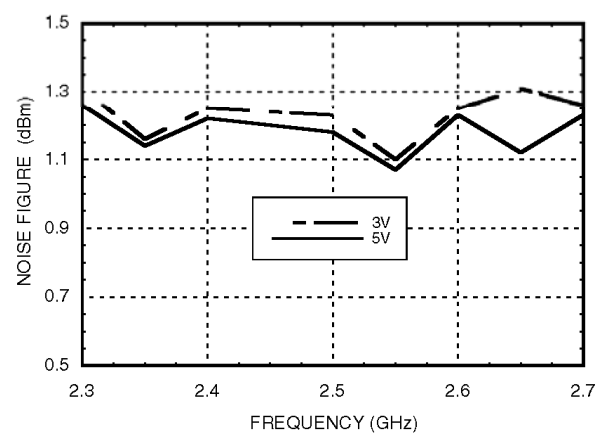
LNA Noise Figure vs. Temperature



LNA Gain vs. Vdd

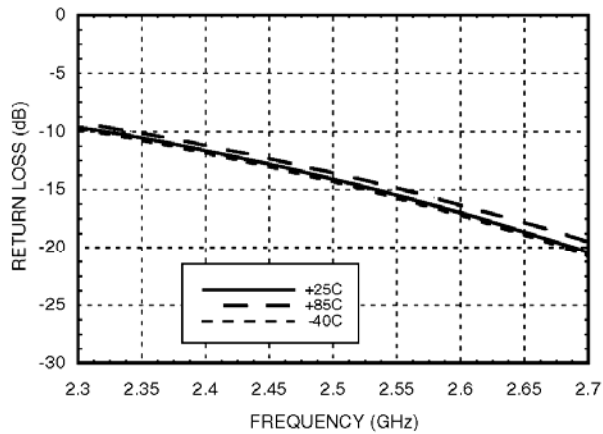


LNA Noise Figure vs. Vdd

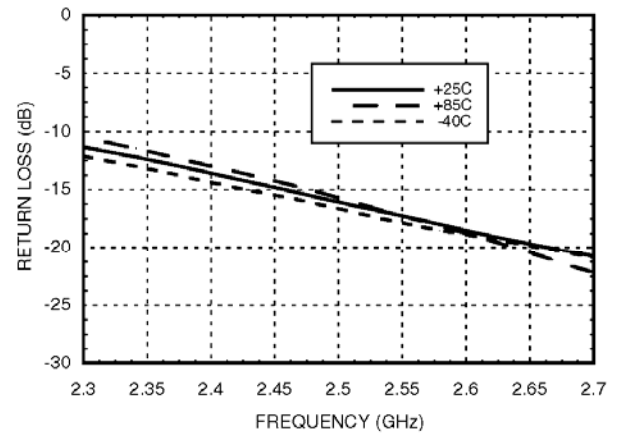




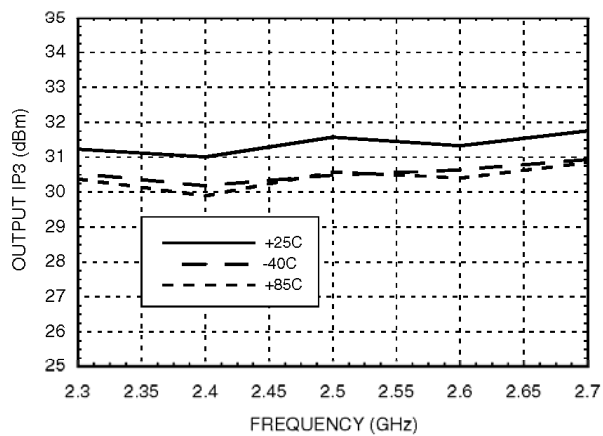
LNA Input Return Loss vs. Temperature



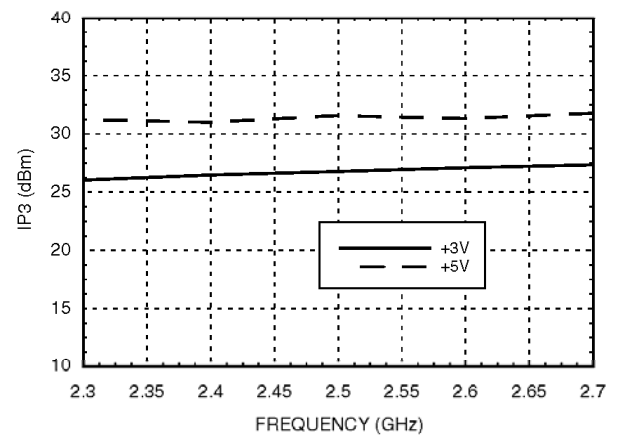
LNA Output Return Loss vs. Temperature



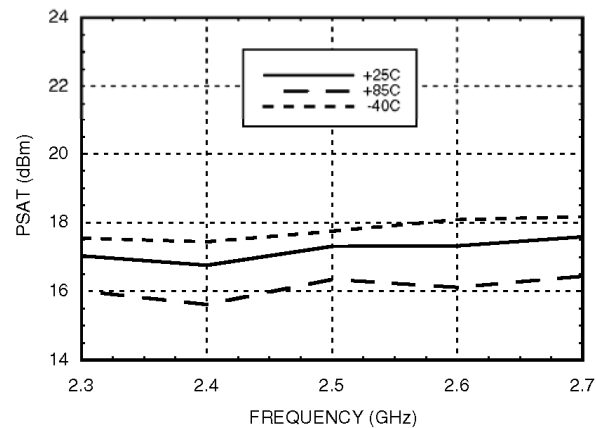
LNA Output IP3 vs. Temperature



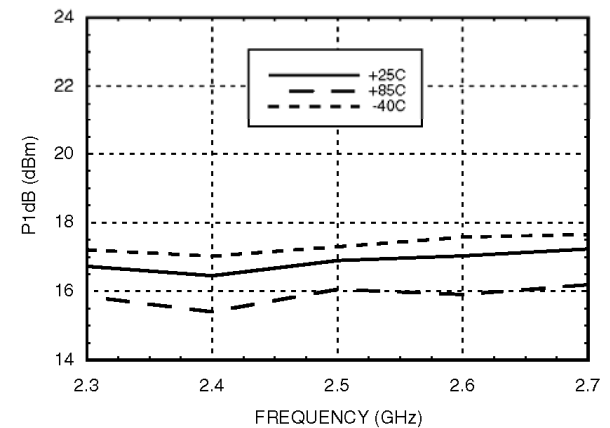
LNA Output IP3 vs. Vdd



LNA Psat vs. Temperature



LNA Output P1dB vs. Temperature





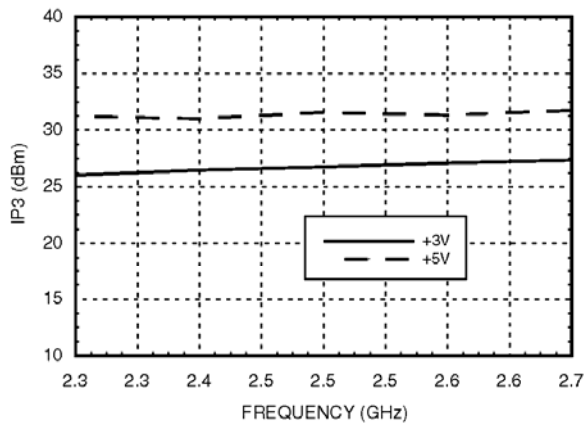
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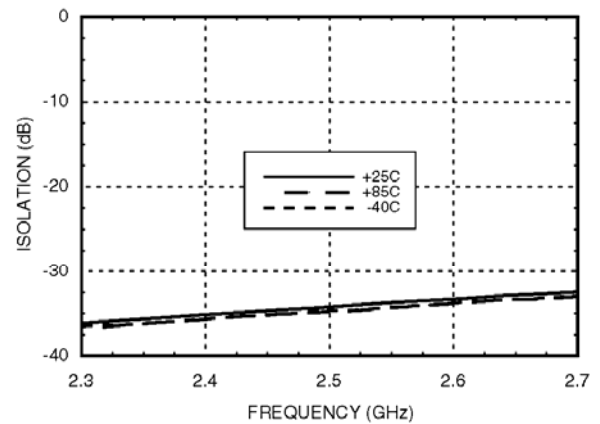
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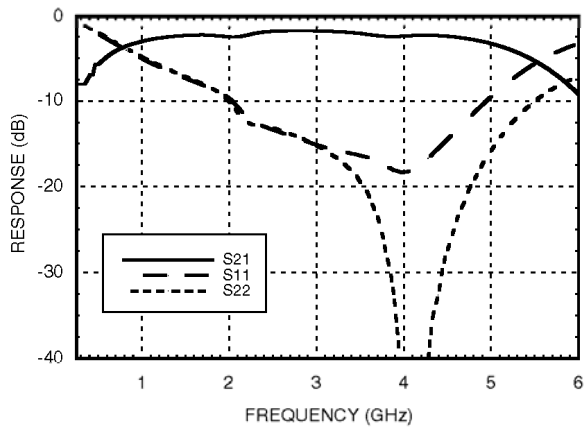
LNA Output P1dB vs. Vdd



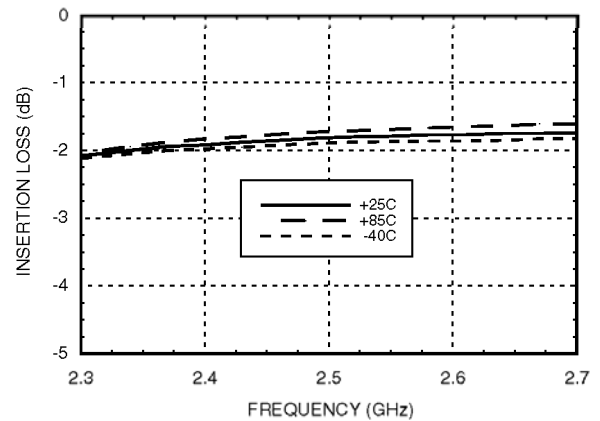
LNA Reverse Isolation vs. Temperature



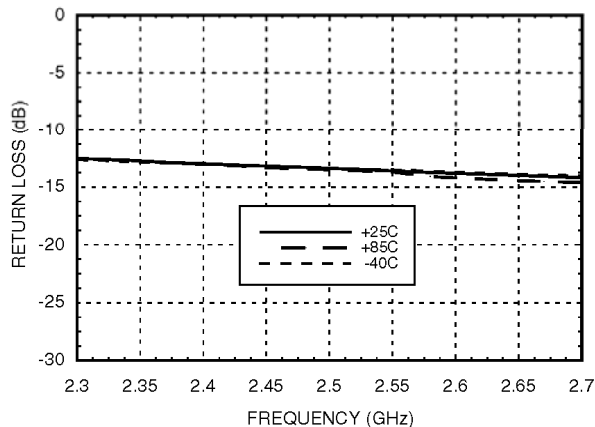
**Bypass Mode
Broadband Gain & Return Loss**



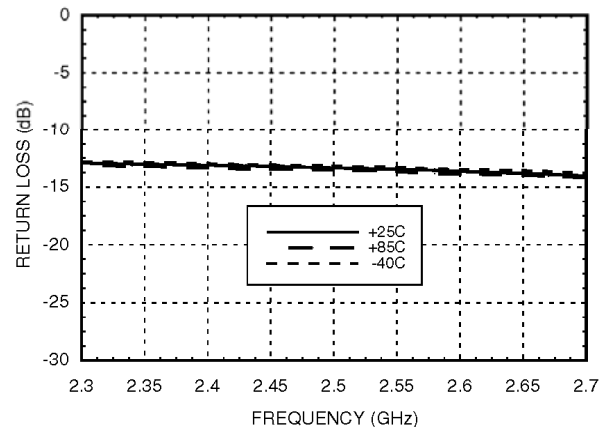
**Bypass Mode
Insertion Loss vs. Temperature**



**Bypass Mode
Input Return Loss vs. Temperature [1]**



**Bypass Mode
Output Return Loss vs. Temperature [1]**



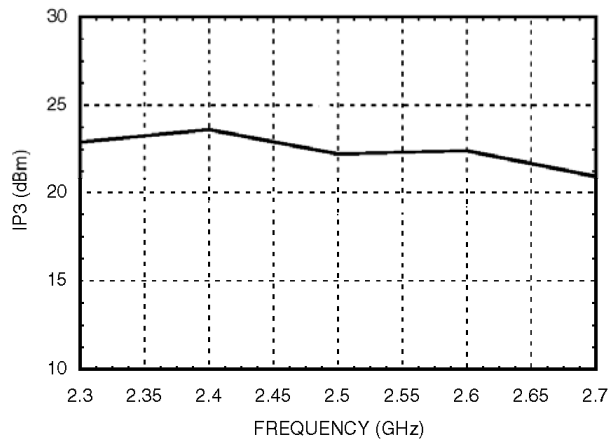


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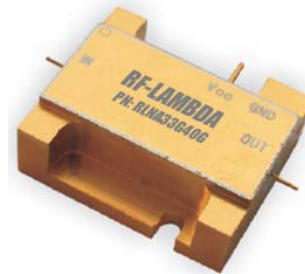
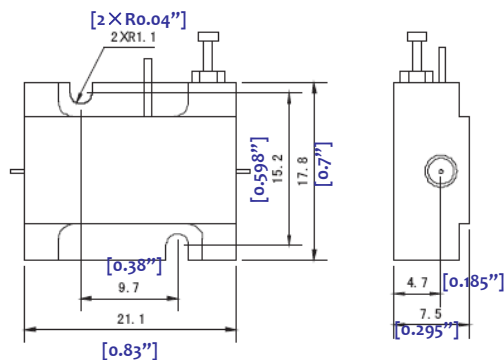
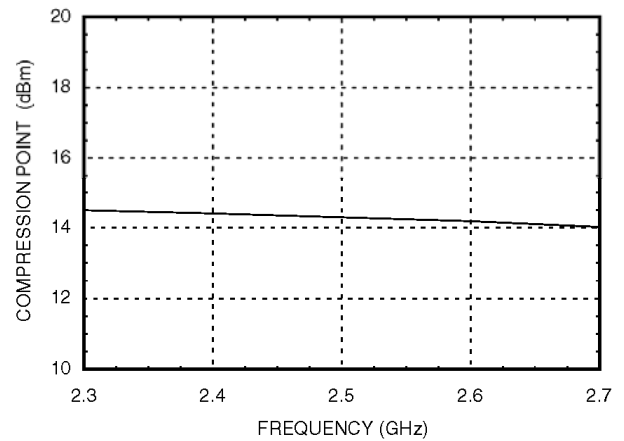
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Bypass Mode Input IP3 vs. Frequency



Bypass Mode Input P1dB vs. Frequency



Heat Sink required during operation. (Heat Sink sold separately)

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