



RF-LAMBDA

The power beyond expectations

R21M02GSA

Low Noise Amplifier 2.1-2.9GHz NF: 0.9dB



- Cellular/3G and LTE/WiMAX/4G
- BTS & Infrastructure
- Repeaters and Femtocells
- Public Safety Radio
- Access Points
- Noise Figure: 0.9 dB
- Gain: 19 dB
- Output IP 3: +33 dBm
- Single Supply: +3V to +5V
- 16 Lead 3x3mm QFN Package: 9 mm²

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

Parameter	Vdd = +3V						Vdd = +5V						Units
	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
Frequency Range	2.1 - 2.9			2.3 - 2.7			2.1 - 2.9			2.3 - 2.7			MHz
Gain	14.5	18		15	18		15.5	19		16.5	19		dB
Gain Variation Over Temperature		0.01			0.01			0.01			0.01		dB/°C
Noise Figure		0.9	1.2		0.9	1.2		0.9	1.2		0.9	1.2	dB
Input Return Loss		11.5			11			11.5			11		dB
Output Return Loss		14			13.5			12.5			12		dB
Output Power for 1 dB Compression (P1dB)	10.5	14.5		12.5	15		15	19		16.5	19.5		dBm
Saturated Output Power (Psat)		16			16.5			20			20.5		dBm
Output Third Order Intercept (IP3)		28			28.5			33			33.5		dBm
Supply Current (Idd)		47	65		47	65		95	126		95	126	mA

Absolute Maximum Ratings

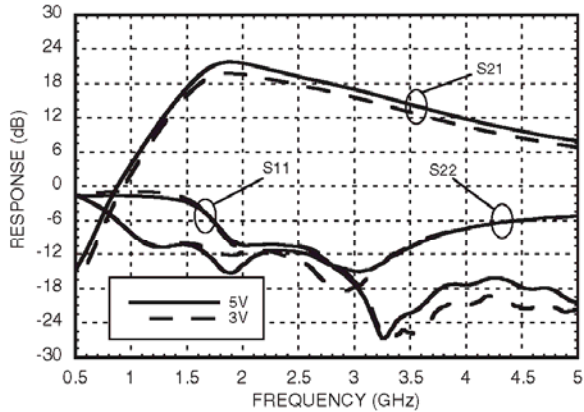
Drain Bias Voltage (Vdd)	+5.5V
RF Input Power (RFIN) (Vdd = +5 Vdc)	+10 dBm
Channel Temperature	150 °C
Continuous P _{diss} (T= 85 °C) (derate 11.1 mW/°C above 85 °C)	0.72 W
Thermal Resistance (channel to ground paddle)	90 °C/W
Storage Temperature	-65 to +150 °C
Operating Temperature	-40 to +85 °C
ESD Sensitivity (HBM)	Class 1A



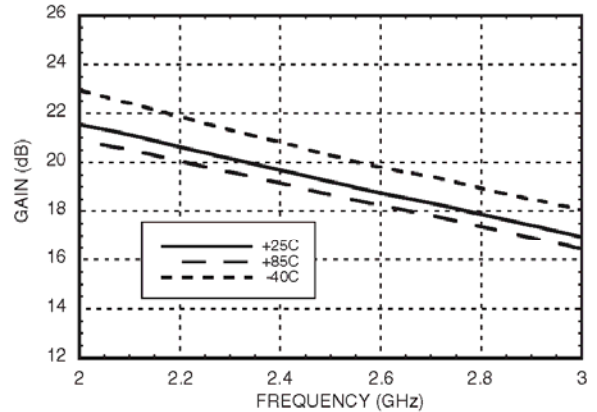
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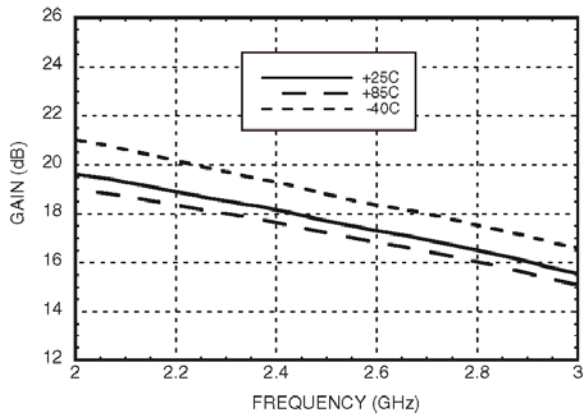
Broadband Gain & Return Loss [1] [2]



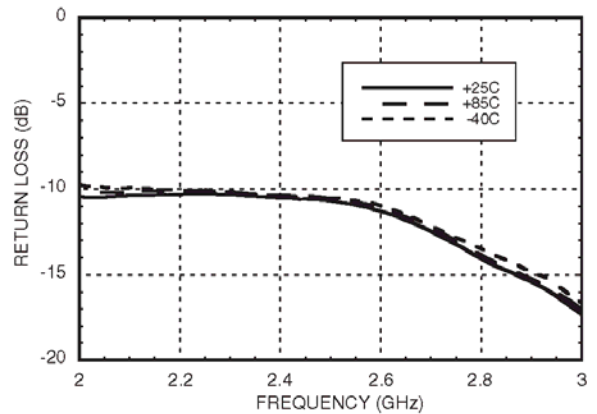
Gain vs. Temperature [1]



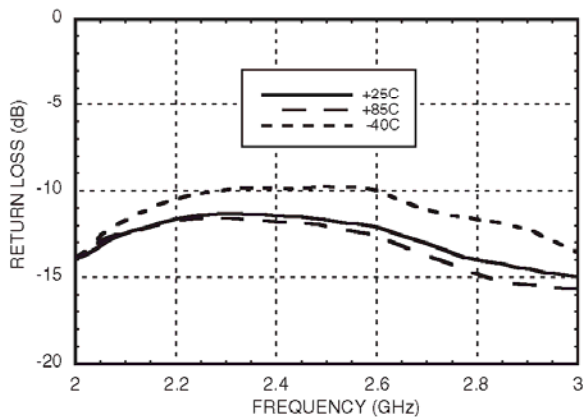
Gain vs. Temperature [2]



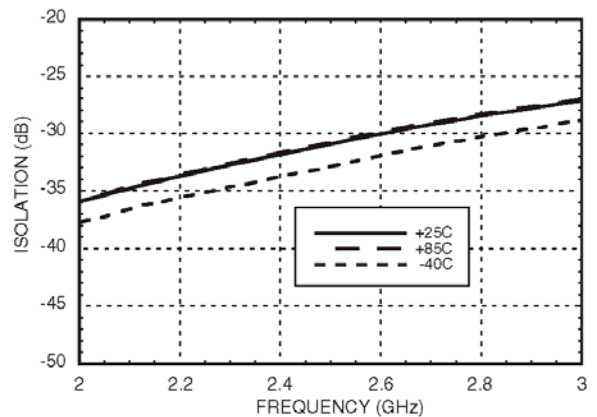
Input Return Loss vs. Temperature [1]



Output Return Loss vs. Temperature [1]

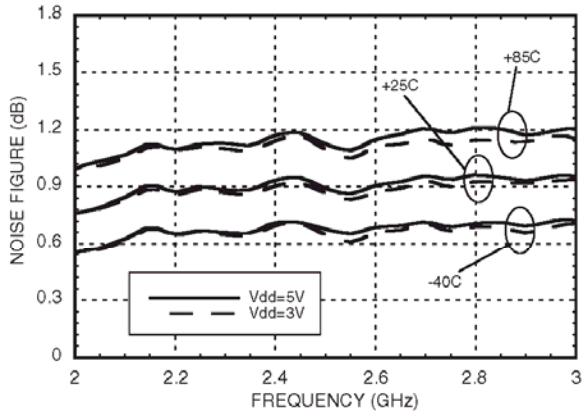


Reverse Isolation vs. Temperature [1]

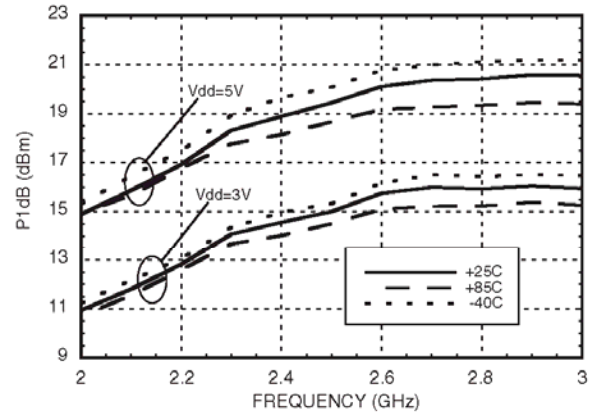




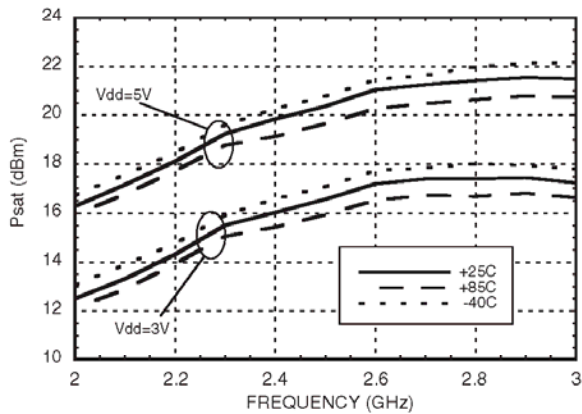
Noise Figure vs. Temperature [1] [2] [4]



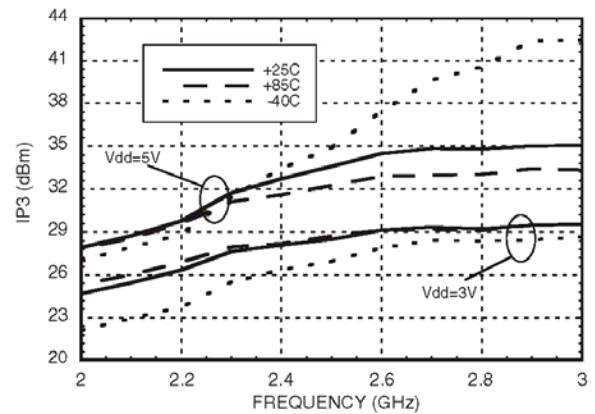
P1dB vs. Temperature [1] [2]



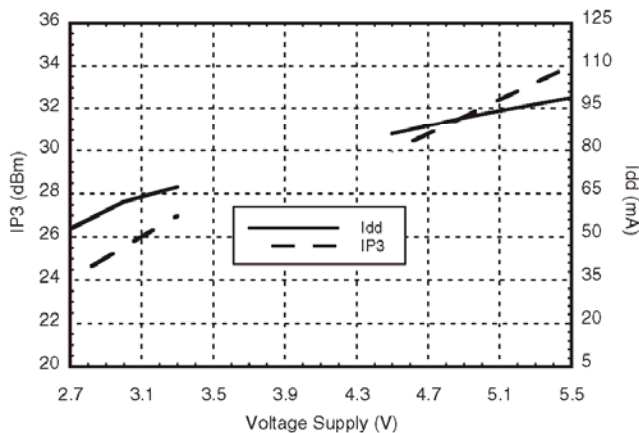
Psat vs. Temperature [1] [2]



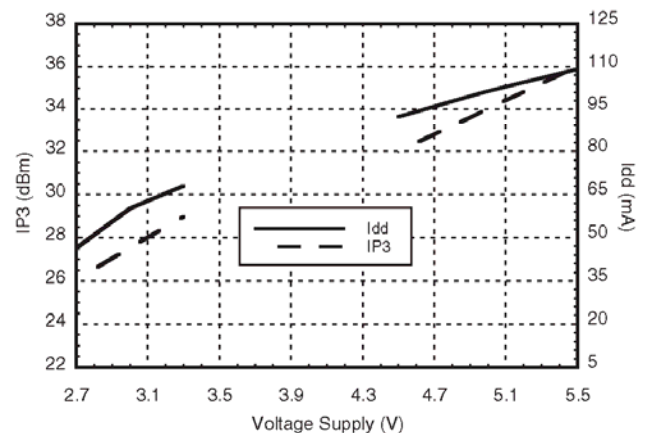
Output IP3 vs. Temperature [1] [2]



Output IP3 and Supply Current vs. Supply Voltage @ 2300 MHz [3]

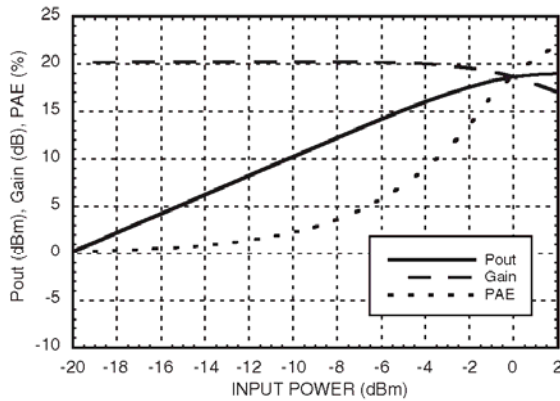


Output IP3 and Supply Current vs. Supply Voltage @ 2700 MHz [3]

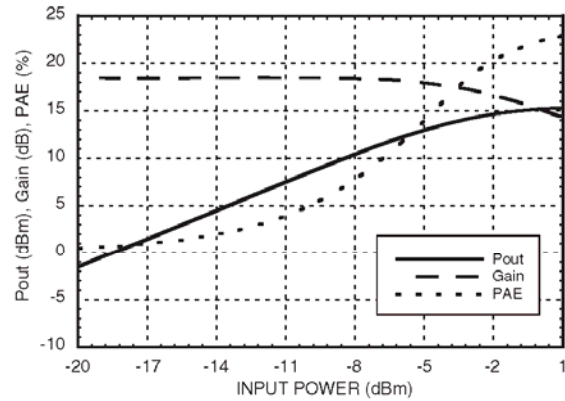




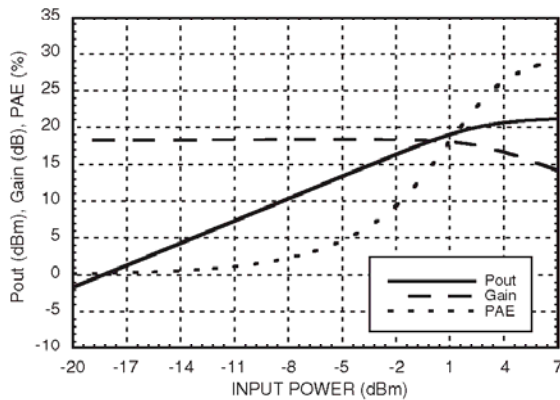
Power Compression @ 2300 MHz [1]



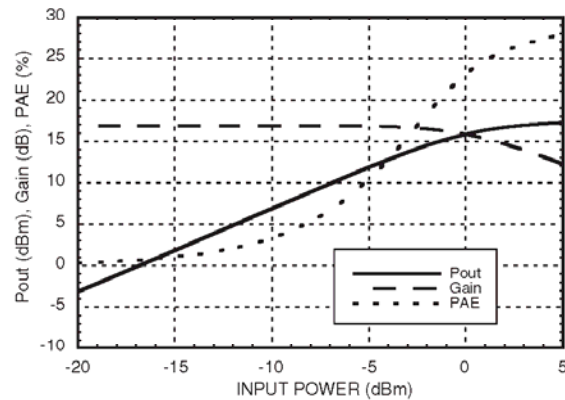
Power Compression @ 2300 MHz [2]



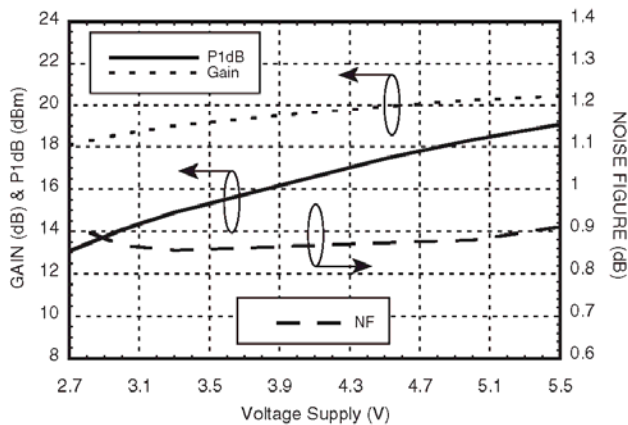
Power Compression @ 2700 MHz [1]



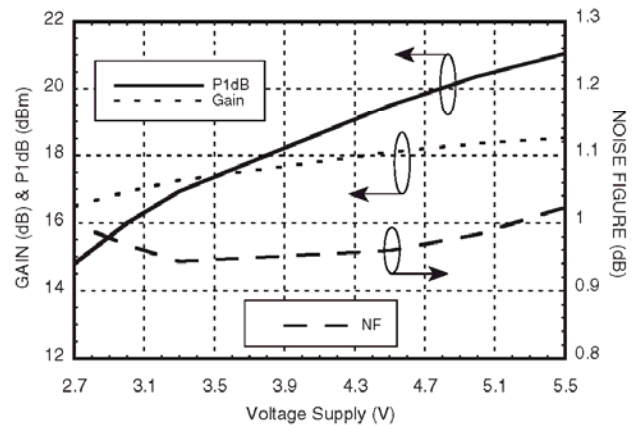
Power Compression @ 2700 MHz [2]



Gain, Power & Noise Figure vs. Supply Voltage @ 2300 MHz [3]



Gain, Power & Noise Figure vs. Supply Voltage @ 2700 MHz [3]





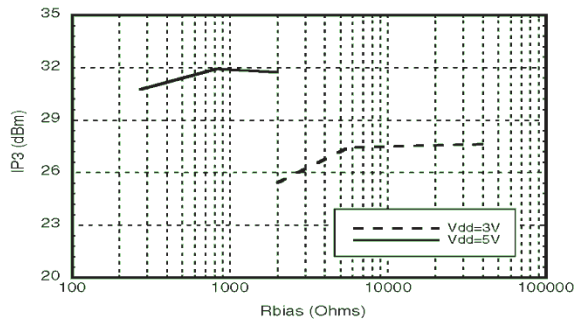
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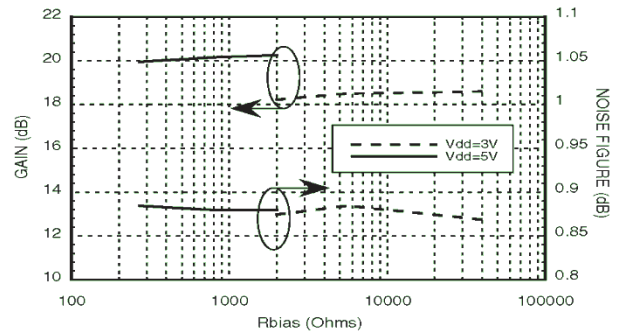
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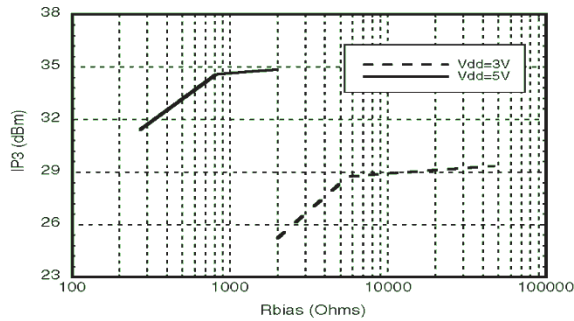
Output IP3 vs. Rbias @ 2300 MHz



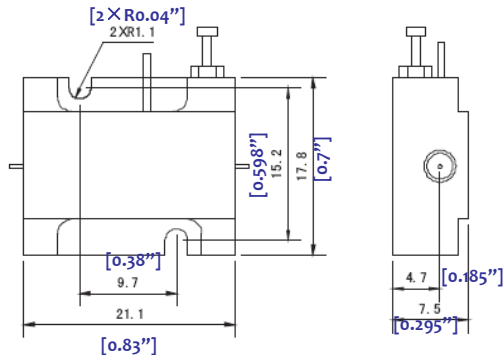
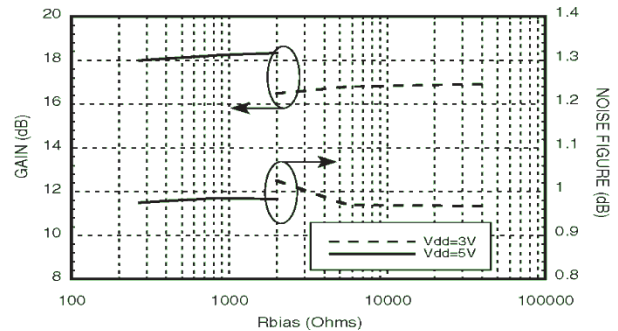
Gain, Noise Figure & Rbias @ 2300 MHz



Output IP3 vs. Rbias @ 2700 MHz



Gain, Noise Figure & Rbias @ 2700 MHz



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

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