



RF-LAMBDA

The power beyond expectations

R55M01GSA

Low Noise Amplifier 550-1200MHz NF: 0.5dB



- Cellular/3G and LTE/WiMAX/4G
- BTS & Infrastructure
- Repeaters and Femtocells
- Multi-Channel Applications
- Access Points
- Noise Figure: 0.5 dB
- Gain: 16 dB
- Output IP 3: +37 dBm
- Single Supply: +3V to +5V
- 50 Ohm Matched Input/Output
- 24 Lead 4x4mm QFN Package: 16 mm²

**Electrical Specifications, $T_A = +25^\circ \text{C}$,
 $R_{bias} 1, 2 = 10k \text{ Ohms}$ * $V_{dd} = V_{dd1} = V_{dd2} = +5V$, $I_{dd} = I_{dd1} = I_{dd2}$**

Parameter	V _{dd} = +3 V						V _{dd} = +5 V						Units
	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
Frequency Range	698 - 960			550 - 1200			698 - 960			550 - 1200			MHz
Gain	13	16		11	15		13.5	16		11.5	16		dB
Gain Variation Over Temperature		0.003			0.003			0.005			0.005		dB/ ° C
Noise Figure		0.5	0.8		0.5	1.1		0.55	0.85		0.6	1.1	dB
Input Return Loss		28			22			22			17		dB
Output Return Loss		12			14			12			15		dB
Output Power for 1 dB Compression (P _{1dB})	14	16		12.5	16.5		18.5	20.5		16.5	21		dBm
Saturated Output Power (P _{sat})		17			17.5			21			21.5		dBm
Output Third Order Intercept (IP ₃)		31			30			37			37		dBm
Supply Current (I _{dd})	24	34	44	24	34	44	65	95	124	65	95	124	mA

Absolute Maximum Ratings

Drain Bias Voltage (V _{dd})	+6V
RF Input Power (RFIN) (V _{dd} = +5 Vdc)	+10 dBm
Channel Temperature	150 ° C
Continuous P _{diss} (T = 85 ° C) (derate 16.67 mW/° C above 85 ° C)	1.08 W
Thermal Resistance (channel to ground paddle)	60 ° C/W
Storage Temperature	-65 to +150 ° C
Operating Temperature	-40 to +85 ° C

Typical Supply Current vs. V_{dd}

V _{dd} (V)	I _{dd} (mA)
2.7	24
3.0	34
3.3	44
4.5	82
5.0	95
5.5	105

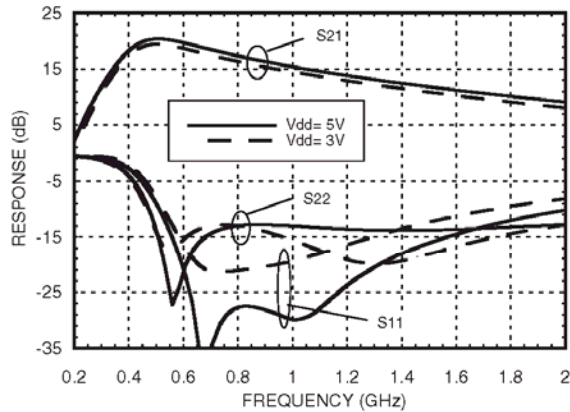
Absolute Bias Register for I_{dd} Range & Recommended Bias Resistor

V _{dd} (V)	R _{bias} Ω			I _{dd} (mA)
	Min	Max	Recommended	
3V	10k	Open circuit	10k	34
5V	0	Open circuit	820	58
			2k	78
			10k	95

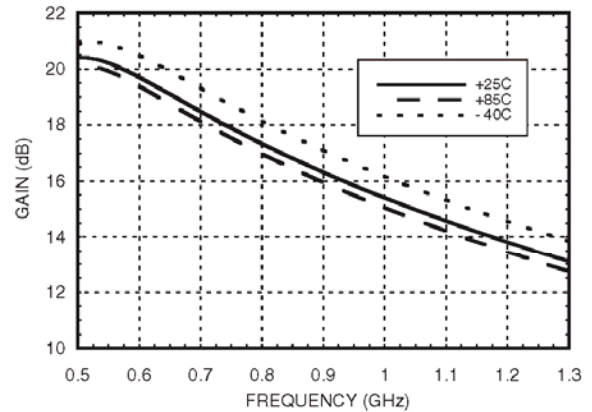




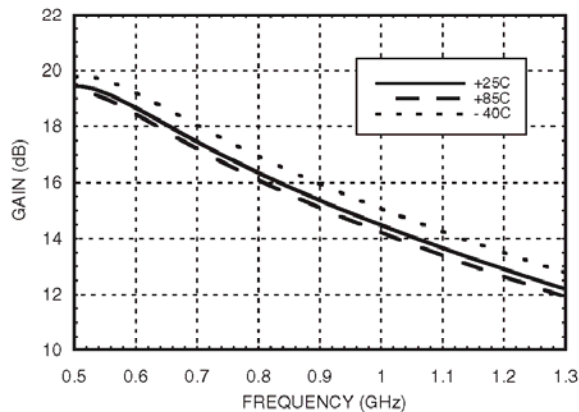
Broadband Gain & Return Loss



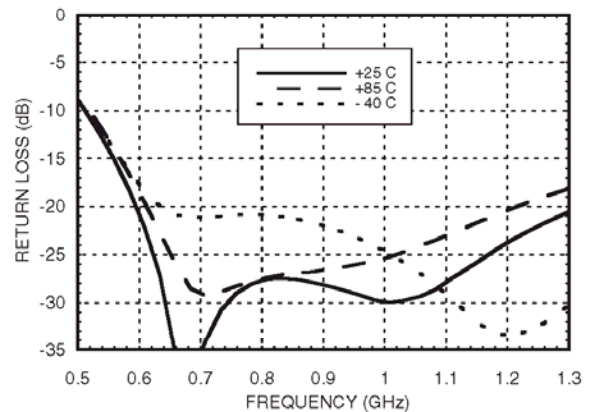
Gain vs. Temperature [1]



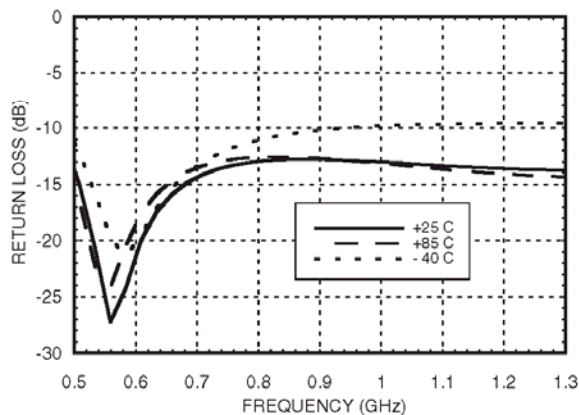
Gain vs. Temperature [2]



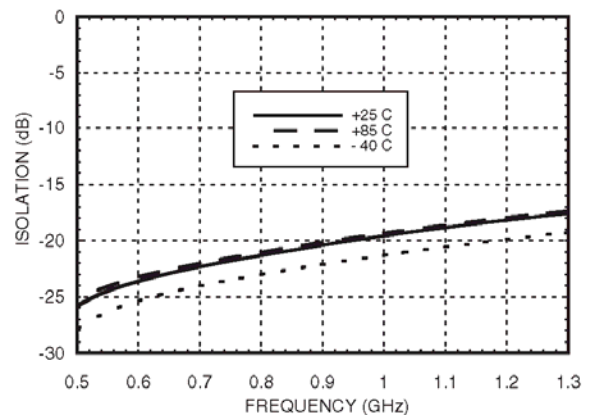
Input Return Loss vs. Temperature [1]



Output Return Loss vs. Temperature [1]



Reverse Isolation vs. Temperature [1]



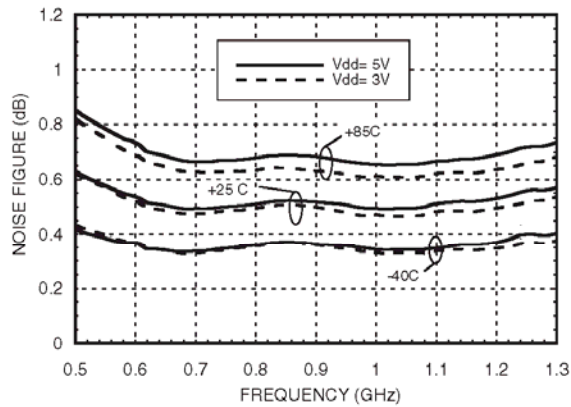


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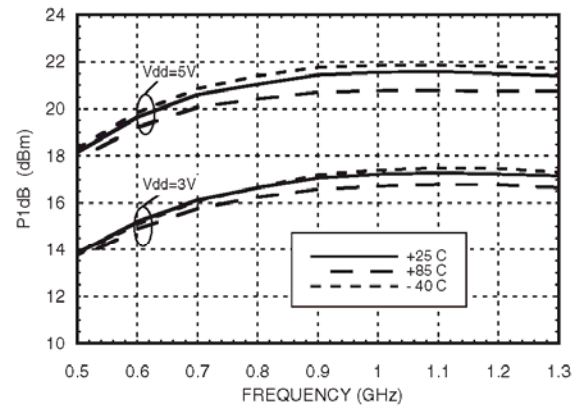
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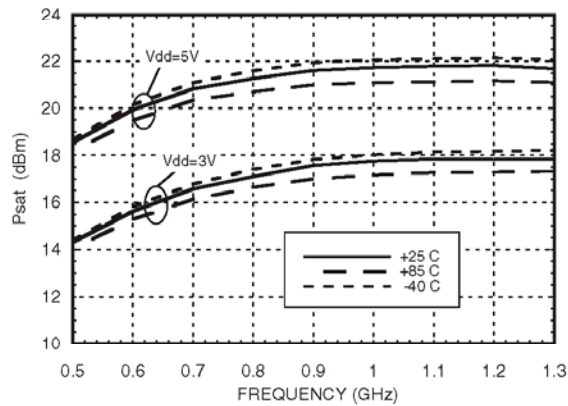
Noise Figure vs. Temperature [1]



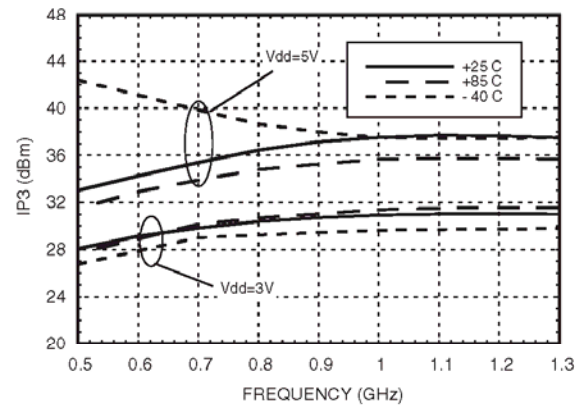
P1dB vs. Temperature



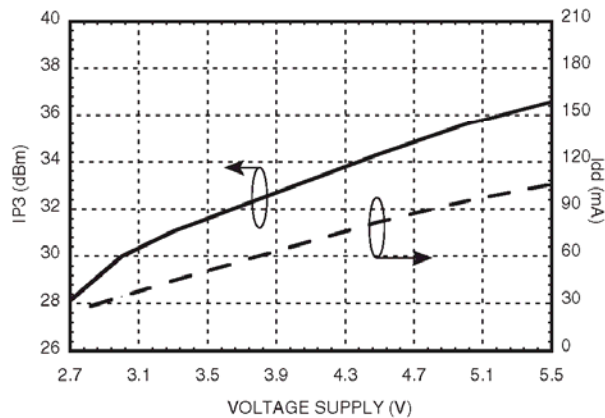
Psat vs. Temperature



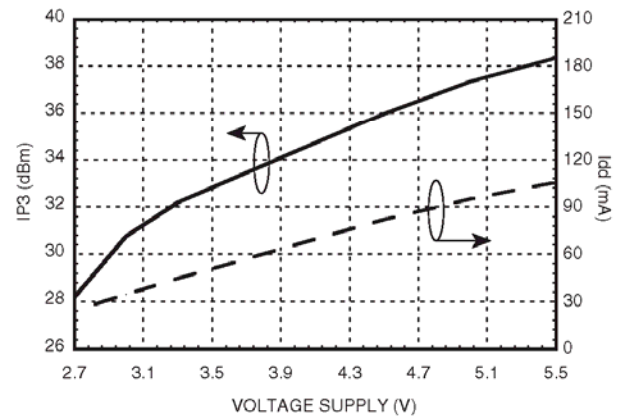
Output IP3 vs. Temperature



Output IP3 and Supply Current vs. Supply Voltage @ 700 MHz



Output IP3 and Supply Current vs. Supply Voltage @ 900 MHz



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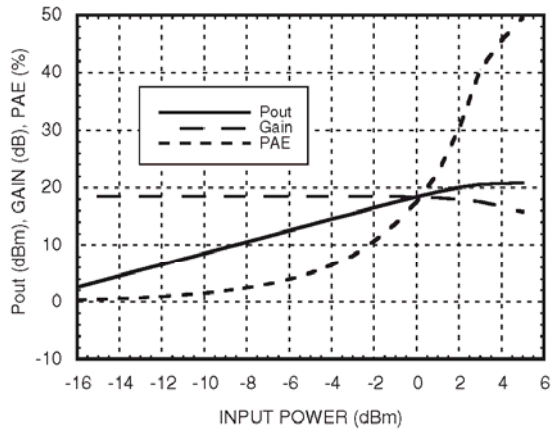
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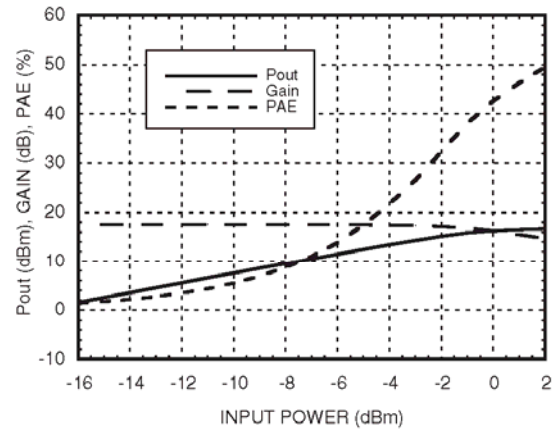
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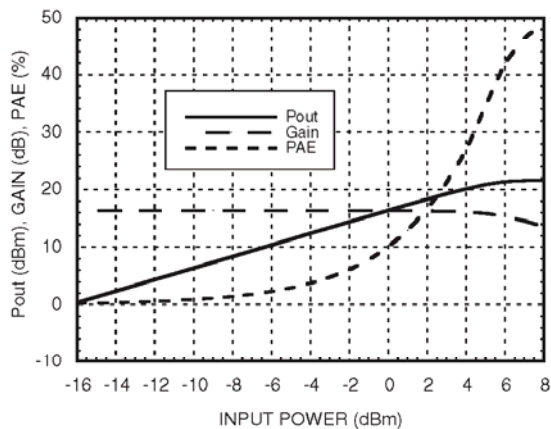
Power Compression @ 700 MHz [1]



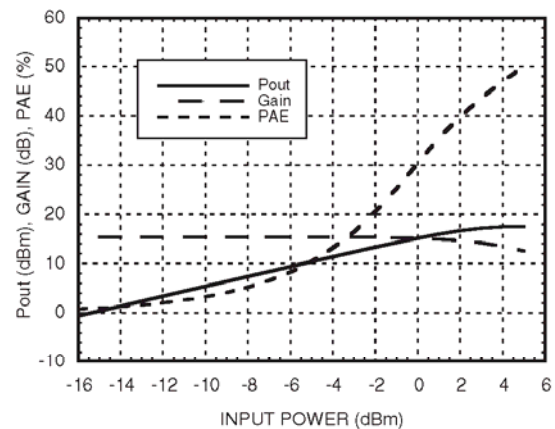
Power Compression @ 900 MHz [1]



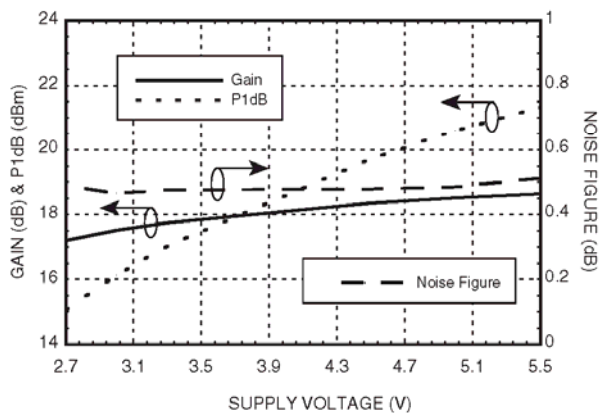
Power Compression @ 700 MHz [2]



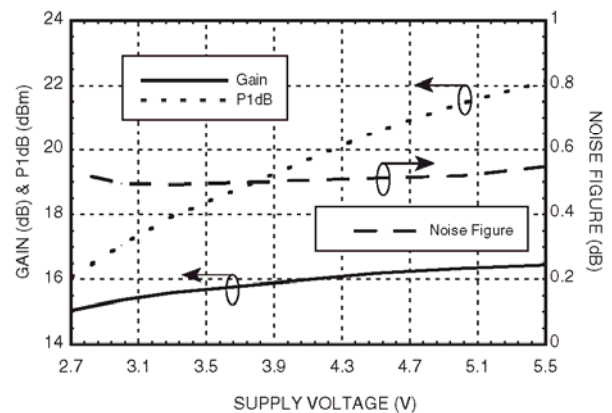
Power Compression @ 900 MHz [2]



Gain, Power & Noise Figure vs. Supply Voltage @ 700 MHz



Gain, Power & Noise Figure vs. Supply Voltage @ 900 MHz





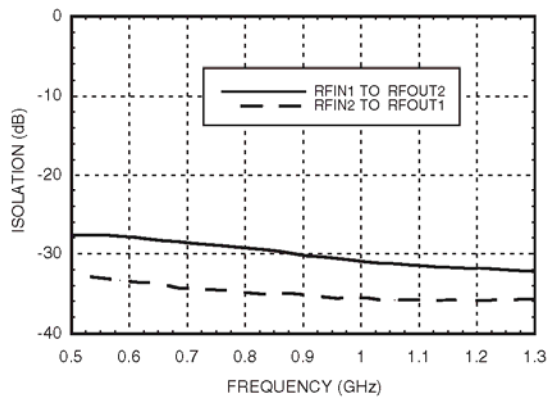
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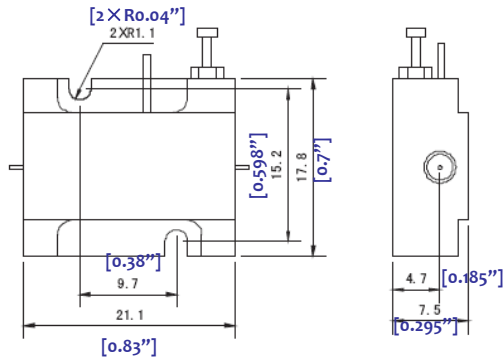
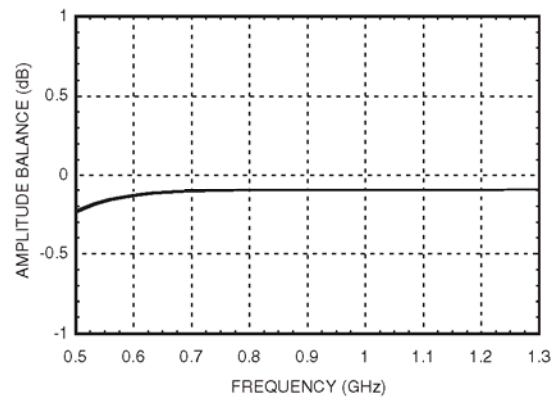
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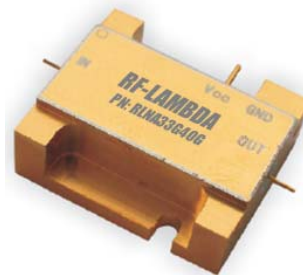
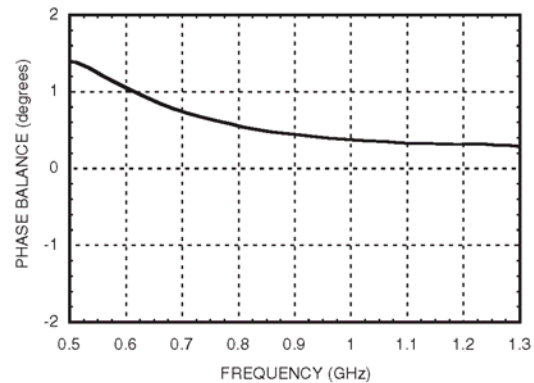
Cross Channel Isolation [1]



Magnitude Balance [1]



Phase Balance [1]



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

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