



WIRELESS BACKHAUL

CELLULAR REPEATERS/
SIGNAL BOOSTERS

**ENTERPRISE/CARRIER-CLASS
WI-FI ACCESS POINTS**

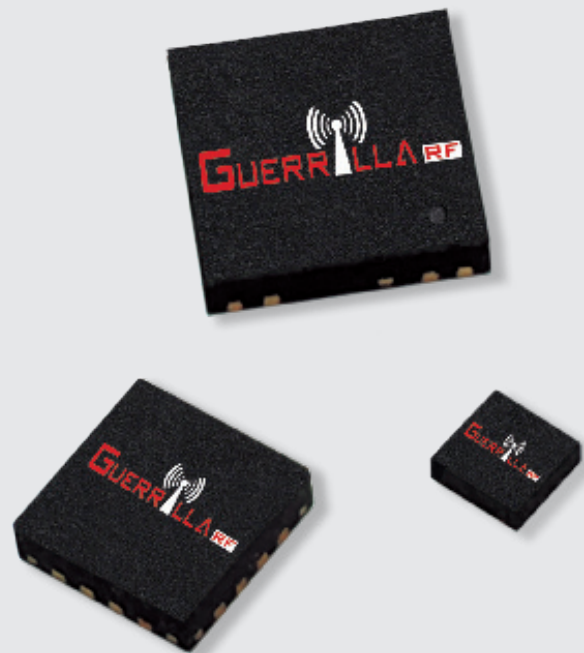
SMALL CELLS

BASE STATIONS/DAS

TEST EQUIPMENT/INSTRUMENTATION

**MILITARY COMMUNICATIONS/
GPS**

AUTOMOTIVE



Making Better Networks

Product Selection Guide: Q1 2017



Ultra-LNA™

P/N	Tuning Range (GHz)	Reference Conditions	Gain (dB)	EVB NF (dB)	OP1dB (dBm)	OIP3 (dBm)	Vdd Range (V)	Idd Range (mA)	Package (mm)	Features
GRF2051	0.7 - 3.8	1.9 GHz 5.0V; 70mA	19.0	0.37	21.0	36.0	2.7 - 5.0	20 - 100	2.0 x 2.0 QFN-12	Flex Iddq
GRF2052	1.7 - 4.5	2.5 GHz 5.0V; 70mA	19.2	0.50	21.0	38.0	2.7 - 5.0	20 - 100	2.0 x 2.0 QFN-12	Flex Iddq
GRF2070	0.4 - 1.5	0.9 GHz 5.0V; 75mA	20.8	0.35	20.0	39.0	2.7 - 5.0	20 - 100	2.0 x 2.0 DFN-8	Flex Iddq std. pinout
GRF2080 *	0.4 - 1.5	0.9 GHz 5.0V; 75mA	20.8	0.35	20.0	39.0	2.7 - 5.0	20 - 100	2.0 x 2.0 DFN-8	Digital shutdown std. pinout
GRF2071	1.4 - 2.7	1.9 GHz 5.0V; 60mA	19.0	0.35	21.0	38.0	2.7 - 5.0	20 - 100	2.0 x 2.0 DFN-8	Flex Iddq std. pinout
GRF2081 *	1.4 - 2.7	1.9 GHz 5.0V; 60mA	19.0	0.35	21.0	38.0	2.7 - 5.0	20 - 100	2.0 x 2.0 DFN-8	Digital shutdown std. pinout
GRF2072	2.3 - 3.8	2.5 GHz 5.0V; 70mA	19.3	0.50	20.0	37.5	2.7 - 5.0	20 - 100	2.0 x 2.0 DFN-8	Flex Iddq std. pinout
GRF2082 *	2.3 - 3.8	2.5 GHz 5.0V; 70mA	19.3	0.50	20.0	37.5	2.7 - 5.0	20 - 100	2.0 x 2.0 DFN-8	Digital shutdown std. pinout
GRF2073	3.0 - 6.0	3.6 GHz 5.0V; 70mA	18.6	0.65	18.0	35.0	2.7 - 5.0	20 - 100	2.0 x 2.0 DFN-8	Flex Iddq std. pinout
GRF2083 *	3.0 - 6.0	3.6 GHz 5.0V; 70mA	18.6	0.65	18.0	35.0	2.7 - 5.0	20 - 100	2.0 x 2.0 DFN-8	Digital shutdown std. pinout


* Pre-production; Sampling now

PA / Power-LNA™

P/N	Tuning Range (GHz)	Reference Conditions	Gain (dB)	EVB NF (dB)	OP1dB (dBm)	OIP3 (dBm)	Vdd Range (V)	Idd Range (mA)	Package (mm)	Features
GRF5010	0.05 - 6.0	2.5 GHz 8.0V;130mA 5.0V; 80mA	17.0 17.0	0.85 0.80	28.0 24.5	44.0 42.0	4.5 - 8.0	50 - 160	3.0 x 3.0 QFN-16	Power/ultra-low noise; Flex bias
GRF5020	0.1 - 6.0	2.5 GHz 8.0V; 170mA 5.0V;110mA	17.0 16.5	0.85 0.80	29.5 24.7	44.0 42.0	4.5 - 10.0	50 - 200	3.0 x 3.0 QFN-16	Power/ultra-low noise; Flex bias
GRF5040	0.1 - 3.8	2.5 GHz 8.0V; 200mA 5.0V;160mA	15.3 15.1	0.85 0.80	30.2 25.7	46.0 42.5	4.5 - 10.0	100 - 250	3.0 x 3.0 QFN-16	Power/ultra-low noise; Flex bias
GRF5109	0.4 - 1.5	0.9 GHz 5.0V;170mA	17.9	1.2	28.3	45.0	2.7 - 5.0	50 - 200	3.0 x 3.0 QFN-16	5-Volt power/low noise
GRF5110	1.5 - 2.7	1.9 GHz 5.0V;170mA	14.8	1.3	28.8	45.0	2.7 - 5.0	50 - 200	3.0 x 3.0 QFN-16	5-Volt power/low noise
GRF5115 *	0.1 - 2.7	1.9 GHz 5.0V; 300mA	14.4	1.3	32.5	47.0	2.7 - 5.0	200 - 400	3.0 x 3.0 QFN-16	5-Volt power/low noise
GRF5220 *	0.1 - 2.7	1.9 GHz 8.0V; 300mA 5.0V;250mA	19.3 19.3	1.1 0.8	31.0 28.5	46.5 44.5	4.5 - 9.0	80 - 350	3.0 x 3.0 QFN-16	Power/low noise; Flex bias
GRF5511	1.5 - 6.0	5.5 GHz 8.0V; 160 mA 5.0V; 100 mA	16.0 15.9	2.3 2.0	29.5 26.0	47.5 41.0	4.5 - 9.0	50 - 200	3.0 x 3.0 QFN-16	Power/low noise; Flex bias

* Pre-production; Sampling now

High Performance LNAs for ISM/WLAN

P/N	Tuning Range (GHz)	Reference Conditions	Gain (dB)	EVB NF (dB)	OP1dB (dBm)	OIP3 (dBm)	Vdd Range (V)	Idd Range (mA)	Package (mm)	Features
GRF2100	0.1 - 4.0	0.9 GHz 3.3V; 6mA	19.5	0.80	12.6	17.8	1.8 - 5.0	4 - 25	1.5 x 1.5 DFN-6	Ultra-low current
GRF2101	4.0 - 6.0	5.5 GHz 3.3V; 15mA	16.0	0.75	11.8	24.0	2.7 - 5.0	10 - 40	1.5 x 1.5 DFN-6	WLAN Industry std. pinout
GRF2140 *	0.1 - 4.0	0.9 GHz 3.3V; 6mA	19.3	0.9	12.5	17.5	1.8 - 5.0	4 - 25	1.5 x 1.5 DFN-6	Ultra-low current; Low-loss bypass
GRF2201	0.4 - 3.8	2.45 GHz 3.3V; 15mA	20.5	0.75	12.8	26.0	2.7 - 5.0	10 - 40	1.5 x 1.5 DFN-6	WLAN Industry std. pinout
GRF2501 **	4.5 - 6.0	5.5 GHz 3.3V; 16mA	16.0	0.8	8.0	18.0	2.7 - 5.0	12 - 28	1.5 x 1.5 DFN-6	WLAN Industry std. pinout; Internal match
GRF2541 ** 	4.5 - 6.0	5.5 GHz 3.3V; 16mA	16.5	1.0	8.0	18.0	2.7 - 5.0	12 - 28	1.5 x 1.5 DFN-6	Bypass Function; Internal Match

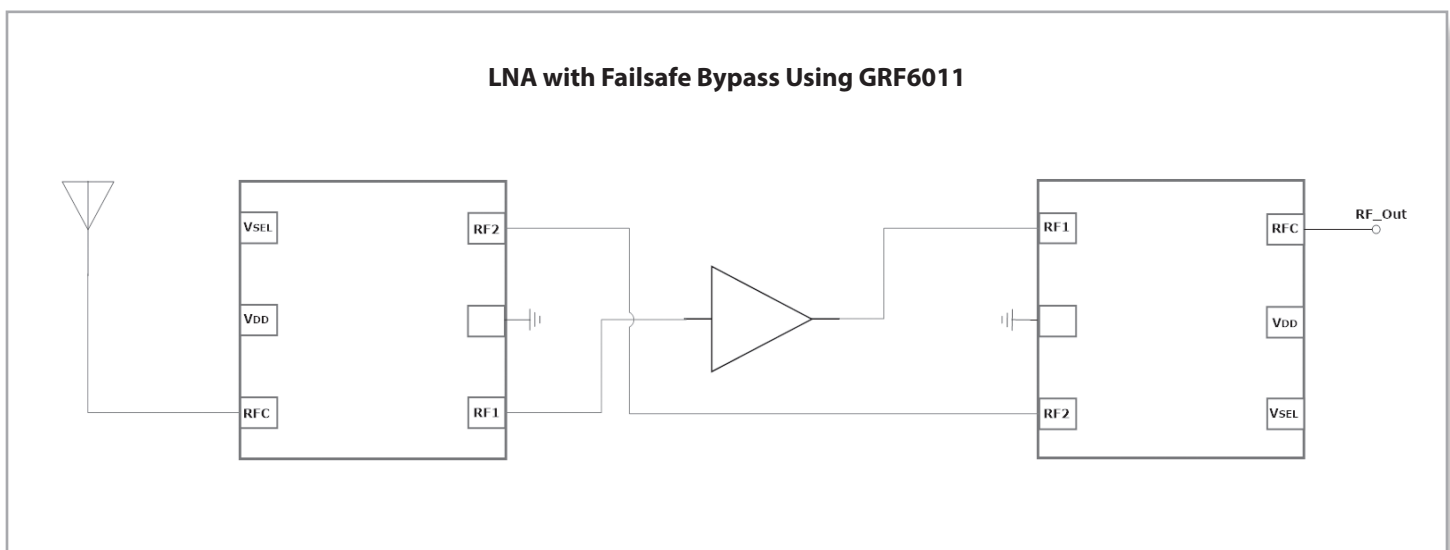
* Pre-production; Sampling Q2 2017

** Note: NF values for internally matched GRF2501/2541 de-embedded


 Guerrilla Armor™ / Bypass Mode

Failsafe SPDT Switch

P/N	Frequency Range (GHz)	Reference Conditions	Insertion Loss (dB)	Failsafe Loss (dB)	OP1dB (dBm)	OIP3 (dBm)	Vdd Range (V)	Idd (mA)	Internally Matched (50 ohms)	Package (mm)
GRF6011	0.1 - 3.8	1.9 GHz 3.3V (RF2)	0.33	0.40	30.5	51.0	3.0 - 5.0	<<1.0	Yes	1.5 x 1.5 DFN-6



Broadband LNA / Linear Drivers

P/N	Tuning Range (GHz)	Reference Conditions	Gain (dB)	EVB NF (dB)	OP1dB (dBm)	OIP3 (dBm)	Vdd Range (V)	Idd Range (mA)	Package (mm)	Features
GRF2105	0.4 - 5.0	2.5 GHz 5.0V; 65mA	20.0	0.75	22.0	34.5	2.7 - 5.0	20 - 90	1.5 x 1.5 DFN-6	Enhanced gain flatness
GRF2505	3.0 - 6.0	5.5 GHz 5.0V; 40mA	13.0	1.0	20.5	35.0	1.8 - 5.0	20 - 60	1.5 x 1.5 DFN-6	WLAN Driver/LNA
GRF4001	0.1 - 5.0	2.5 GHz 5.0V; 45mA	16.0	1.0	19.4	31.0	1.8 - 5.0	15 - 50	1.5 x 1.5 DFN-6	Internal match
GRF4002	0.1 - 3.8	2.5 GHz 5.0V; 70mA	15.0	0.85	23.5	36.5	1.8 - 5.0	20 - 80	1.5 x 1.5 DFN-6	Internal match
GRF4003	0.1 - 3.8	2.5 GHz 5.0V; 95mA	12.5	0.85	25.0	41.0	1.8 - 5.0	20 - 120	1.5 x 1.5 DFN-6	Internal match
GRF4004	0.1 - 3.8	2.5 GHz 5.0V; 135mA	12.5	0.85	26.5	43.0	1.8 - 5.0	30 - 150	1.5 x 1.5 DFN-6	Minimal matching
GRF4005	0.1 - 3.8	2.5 GHz 5.0V; 170mA	13.0	0.85	27.5	43.0	1.8 - 5.0	50 - 200	1.5 x 1.5 DFN-6	Minimal matching
GRF4014 *	0.1 - 5.0	2.5 GHz 5.0V; 65mA	17.0	0.73	24.8	38.0	2.7 - 5.0	30 - 120	1.5 x 1.5 DFN-6	Minimal matching
GRF4042 	0.4 - 2.7	1.9 GHz 5.0V; 70mA	15.5	1.0	22.0	36.0	1.8 - 5.0	20 - 80	2.0 x 2.0 QFN-12	Internal match; Bypass function

* Pre-production; Sampling Q2 2017

 Guerrilla Armor™ / Bypass Mode

Broadband LNA/Driver with Failsafe Bypass

P/N	Frequency Range (GHz)	Reference Conditions	Gain (dB)	EVB NF (dB)	OP1dB (dBm)	OIP3 (dBm)	Vdd Range (V)	Idd Range (mA)	Package (mm)	Features
GRF4152 *	0.1 - 3.8	1.9 GHz 3.3V; 60 mA	15.5	1.0	21.0	35.0	1.8 - 5.0	20 - 80	1.5 x 1.5 DFN-6	Internal match; Low-loss, failsafe bypass; Single control input

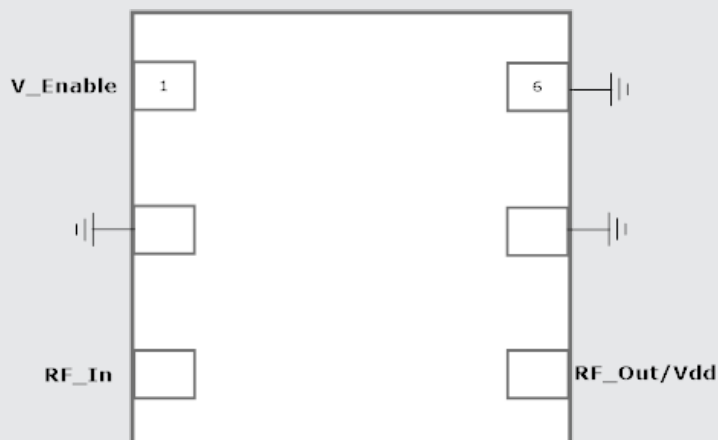
* Sampling Q2 2017

High Linearity Gain Blocks to C/X Band

P/N	Tuning Range (GHz)	Reference Conditions	Gain (dB)	EVB NF (dB)	OP1dB (dBm)	OIP3 (dBm)	Vdd Range (V)	Idd Range (mA)	Package (mm)	Features
GRF2012	0.05 - 5.0	0.9 GHz 5.0V; 90mA	15.0	1.9	22.5	40.0	2.7 - 5.0	30 - 120	1.5 x 1.5 DFN-6	Flat gain; Internal match
GRF2013	0.05 - 5.0	1.9 GHz 5.0V; 90mA	18.5	1.3	22.5	38.5	2.7 - 5.0	40 - 120	1.5 x 1.5 DFN-6	Flat gain; internal match
GRF2014	0.05 - 3.8	0.9 GHz 5.0V; 165mA	15.9	3.3	24.2	43.5	2.7 - 5.0	50 - 180	1.5 x 1.5 DFN-6	Flat gain; Internal match
GRF2003	0.05 - 11.0	6.0 GHz 5.0V; 55mA	12.0	3.8	14.5	28.0	3.0 - 5.0	40 - 80	1.5 x 1.5 DFN-6	Flat gain; Internal match
GRF2004	0.05 - 10.0	8.0 GHz 5.0V; 100mA	12.0	1.7	13.0	28.0	3.0 - 5.0	60 - 120	1.5 x 1.5 DFN-6	Flat gain; Internal match
GRF3042	0.01 - 13.0	8.0 GHz 45mA	12.5	2.2	14.5	24.5	>= 7.0	35 - 60	1.5 x 1.5 DFN-6	Flat gain; Internal match; Resistive bias
GRF3044	0.01 - 11.0	8.0 GHz 100mA	12.7	1.8	16.5	27.0	>= 7.0	60 - 120	1.5 x 1.5 DFN-6	Flat gain; Internal match; Resistive bias

Guerrilla RF's DFN-6 Package Portfolio

- Ultra-small: 1.5 x 1.5 x 0.45 mm
- Common pinouts and layouts offer design flexibility
- Wide range of gain, linearity and NF using single layout
- Thermally-efficient, cost-effective plastic package



Devices using standard DFN-6 Pinout

- GRF2003
- GRF2004
- GRF2012
- GRF2013
- GRF2014
- GRF2100
- GRF2105
- GRF2133 (Vdd2 to Pin 6)
- GRF2140
- GRF2505
- GRF3042
- GRF3044
- GRF4001
- GRF4002
- GRF4003
- GRF4004
- GRF4005
- GRF4014

Guerrilla Bloc Fully Integrated Modules (Arrivals begin: Q2 2017)

P/N	Frequency Range (GHz)	Reference Conditions	Gain (dB)	NF (dB)	OP1dB (dBm)	OIP3 (dBm)	Vdd Range (V)	Idd Range (mA)	Internally Matched (50 ohms)	Features
GRF2805	0.7 - 3.8	2.5 GHz 5.0V; 60 mA	20.0	0.7	20.5	35.0	2.7 - 5.0	20 - 80	Yes	Broadband, flat gain; low NF
GRF2806	0.7 - 1.0	0.9 GHz 5.0V; 15 mA	20.0	1.05	14.0	25.5	2.7 - 5.0	10 - 30	Yes	Cost-effective gain; low NF
GRF2807	1.6 - 2.5	1.9 GHz 5.0V; 15mA	18.2	0.80	13.4	23.0	2.7 - 5.0	10 - 30	Yes	Cost-effective gain; low NF
GRF2870	0.7 - 1.0	0.9 GHz 5.0V; 70mA	20.0	0.35	20.0	36.0	2.7 - 5.0	20 - 80	Yes	Ultra-low noise; high gain
GRF2871	1.7 - 2.7	1.9 GHz 5.0V; 70mA	19.0	0.31	20.0	38.0	2.7 - 5.0	20 - 80	Yes	Ultra-low noise; high gain
GRF2872	2.3 - 2.7	2.5 GHz 5.0V; 70mA	19.0	0.40	20.0	36.0	2.7 - 5.0	20 - 80	Yes	Ultra-low noise; high gain
GRF2873	3.3 - 3.8	3.6 GHz 5.0V; 70mA	17.5	0.60	19.0	36.0	2.7 - 5.0	20 - 80	Yes	Ultra-low noise; high gain
GRF4852	0.7 - 2.7	1.9 GHz 5.0V; 70mA	15.5	1.0	22.0	36.0	2.7 - 5.0	30 - 80	Yes	Linear LNA; failsafe bypass



Making Better Networks

Guerrilla RF's high-performance RF and Microwave IC products enable greater coverage areas and higher data rates for wireless networks. Focused on a wide variety of infrastructure and general market applications, our unique products utilize our patented Guerrilla Armor technology, expert IC design talents, cutting-edge device technologies and high-capacity supply chain to deliver superior performance. Our team of industry veterans are committed to providing detailed, custom applications support through all stages of your product design process from initial prototyping through mass production. Please see the Guerrilla RF website for all the latest product information at: www.guerrilla-rf.com

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