UNLEASH RF

Enabling the Mobile Experience

High Performance RF for wireless infrastructure

Unleash the performance of your RF and microwave designs

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Enabling the Mobile Experience

The future is mobile. And mobility means the freedom to innovate, communicate, connect and win. The explosion of data streaming to mobile devices is creating exponential growth in bandwidth requirements on today's already-overtaxed networks. At NXP, we're committed to helping enable the mobile experience for users across industries and across the globe by freeing your RF designs of performance barriers. We're helping optimize the global wireless infrastructure to drive your success with silicon RF technology that is smaller, lighter, affordable, rugged and highly efficient. That's why customers trust us with their mission-critical designs. Whether it's LDMOS and GaN for high-power RF applications or Si and SiGe:C BiCMOS for small-signal applications, we've got you covered. Our broad portfolio of far-reaching technologies gives you the freedom to design with confidence.

Shipping more than four billion RF products annually, NXP is a clear industry leader in High Performance RF. It's easy to find the High Performance RF products that will help you realize a clear advantage in your products, your reputation, and your business. So if you're looking to improve your RF performance, design a highly efficient signal chain, or break new ground with an innovative application, NXP will help you unleash the performance of your RF and microwave designs.

A power stronghold

NXP has built a strong position in RF transistors for base station power amplifiers with reliable and innovative solutions. These include our Si-based LDMOS technology, which offers best in-class efficiency, power, and ruggedness, and our new technology using gallium nitride (GaN) material.

Optimized for Doherty applications, our 8th generation LDMOS delivers unprecedented performance, helping wireless network operators increase base station efficiency. The combination of the single transistor performance with our latest achievements in 2- and 3-way Doherty amplifier designs saves network operating costs as well as CO_2 emissions. Our products push amplifier efficiencies to ever higher levels, paving the way towards Green Mobile Communication Infrastructures.

Build a highly efficient signal chain with RF components for transmit line-ups and receive chains

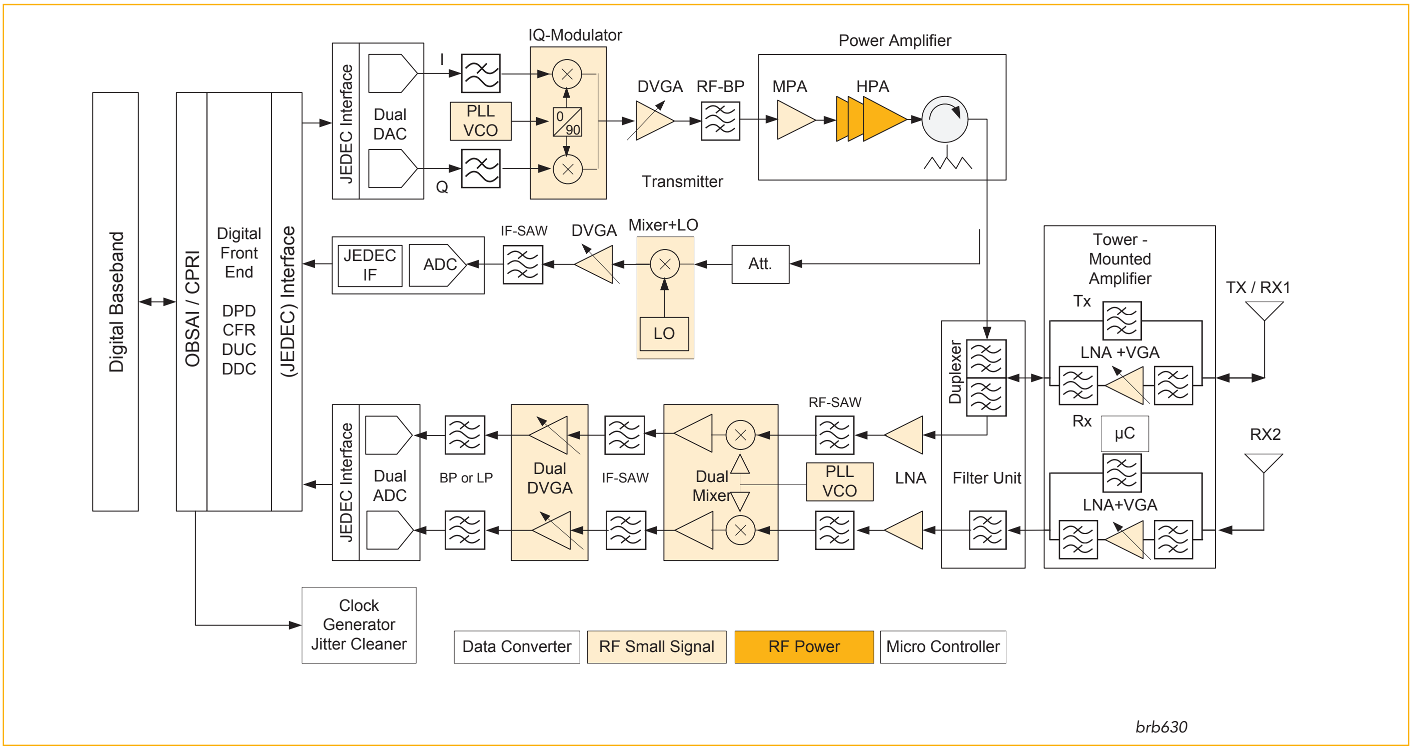
NXP Semiconductors offers a complete portfolio of RF products build on SiGe technology, from low- to high-power signal conditioning that delivers advanced performance and helps simplify your design and the development process. Our solutions range from discrete devices to modular building blocks, including low noise amplifiers (LNAs), medium power amplifiers (MPAs), variable gain amplifiers (VGAs), I/Q modulators, mixers, with or without local oscillators (LOs), and synthesizers (PLL with intergrated VCO).

RF signal excellence & more functionality with QUBiC4 SiGe BiCMOS technology

Silicon-germanium (SiGe) process technology-based QUBiC4 offers high RF performance at a competitive cost, while ensuring excellence in signal quality via robust, highly integrated functionalities and value-added solutions. Building upon mature processes in mass production since 2002.

The QUBiC4 process allows to integrate more functionality onto devices at a smaller footprint and with greater reliability and manufacturing efficiency, offering a clear competitive advantage to our customers. This in-house process is strengthen by our RF design competence, RF applications knowledge, RF assembly & test and RF wafer processing.

Base station application diagram



The block diagram above shows base station transmit (upper part, Tx) and receive (lower part, Rx) functions, and includes the Tx feedback function (middle part, Tx feedback).

The signals generated in the “Digital Baseband & Control” block follow the air interface standard requirements. These signals are interfaced to the DAC via serial interface SER. The SER can use the LVDS or JEDEC standard. After the signals are fed to the I-DAC and Q-DAC, they are converted to the analog domain. Before the I and Q signals enter the IQ modulator, they are first low-pass filtered to remove any aliasing signals. At the IQ modulator, the signals are up-converted to RF using an LO signal coming from the PLL/VCO device, typically called the synthesizer. Due to device aging and variation in cell load, the up-converted signals are fed to the VGA to control the power level. An additional band pass filter is needed to remove the out-of-band spurs. The clean signal is fed to the RF power board, where the desired transmit power is made. Finally, the RF power signal is fed to the antenna via a duplexer.

Directly after the final stage amplifier, a signal coupler picks up a certain amount of the RF signal, which is attenuated and then down-mixed using the RF Mixer. This signal is called the observation signal, and is used to derive coefficients for the digital pre-distortion algorithm. Since power levels vary, the observation is first fed to the VGA to control the power level, and after band pass filtering, the signal is converted to the digital domain using an ADC. The same serial interface is used to send the digital signals to the baseband processor.

At the receiver, the received signal directly after the duplexer is fed to the LNA for direct amplification, since the received signal level is quite low. Rf the first LNA is mounted in the tower top, a long RF cable is used to interface the RF signals with a base transceiver station (BTS). A second LNA is used to amplify the received signals. Band pass filtering is applied to reduce the out-of-band signal levels before these signals are applied to the dual RF mixer. Signal levels that change dramatically require a VGA to maintain the full scale ranges of the I-ADC and Q-ADC for optimal conversion performance. Low pass filtering is used before the ADC to remove the aliasing signals. These digital signals are interfaced to the baseband using a serial interface such as JEDEC.

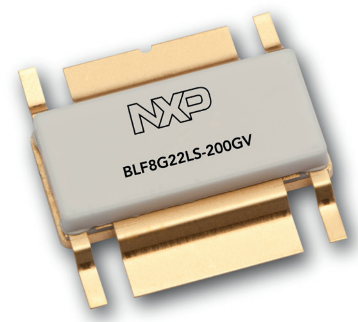
The sample clocks and LO signals are derived from clock cleaners and PLLs respectively. This is denoted as Clock and PLL / VCO in the block diagram. This set-up is required to make a synchronized system. Typically denoted in SNRs, and in order to improve reception quality, the receive function is equipped with a second receiver, called a diversity receiver.

RF power transistors for base stations

NXP is the fastest growing supplier of LDMOS transistors for cellular infrastructure, leading the W-CDMA and LTE markets. Our promise is unprecedented performance combined with best-in-class application support and constant innovation. Our design and manufacturing technologies ensure the best PA manufacturing yields in the industry. With the current focus of the industry on cost reductions, we are pleased to introduce our new OMP and MMIC product families which combine high performance with low-cost.

The new generation of LDMOS RF power for wireless infrastructures: NXP's Gen8

Listening carefully to the world's leading infrastructure providers and understanding their requirements, we took a holistic approach to the development of Gen8. This means that we scrutinized every detail of a power transistor and power amplifier to create a new generation that performs markedly better than its predecessors, and its competitors, and sets new standards for the industry.



BLF8G22LS-200GV

Gen8 addresses the key trends in the wireless infrastructure industry

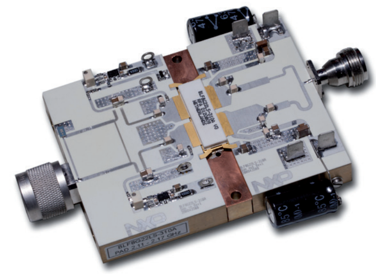
- Increasing signal bandwidths up to 100 MHz to enable full-band operation
- Cost sensitivity: P1dB powers up to 270 W in SOT502-sized packages
- Reduction in the size/weight/volume of the cabinet
- The ongoing need for greater electrical efficiency to reduce cooling requirements and operational expenditures
- Ever-increasing output power
- The need to deploy multi-standard and future-proof solution

Gen8 is the answer to all these often conflicting requirements. The package and die design, as well as the input and output match structures, have been optimized to enable wideband, affordable, compact, multi-standard, and highly efficient Doherty power amplifiers. Solutions for all cellular frequency bands are released and in full mass production. A second wave of Gen8 products, with further improvements, will be released beginning 2013.

Type number	Package	f_{min} (MHz)	f_{max} (MHz)	P_{1dB} (W)	V_{DS} (V)	η_D (%)	G_p (dB)
BLF8G27LS-100P	SOT1121	2500	2700	100	28	30	17
BLF8G27LS-100V	SOT1244	2500	2700	100	28	30	17
BLF8G22LS-140	SOT502	2000	2200	140	28	33	18.5
BLF8G27LS-140(G)	SOT1244	2500	2700	140	28	23	17
BLF8G27LS-140V	SOT1120	2500	2700	140	28	25	17
BLF8G10L(S)-160	SOT502	920	960	160	30	29	19.7
BLF8G10LS-160V	SOT1244	925	960	160	30	29	20
BLF8G22LS-160BV	SOT1120	2000	2200	160	32	32	18
BLF8G19LS-170BV	SOT1120	1800	2050	170	28	35	18
BLF8G20LS-200V	SOT1120	1800	2000	200	28	33	17.5
BLF8G22LS-200	SOT502	2110	2170	200	28	27	20
BLF8G22LS-200(G)V	SOT1244	2110	2170	200	28	27	20
BLF8G24L(S)-200P	SOT539	2300	2400	200	28	30	16.5
BLF8G27LS-200(G)V	SOT1244	2500	2700	200	28	23	16
BLF8G27LS-200P(G)V	SOT1242	2500	2700	200	28	25	16
BLF8G20LS-220	SOT502	1800	2000	220	28	33	17.5
BLF8G22LS-220	SOT502	2110	2170	220	28	28	18
BLF8G20LS-260A	SOT539	1800	2000	260	28	43	15.5
BLF8G10LS-270	SOT502	820	960	270	28	33	18.5
BLF8G10LS-270(G)V	SOT1244	820	960	270	30	28	18.5
BLF8G22LS-270	SOT502	2110	2170	270	28	25	17.7
BLF8G22LS-270(G)V	SOT1244	2110	2170	270	28	25	17.7
BLF8G10LS-300PV	SOT1242	820	960	300	30	29	20

Single Package Asymmetric Doherty (PAD) devices

Single Package Asymmetric Doherty (PAD) devices are based on Gen8 LDMOS technology. PAD devices have the combination of key Gen8 attributes, such as highest efficiency, smallest footprint, cost effectiveness and power levels up to 460 W in SOT539-sized package. These products are DPD friendly and show excellent video bandwidth. A product portfolio covering a frequency range from 1800 to 2700 MHz with average power levels from 10 to 80 W will be rolled out.



BLF8G22LS-310A

Type number	Package	f_{min} (MHz)	f_{max} (MHz)	P_{1dB} (W)	V_{DS} (V)	η_D (%)	G_p (dB)
BLF8G20LS-260A	SOT539	1800	2000	260	28	43	15.5
BLF8G22LS-310AV	SOT1110	2100	2200	310	30	46	16
BLF8G22LS-460AV	SOT1110	2100	2200	460	28	45	16

A further step in cost reductions: OMP

NXP currently develops a complete line of OMP (overmolded plastic transistors) RF power transistors and MMICs with powers ranging from 5 to 250 W. The main benefit of plastic packages is cost effectiveness with little or no impact on performance. The range of plastic devices will complement the extensive range of RF power products NXP offers in ceramic packages for all frequency ranges and applications up to 2.6 GHz.

SOT1223-1

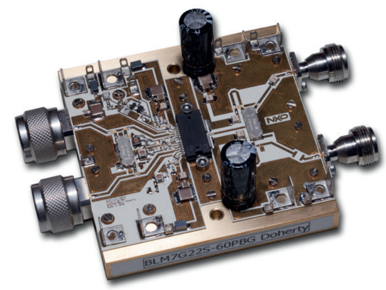
Type number	Package	Function	f_{min} (MHz)	f_{max} (MHz)	P_{1dB} (W)	V_{DS} (V)	η_D (%)	G_p (dB)
BLP7G22-05	SOT1179	driver	700	2700	5	28	26	17[1]
BLP7G22-10	SOT1179	driver	700	2700	10	28	26	17[1]
BLP8G10S-45P(G)	SOT1223/1224	driver	700	1000	45	28	19	21
BLP8G22S-60P(G)	SOT1223/1224	driver	1800	2200	60	28	30	19
BLP8G22S-90P(G)	SOT1223/1224	final	1800	2200	60	28	29	18,5
BLP7G07S-140P	SOT1223/1224	final	700	850	140	28	29	21
BLP7G09S-140P	SOT1223/1224	final	850	1000	140	28	29	20
BLP8G21S-160P(G)	SOT1223/1224	final	1800	2025	160	28	27	18
BLP8G10S-200P	SOT1223/1224	final	700	1000	200	28	28	20
BLP8G22S-200P(G)	SOT1223/1224	final	2100	2200	200	28	26	18
BLP8G10S-250P	SOT1223/1224	final	700	1000	250	28	27	19

[1] measured at 2200 MHz

MMIC

MMICs have two main applications: drivers in macro base station power amplifiers (generally in class AB), and final stages in small cells (generally in Doherty configuration). For Doherty applications, asymmetric MMICs are preferred as they increase the efficiency in back-off. As drivers, symmetric MMICs are often preferred, for more linearity. We are pleased to offer both configurations thanks to a flexible architecture that enables quick sampling of different variants. The package has been optimized to increase the isolation between the two paths, which improves Doherty performance. The first family of MMICs covers 1800 to 2100 MHz with 30dB gain-blocks from 6 to 50 W P1dB. Each MMIC is made with two of these gain blocks and most combinations are possible, using identical or different blocks.

BLM7G22S-60PBG



BLM7G22S-60PBG demoboard

Type number	Package	f_{min} (MHz)	f_{max} (MHz)	P_{1dB} (W)	V_{DS} (V)	η_D (%)	G_p (dB)
BLM6G10-30(G)	SOT822	860	960	30	28	11.5	29
BLM6G22-30(G)	SOT834-1	2100	2200	30	28	9	29.5
BLM7G22S-60PB(G)	SOT1211/1212	2100	2200	60	28	11.5	29.9

Small Cells

With the explosion of cellular data usage and the limited number of sites available for new macro base stations, operators have to find new ways of offering high data rates and excellent quality of service. One of the options is to complement the macro network with small cells, known as pico-cells (1 to 2 W average) and micro cells (5 to 20 W average). NXP offers and develops several types of solutions to the small cell PAs designer, optimized for performance, integration or cost.

Type number	Package version	f_{range} [min] (MHz)	f_{range} [max] (MHz)	$P_{L(1dB)}$ (W)	V_{DS} (V)	η_D (%)	G_p (dB)
BLP7G22-05	SOT1179	700	2700	5	28	26	17[1]
BLF6G21-10G	SOT538	700	2200	10	28	31	18.5
BLP7G22-10	SOT1179	700	2700	10	28	26	17[1]
BLF6G27-10(G)	SOT975	2300	2700	10	28	20	19
BLP8G10S-45P(G)	SOT1223/1224	700	1000	45	28	19	21
BLD6G21L(S)-50	SOT1130	2010	2025	50	28	43	14.5
BLD6G22L(S)-50	SOT1130	2110	2170	50	28	40	14
BLP8G22S-60P(G)	SOT1223/1224	1800	2200	60	28	30	19
BLM7G22S-60PB(G)	SOT1211/1212	2100	2200	60	28	11.5	29.9
BLF7G27L(S)-75P	SOT1121	2300	2700	75	28	26	17
BLM7G22S-80A(G)	SOT1211/1212	2100	2200	80	28	14	29.9

[1] measured at 2200 MHz

High voltage (50 V) base stations devices

Building on NXP's proven Gen6 high voltage process (50 V) for Broadcast applications, NXP introduces high voltage devices for base stations. Complete line ups including drivers and finals will be offered. The high power density and low output capacitance of 50 V LDMOS makes it ideal for ultra-compact and multiband power amplifiers. The finals cover the power range from 160 to 600 W, which is the highest power level in base station applications.

Type number	Package	f_{min} (MHz)	f_{max} (MHz)	P_{1dB} (W)	V_{DS} (V)	η_D (%)	G_p (dB)
BLF6H10L(S)-160	SOT467	700	1000	160	50	27	20
BLF6H10L(S)-300P	SOT1121	700	1000	300	50	27	20
BLF6H10L(S)-600P	SOT539	700	1000	600	50	27	19.5

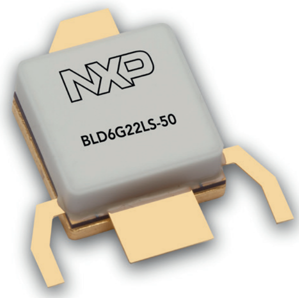
Integrated Doherty

NXP offers the world's first fully integrated Doherty transistors. The device looks like an ordinary class-AB transistor but contains a splitter, main and peak devices, delay lines and a combiner integrated inside the package. With the ease of design of an ordinary class AB transistor, they also provide significant space and cost savings. It is ideally suited for space-constrained applications like small cell base stations and antenna arrays. The current portfolio provides solutions for TD-SCDMA (BLD6G21L(S)-50) and W-CDMA (BLD6G22L(S)-50).

A 3-stage reference design is also available. The components are based on the BLD6G22L(S)-50 as final stage, the BLP7G22-10P as driver and BGA7027 as pre-driver.

Key performance:

- Peak Power : 48dBm
- Average power : 40dBm
- Line up Gain : 40dB
- Line up Efficiency : 33 %



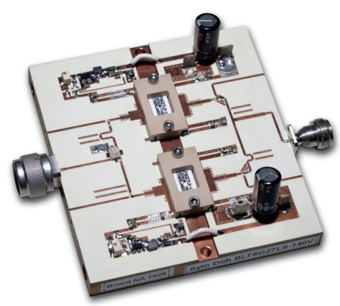
BLD6G22LS-50

Discrete Doherty amplifiers

Next to the integrated versions, NXP also offers reference designs for very efficient, high power, discrete 2- and 3-way Doherty amplifiers.

2-way Doherty

The 2-way Doherty design based on two BLF8G27LS-140V is designed for the LTE band 2.62-2.69 GHz. It achieves 39% efficiency at 48 dBm (63 W) average output power devices for LTE signals. It has a peak power capability (P3dB) of 56 dBm (400 W) at 32 V supply voltage and offers enhanced video bandwidth.

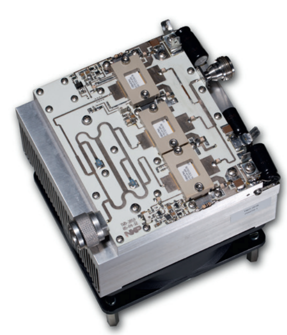

BLF8G27LS-140V

3-way Doherty

The 3-way Doherty design based on three BLF8G22LS-160BV achieves 48% efficiency at 49 dBm (80 W) average output power and 15.0 dB gain with a 2 carrier W-CDMA signal. It has a peak power capability (P3dB) of 57 dBm (500 W) at 28 V supply voltage. This design covers the W-CDMA standard for band 1 (2.11-2.17 GHz) operation and is tailored towards very high peak power and volume manufacturing with high yields without tuning.

Additional features are:

- Enhanced video bandwidth
- Auto biasing function


BLF8G22LS-160BV

Recommended Power LDMOS Doherty designs

Freq band (MHz)	PPEAK (dBm)	P_{AVG} (dBm)	V_{DS} (V)	G_p (dB)	η_D (%)	Type	Main transistor	Peak transistor
758-803 MHz (LTE)								
773-803	50.5	41.5	28	17.1	39	SYM	1/2 BLP7G10LS-140P	1/2 BLP7G10LS-140P
758-803	55	48.4	28	16.5	49	SYM	BLP7G10LS-140P	BLP7G10LS-140P
758-803	55.6	48.4	28	17.8	47	SYM	BLF7G10LS-160	BLF7G10LS-160
728-821 MHz (LTE)								
728-768	51.8	45.2	28	19	48	SYM	1/2 BLP7G10LS-140P	1/2 BLP7G10LS-140P
728-768	58	50	32	20.5	47	SYM	BLF6G10LS-200RN	BLF6G10LS-200RN
728-768	56	47.7	28	19.4	44	SYM	1/2 BLF8G10L-300P	1/2 BLF8G10L-300P
790-821	55.7	47.9	28	19.3	44	SYM	1/2 BLF8G10L-300P	1/2 BLF8G10L-300P
790-960 MHz								
790-960	55.4	47	50	18.5	40	SYM	BLF6H10L-160	BLF6H10L-160
869-960 MHz								
869-894	48.4	41	28	18.7	50.5	SYM	1/2 BLP7G10LS-45P	1/2 BLP7G10LS-45P
869-894	51.5	44	28	16.6	46	SYM	1/2 BLP7G10LS-140P	1/2 BLP7G10LS-140P
869-960	55.8	48	50	18.7	42	SYM	BLF6H10L-160	BLF6H10L-160
869-894	59.2	50.4	28	16	52	ASYM	BLF7G10LS-250	BLF7G10LS-250X2
869-894	59	50.5	30	16	45	SYM	BLF8G10LS-270	BLF8G10LS-270
869-894	59.9	52	28	14.8	50	SYM	BLF7G10LS-270V	2x BLF7G10LS-250
869-894	56.3	49.3	30	17.1	47	SYM	1/2 BLF8G10L-300P	1/2 BLF8G10L-300P
920-960	46	38	28	24	51	SYM	BLF6G21-10G	BLF6G21-10G
920-960	45.65	35.5	30	20	36.2	SYM	BLP7G22-10	BLP7G22-10
920-960	55.2	48	30	16.9	46.3	SYM	BLF8G10LS-160V	BLF8G10LS-160V
925-960	57.4	49	50	16.8	49	3-WAY	BLF6H10L-160	2x BLF6H10L-160
920-960	57.1	49	28	15	48	ASYM	BLF8G10LS-160	2x BLF8G10LS-160
920-960	57	49.2	28	15.8	48	SYM	BLF7G10LS-250	BLF7G10LS-250
920-960	58.9	50.5	30	15.4	44	SYM	BLF8G10LS-270	BLF8G10LS-270
920-960	55.5	48	28	16.5	48.5	SYM	1/2 BLF8G10L-300P	1/2 BLF8G10L-300P
1476-1555 MHz								
1476-1511	58.1	49.6	28	16	42	ASYM	BLF7G15LS-200	BLF7G15LS-300P
1526-1555	56.6	48.6	28	18.4	42	SYM	BLF7G15LS-200	BLF7G15LS-200
1805-1880 MHz (DCS)								
1805-1880	48	40	28	15.4	42.4	SYM	1/2 BLF6G22LS-40P	1/2 BLF6G22LS-40P
1805-1880	50	42.8	28	15.8	48	SYM	1/2 BLF7G20LS-90P	1/2 BLF7G20LS-90P
1805-1880	52.5	44.5	28	16	44	SYM	1/2 BLF7G21LS-160P	1/2 BLF7G21LS-160P
1805-1880	55	49	28	15.5	47	SYM	BLF7G21LS-160	BLF7G21LS-160
1805-1880	57.1	49	28	14.3	45.1	ASYM	BLF7G21LS-160	2x BLF7G21LS-160
1805-1880	56.2	49	28	15	52.3	ASYM	BLF8G19LS-170BV	BLF8G20LS-220
1805-1880	56.5	49	28	32	45.5	E-SYM	BLF6G21-10G+ BLF7G20LS-200	BLF6G21-10G+ BLF7G20LS-200
1805-1880	56.2	49.3	28	15	47.5	SYM	BLF8G20LS-200V	BLF8G20LS-200V
1805-1880	57.3	50	28	15.7	48	ASYM	BLF8G20LS-200V	BLF7G20LS-250P
1805-1880	57.5	50.5	28	14.1	47.2	ASYM	BLF7G20LS-200	BLF8G20LS-270
1805-1880	58.2	50.5	28	14.2	50	ASYM	BLF8G20LS-220	2x BLF8G20LS-220
1805-1880	57	49	28	14.9	50	SYM	BLF8G20LS-220	BLF8G20LS-220
1805-1880	55.1	49.5	30	14.2	51.4	SYM	1/2 BLF7G20LS-250P	1/2 BLF7G20LS-250P
1805-1880	55.4	48	28	15.4	48	ASYM	1/2 BLF8G20LS-260A	1/2 BLF8G20LS-260A
1805-2025 MHz (TD-SCDMA)								
1805-2050	52	44.5	28	15.2	41.5	SYM	1/2 BLF7G21LS-160P	1/2 BLF7G21LS-160P
1880-1915	56.5	49.3	28	15.3	48.5	SYM	BLF8G20LS-220	BLF8G20LS-220
1880-1920	56	49.3	28	14.8	47	SYM	BLF8G20LS-200V	BLF8G20LS-200V
1880-1920	50.2	42	28	15.2	50	SYM	1/2 BLF7G20LS-90P	1/2 BLF7G20LS-90P
1880-2025	50	42	28	17	46	SYM	1/2 BLF7G20L(S)-90P	1/2 BLF7G20L(S)-90P
2010-2025	47	39	28	14.4	41	SYM	BLD6G21L(S)-50	BLD6G21L(S)-50
2010-2025	50	42	28	17.2	47.2	SYM	1/2 BLF7G20L(S)-90P	1/2 BLF7G20L(S)-90P
1930-1990 MHz (PCS)								
1930-1990	45	37	28	15.4	46.5	SYM	BLF6G21-10G	BLF6G21-10G
1930-1990	55.7	49	28	14.5	48	ASYM	BLF7G21LS-160P	BLF7G20LS-200

Recommended Power LDMOS Doherty designs

Freq band (MHz)	PPEAK (dBm)	P_{AVG} (dBm)	V_{DS} (V)	G_p (dB)	η_D (%)	Type	Main transistor	Peak transistor
1930-1990 MHz (PCS)								
1930-1990	57	49.5	28	15.1	46	ASYM	BLF7G21LS-160P	2x BLF7G21LS-160P
1930-1990	58.5	50.7	32	15.9	44	3-WAY	BLF8G19LS-170BV	2x BLF8G19LS-170BV
1930-1990	58.5	50.5	30	15.7	43	3-WAY	BLF7G20LS-200	2x BLF7G20LS-200
1930-1990	57.3	50	28	16.2	44	ASYM	BLF8G20LS-200V	BLF7G20LS-250P
1930-1990	57	50.5	30	14.9	50.5	SYM	BLF8G20LS-220	BLF8G20LS-220
1930-1990	55.2	47.2	28	16	40	SYM	1/2 BLF7G20LS-250P	1/2 BLF7G20LS-250P
1930-1990	58.2	50	28	16	40	SYM	BLF7G20LS-250P	BLF7G20LS-250P
1930-1990	55.3	47.5	28	16.8	46	ASYM	1/2 BLF8G20LS-260A	1/2 BLF8G20LS-260A
2110-2170 MHz (UMTS / LTE)								
2110-2170	45	33	28	14.5	26	SYM	BLF6G21-10G	BLF6G21-10G
2110-2170	48.3	40	28	17	44	SYM	1/2 BLF6G22LS-40P	1/2 BLF6G22LS-40P
2110-2170	47	39	28	13	38	SYM	BLD6G22L(S)-50	BLD6G22L(S)-50
2110-2170	49	40.5	28	28	34	SYM	1/2 BLM7G22S-60PBG	1/2 BLM7G22S-60PBG
2110-2170	50	42	28	17	42	SYM	1/2 BLF7G22LS100P	1/2 BLF7G22LS100P
2110-2170	55.7	49	28	14.5	47	ASYM	BLF7G22LS-130	BLF7G22LS-200
2110-2170	56	48	28	15	48	3-WAY	BLF7G22L(S)-130	2x BLF7G22L(S)-130
2110-2170	55.4	49	28	14.5	52	ASYM	BLF8G22LS-140	BLF8G22LS-220
2110-2170	57.2	49.2	28	16	47	3-WAY	BLF7G22LS-160	2x BLF7G22L(S)-160
2110-2170	56	49	28	14	45.3	ASYM	BLF8G22LS-160BV	BLF7G22LS-200
2110-2170	57.5	50.3	28	14.8	42	SYM	BLF7G22L(S)-200	BLF7G22L(S)-200
2110-2170	58.7	50.5	30	15	39	ASYM	BLF8G22LS-200	BLF8G22LS-270
2110-2170	56.5	49	28	13.9	51	SYM	BLF8G22LS-220	BLF8G22LS-220
2110-2170	55	47	28	17	43	SYM	1/2 BLF7G22LS-250P	1/2 BLF7G22LS-250P
2110-2170	58	50	32	17.5	40	SYM	BLF7G22LS-250P	BLF7G22LS-250P
2110-2170	56	48	30	16	47	ASYM	BLF8G22LS-310A_main	BLF8G22LS-310A_peak
2300-2400 MHz (WiBRO / LTE)								
2300-2400	48.3	40	28	14.4	40	SYM	1/2 BLF6G27LS-40P	1/2 BLF6G27LS-40P
2300-2400	49.5	42	28	14.6	44	SYM	1/2 BLF7G27L(S)-75P	1/2 BLF7G27L(S)-75P
2300-2400	50.6	42	28	15.4	38.4	SYM	1/2 BLF7G27LS-90P	1/2 BLF7G27LS-90P
2300-2400	54.1	47	28	15.5	45	SYM	BLF7G24LS-100	BLF7G24LS-100
2300-2400	56.8	48.5	30	15	42	ASYM	BLF7G24LS-100	2x BLF7G24LS-100
2300-2400	55	47.5	28	15.2	44	ASYM	BLF7G24LS-100	BLF7G24LS-140
2300-2400	56.2	48.5	30	15	40	SYM	BLF7G24LS-140	BLF7G24LS-140
2300-2400	53	45	28	15	42.3	SYM	1/2 BLF7G24LS-160P	1/2 BLF7G24LS-160P
2300-2400	54.3	46	28	14.8	40.5	SYM	1/2BLF7G24LS-200P	1/2BLF7G24LS-200P
2300-2400	56.8	49	28	15.5	42.1	SYM	BLF8G24LS-200P	BLF8G24LS-200P
2500-2700 MHz (WiMAX / LTE)								
2500-2700	50.3	42.3	28	14.5	39	SYM	1/2 BLF7G27LS-90P	1/2 BLF7G27LS-90P
2500-2700	54	46.5	28	14.9	43.8	SYM	BLF8G27LS-100V	BLF8G27LS-100V
2500-2700	55.4	46.5	28	12	32	SYM	BLF8G27LS-140V	BLF8G27LS-140V
2500-2700	52.5	44.5	28	14	38	SYM	1/2 BLF7G27LS-150P	1/2 BLF7G27LS-150P
2545-2575	55.3	47.5	28	15.4	43.7	ASYM	BLF7G27LS-100	BLF7G27LS-140
2545-2660	54	46.5	28	15.2	45	SYM	BLF8G27LS-100V	BLF8G27LS-100V
2570-2620	49.5	42	28	15	43	SYM	1/2 BLF7G27L(S)-75P	1/2 BLF7G27L(S)-75P
2570-2620	50.6	42.5	28	14	42	SYM	1/2 BLF7G27LS-90P	1/2 BLF7G27LS-90P
2570-2620	51.1	43	28	14.2	44.5	SYM	BLF8G27LS-100P	BLF8G27LS-100P
2570-2620	55.4	47	28	15	40.4	ASYM	BLF7G27LS-100	BLF7G27LS-140
2570-2620	51	42.8	28	13.8	44	ASYM	1/2 BLF8G27LS-100P	1/2 BLF8G27LS-100P
2580-2620	48.2	40	28	14.4	41	SYM	1/2 BLF6G27LS-40P	1/2 BLF6G27LS-40P
2620-2690	54.9	47	28	15.2	41.9	ASYM	BLF7G27LS-100	BLF7G27LS-140
2620-2690	56.3	48.8	30	13.4	41.5	ASYM	BLF8G27LS-100V	2x BLF8G27LS-100V
2620-2690	56.2	48	32	15.2	39.1	SYM	BLF8G27LS-140V	BLF8G27LS-140V
2620-2690	57.5	48	28	13	37	ASYM	BLF8G27LS-140G	2x BLF8G27LS-140G
3300-3800 MHz (WiMAX)								
3400-3600	51	43	28	11.5	32	SYM	BLF6G38-50	BLF6G38-50
3500-3700	52	45	28	10	30	ASYM	BLF6G38LS-50	BLF6G38LS-100

Power LDMOS transistors 700 – 1000 MHz

Type number	Package	Function	f_{min} (MHz)	f_{max} (MHz)	P_{1dB} (W)	V_{DS} (V)	η_D (%)	G_p (dB)
BLP7G22-05	SOT1179	driver	700	2700	5	28	26	17[1]
BLF6G21-10G	SOT538	driver	700	2200	10	28	31	18.5
BLP7G22-10	SOT1179	driver	700	2700	10	28	26	17[1]
BLM6G10-30(G)	SOT822	driver	860	960	30	28	11.5	29
BLF6G10L-40BRN	SOT1112	driver	700	1000	40	28	15	23
BLF6G10(S)-45	SOT608	driver	700	1000	45	28	7.8	22.5
BLP8G10S-45P(G)	SOT1223/1224	driver	700	1000	45	28	19	21
BLF6G10LS-135RN	SOT502	final	700	1000	135	28	28	21
BLP7G07S-140P	SOT1223/1224	final	700	850	140	28	29	21
BLP7G09S-140P	SOT1223/1224	final	850	1000	140	28	29	20
BLF6H10L(S)-160	SOT467	final	700	1000	160	50	27	20
BLF8G10L(S)-160	SOT502	final	920	960	160	30	29	19.7
BLF8G10LS-160V	SOT1244	final	925	960	160	30	29	20
BLF6G10(LS)-200RN	SOT502	final	700	1000	200	28	28.5	20
BLP8G10S-200P	SOT1223/1224	final	700	1000	200	28	28	20
BLF7G10L(S)-250	SOT502	final	920	960	250	30	30.5	19.5
BLP8G10S-250P	SOT1223/1224	final	700	1000	250	28	27	19
BLF8G10LS-270	SOT502	final	820	960	270	28	33	18.5
BLF8G10LS-270(G)V	SOT1244	final	820	960	270	30	28	18.5
BLF8G10LS-300PV	SOT1242	final	820	960	300	30	29	20

[1] measured at 2200 MHz

Power LDMOS transistors 1400 – 1550 MHz

Type number	Package	Function	f_{min} (MHz)	f_{max} (MHz)	P_{1dB} (W)	V_{DS} (V)	η_D (%)	G_p (dB)
BLP7G22-10	SOT1179	driver	700	2700	10	28	26	17[1]
BLF6G15L(S)-40RN	SOT1135	driver	1450	1550	40	28	13.5	22.5
BLF6G15L-40BRN	SOT1112	driver	1450	1550	40	28	13	22
BLF7G20L(S)-90P	SOT1121	final	1427	2170	90	28	54	19.5
BLF7G15LS-200	SOT502	final	1450	1550	200	28	29	19.5
BLF6G15L-250PBRN	SOT1110	final	1450	1550	250	28	33	18.5
BLF7G15LS-300P	SOT539	final	1450	1550	300	28	31	18

[1] measured at 2200 MHz

Power LDMOS transistors 1800 – 2025 MHz

Type number	Package	Function	f_{min} (MHz)	f_{max} (MHz)	P_{1dB} (W)	V_{DS} (V)	η_D (%)	G_p (dB)
BLP7G22-05	SOT1179	driver	700	2700	5	28	26	17[1]
BLF6G21-10G	SOT538	driver	700	2200	10	28	31	18.5
BLP7G22-10	SOT1179	driver	700	2700	10	28	26	17[1]
BLF6G20(S)-45	SOT608	driver	1800	2000	45	28	14	19.2
BLD6G21L(S)-50	SOT1130	final	2010	2025	50	28	43	14.5
BLF6G20L(S)-75	SOT502	final	1800	2000	75	28	37.5	19
BLF7G20L(S)-90P	SOT1121	final	1427	2170	90	28	54	19.5
BLF6G20(LS)-110	SOT502	final	1800	2000	110	28	32	19
BLF6G20LS-140	SOT502	final	1800	2000	140	28	30	16.5
BLF7G20LS-140P	SOT1121	final	1800	2000	140	28	54	17.5
BLF7G21L(S)-160P	SOT1121	final	1800	2050	160	28	34	18
BLF7G21LS-160	SOT1121	final	1800	2050	160	28	34	18
BLF8G19LS-170BV	SOT1120	final	1800	2050	170	28	35	18
BLF6G20-180PN	SOT539	final	1800	2000	180	32	29.5	18
BLF7G20L(S)-200	SOT502	final	1805	1990	200	28	33	18
BLF8G20LS-200V	SOT1120	final	1800	2000	200	28	33	17.5
BLF8G20LS-220	SOT502	final	1800	2000	220	28	33	17.5
BLF8G20LS-240	SOT502	final	1800	2000	240	28	32	17.5
BLF7G20L(S)-250P	SOT539	final	1805	1880	250	28	35	18
BLF8G20LS-260A	SOT539	final	1800	2000	260	28	43	15.5

[1] measured at 2200 MHz

Power LDMOS transistors 2000 – 2200 MHz

Type number	Package	Function	f_{min} (MHz)	f_{max} (MHz)	P_{1dB} (W)	V_{DS} (V)	η_D (%)	G_p (dB)
BLP7G22-05	SOT1179	driver	700	2700	5	28	26	17(1
BLF6G21-10G	SOT538	driver	700	2200	10	28	31	18.5
BLP7G22-10	SOT1179	driver	700	2700	10	28	26	17(1
BLM6G22-30(G)	SOT834	driver	2100	2200	30	28	9	29.5
BLF6G22L(S)-40BN	SOT1112	driver	2000	2200	40	28	16	19
BLF6G22LS-40P	SOT1121	driver	2110	2170	40	28	30	19
BLF6G22(S)-45	SOT608	driver	2000	2200	45	28	13	18.5
BLD6G22L(S)-50	SOT1130	final	2110	2170	50	28	40	14
BLM7G22S-60PB(G)	SOT1211/1212	driver	2100	2200	60	28	11.5	29.9
BLP8G22S-60P(G)	SOT1223/1224	driver	1800	2200	60	28	30	19
BLP8G22S-90P(G)	SOT1223/1224	final	1800	2200	90	28	29	18.5
BLF6G22LS-100	SOT502	final	2000	2200	100	28	29	18.2
BLF7G22L(S)-100P	SOT1121	final	2000	2200	100	28	28.5	19.1
BLF6G22LS-130	SOT502	final	2000	2200	130	28	28.5	17
BLF7G22L(S)-130	SOT502	final	2000	2200	130	28	32	18.5
BLF8G22LS-140	SOT502	final	2000	2200	140	28	33	18.5
BLF7G22L(S)-160	SOT502	final	2000	2200	160	28	30	18
BLF8G22LS-160BV	SOT1120	final	2000	2200	160	32	32	18
BLF6G22-180PN	SOT539	final	2000	2200	180	32	27.5	17.5
BLF7G22L(S)-200	SOT502	final	2110	2170	200	28	31	18.5
BLF8G22LS-200(G)V	SOT1244	final	2110	2170	240	28	27	20
BLF8G22LS-220	SOT502	final	2110	2170	220	28	28	18
BLF8G22LS-240	SOT502	final	2110	2170	200	28	27	20
BLF7G22L(S)-250P	SOT539	final	2110	2170	250	28	31	18.5
BLF8G22LS-270(G)V	SOT1244	final	2110	2170	270	28	25	17.7
BLF8G22LS-270	SOT502	final	2110	2170	270	28	25	17.7
BLF8G22LS-310AV	SOT539	final	2100	2200	310	30	46	16
BLF8G22LS-460AV	SOT539	final	2100	2200	460	28	45	16

(1 measured at 2200 MHz

Power LDMOS transistors 2300 – 2400 MHz

Type number	Package	Function	f_{min} (MHz)	f_{max} (MHz)	P_{1dB} (W)	V_{DS} (V)	η_D (%)	G_p (dB)
BLP7G22-05	SOT1179	driver	700	2700	5	28	26	17(1
BLP7G22-10	SOT1179	driver	700	2700	10	28	26	17(1
BLF6G27-10(G)	SOT975	driver	2300	2700	10	28	20	19
BLF6G27L(S)-40P	SOT1121	driver	2300	2700	40	28	37	17.5
BLF7G27L(S)-75P	SOT1121	final	2300	2700	75	28	26	17
BLF7G24L(S)-100	SOT502	final	2300	2400	100	28	27	18
BLF7G24L(S)-140	SOT502	final	2300	2400	140	28	26.5	18.5
BLF7G24L(S)-160P	SOT539	final	2300	2400	160	28	27.5	18.5
BLF8G24L(S)-200P	SOT539	final	2300	2400	200	28	30	16.5

(1 measured at 2200 MHz

Power LDMOS transistors 2500 – 2700 MHz

Type number	Package	Function	f_{min} (MHz)	f_{max} (MHz)	P_{1dB} (W)	V_{DS} (V)	η_D (%)	G_p (dB)
BLP7G22-05	SOT1179	driver	700	2700	5	28	26	17(1
BLP7G22-10	SOT1179	driver	700	2700	10	28	26	17(1
BLF6G27-10(G)	SOT975	driver	2300	2700	10	28	20	19
BLF6G27(LS)-40P	SOT1121	driver	2500	2700	40	28	37	17.5
BLF6G27(S)-45	SOT608	driver	2500	2700	45	28	24	18
BLF6G27L(S)-50BN	SOT1112	driver	2500	2700	50	28	14.5	16.5
BLF7G27L(S)-75P	SOT1121	final	2300	2700	75	28	26	17
BLF7G27L(S)-90P	SOT1121	final	2500	2700	90	28	29	18.5
BLF7G27L(S)-100	SOT502	final	2500	2700	100	28	28	18
BLF8G27LS-100P	SOT1121	final	2500	2700	100	28	30	17
BLF8G27LS-100V	SOT1244	final	2500	2700	100	28	30	17
BLF7G27L-135	SOT502	final	2600	2700	135	28	27.5	16.5
BLF7G27L(S)-140	SOT502	final	2500	2700	140	28	22	16.5
BLF8G27LS-140(G)	SOT1244	final	2500	2700	140	28	23	17
BLF8G27LS-140V	SOT1120	final	2500	2700	140	28	25	17
BLF7G27L(S)-150P	SOT539	final	2500	2700	150	28	26	16.5
BLF7G27L-200PB	SOT1110	final	2600	2700	200	32	29	16.5
BLF8G27LS-200(G)V	SOT1244	final	2500	2700	200	28	23	16

(1 measured at 2200 MHz

Power LDMOS transistors 3500 – 3800 MHz

Type number	Package	Function	f_{min} (MHz)	f_{max} (MHz)	P_{1dB} (W)	V_{DS} (V)	η_D (%)	G_p (dB)
BLF6G38-10G	SOT975C	driver	3400	3600	10	28	20	14
BLF6G38(S)-25	SOT608B	driver	3400	3800	25	28	24	15
BLF6G38(LS)-50	SOT502B	final	3400	3800	50	28	23	14
BLF8G38LS-50	SOT502B	final	3400	3800	50	28	25	15
BLF6G38(LS)-100	SOT502B	final	3400	3600	100	28	21.5	13

Build a highly efficient signal chain with RF components for transmit line-ups and receive chains.

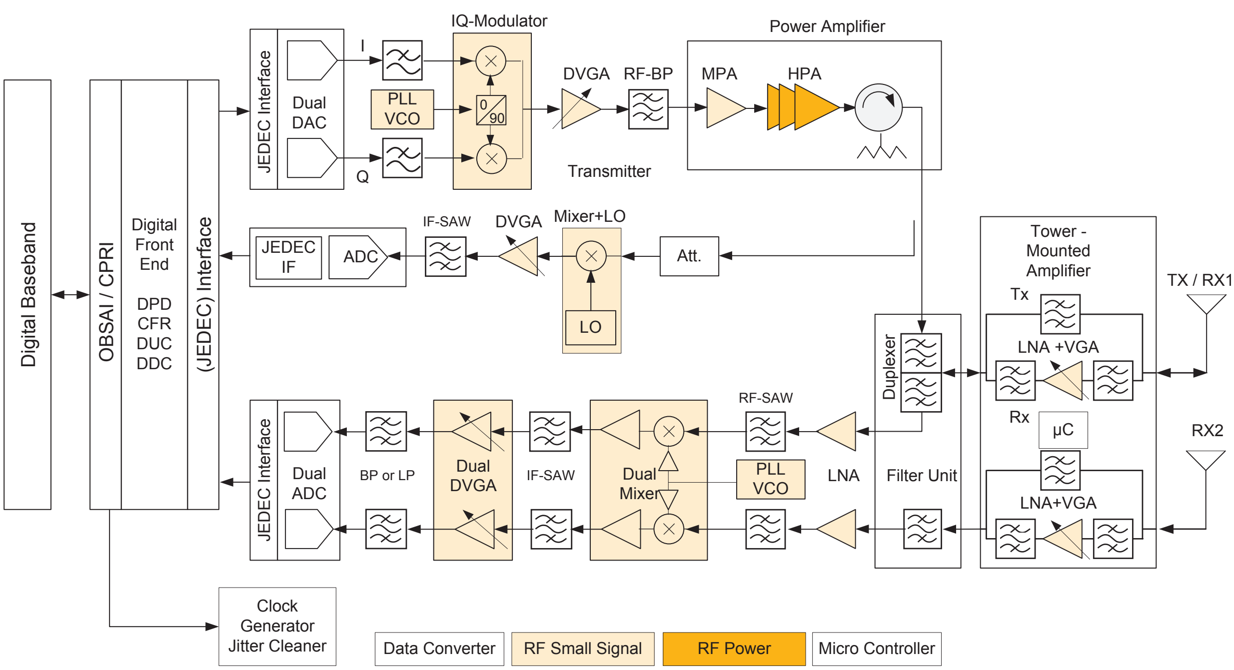
As a global leader in RF technology and component design, NXP Semiconductors offers a complete portfolio of RF products, from low- to high-power signal conditioning that delivers advanced performance and helps simplify your design and the development process. Our solutions range from discrete devices to modular building blocks, so you can design a highly efficient signal chain.

State-of-the-art QUBiC4

NXP's industry-leading QUBiC4 technology, available since 2002, has been widely deployed in the field and offers more consistent parameter performance compared to GaAs technology. It speeds the migration from GaAs to silicon and delivers more functionality in less space. High integration reduces the design footprint and enables more cost-competitive designs. It also improves reliability and offers significant savings in manufacturing expenditures.

Application diagram of base station (all cellular standards and frequencies)

The block diagram below shows base station transmit (upper part, Tx) and receive (lower part, Rx) functions, and includes the Tx feedback function (middle part, Tx feedback).



Digital wideband VGAs with high linearity & flexible current settings

These 6-bit digital VGAs (BGA7204 & BGA7210) offer high linearity (35 dBm @ 2.2-2.8 GHz) and high output power (23 dBm @ 2.2-2.8 GHz) across a large bandwidth without external matching. Smart routing with no connection crosses simplifies design and decreases footprint by 25%.

The unique power-save mode can effectively reduce the current consumption in TDD systems up to 45%. The BGA7210 adds flexible current distribution across its two amplifiers, depending on the attenuation state, to save current.

Dual digital IF VGAs

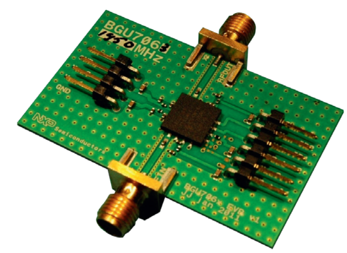
The BGA7350 and BGA7351 are dual, independently controlled receive IF VGAs that operate from 50 to 250 MHz. Integrated matching improves performance in the receiver chain, because the VGA can drive the filter directly into the analog-to-digital converter to ensure a constant input level. The BGA7350 has a gain range of 24 dB, while the BGA7351 has a range of 28 dB. For both devices, the maximum gain setting delivers at least 16 dBm output power at 1 dB gain compression (P1dB). For gain control, each amplifier uses a separate digital gain-control code, which is provided externally through two sets of five bits. The resulting gain flatness is 0.1 dB.

Medium power amplifier

The NXP MPAs (BGA7x1x/BGA7x2x/BGA7x3x) are based on a one-stage amplifier, available in a low-cost surface-mount package. It delivers a set of available output power from 14 to 30 dBm. All cover the frequency range from 400 to 2700 MHz.

Low-noise amplifiers up to 2.8 GHz

Designed for high linearity and low noise, these monolithic SiGe:C BiCMOS LNAs (BGU7051, BUG7052 & BGU7053) deliver 18-24 dB gain, 3-5 dB more gain than equivalents, along with low power consumption. The RF input power overdrive of 20 dBm and the high ESD protection (HBM 4 kV; CDM 2 kV) make these devices extremely rugged. Integrated biasing circuitry, 3.3 V supply voltage and low external component count (only 6 capacitors) ensures easy system integration.

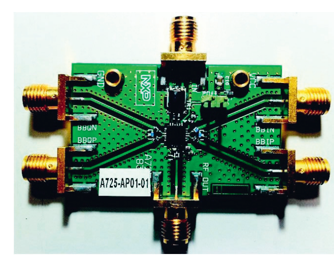


Integrated base station LNAs with lowest NF for the complete LNA chain

NXP provides the industry's only fully Integrated base station LNA that can be tailored to the needs of individual OEMs for optimal fit in their Rx line-ups. By integrating three stages in one monolithic design, these SiGe:C BiCMOS LNAs (BGU706x) deliver the industry's lowest noise figure for a receive chain (0.9 dB), while saving up to 80% in component cost. Additionally, the analog gain control up to 35 dB, RF input power overdrive of 10-15 dBm, and high linearity (0.9-2.5 dBm IP3I at maximum gain) make them very suitable in small cell sizes.

IQ modulators

The BGX7100 and BGX7101 devices combine high performance, high linearity I and Q modulation paths for use in radio frequency up-conversion. It supports RF frequency outputs in the range from 400 to 4000 MHz. The BGX710x IQ modulator is performance-independent of the IQ common mode voltage. The modulator provides a typical output 1 dB compression point (PL(1dB)) value of 12 dBm and a typical 27 dBm output third-order intercept point ($IP3_O$). Unadjusted sideband suppression and carrier feed through are 50 dBc and −45 dBm respectively. A hardware control pin provides a fast power-down/power-up mode functionality which allows significant power saving. The BGX7101 is 4 dB higher gain compared to the BGX7100.



Dual mixers

The BGX722x device combines a pair of high-performance, high-linearity down-mixers for use in receivers having a common local oscillator (e.g. having main and diversity paths). Each mixer provides an input 1 dB compression point (P1dB) above 13 dBm, with an input third-order intercept point (IIP3) of 26 dBm. The small-signal noise figure (NF) is below 10 dB whereas under large signal blocking conditions the NF is typically 19 dB. Isolation between mixers is at least 40 dB.

Wireless infrastructure ICs

LNAs for wireless infrastructures

Type number	Package	@V_{CC} [typ] (V)	@I_{CC} [typ] (mA)	f_{min} (MHz)	f_{max} (MHz)	G_{ass} [typ] (dB)	NF [typ] (dB)	$P_{L(1dB)}$ [typ] (dBm)	$IP3_O$ [typ] (dBm)	RL_{in} [typ] (dB)	RL_{out} [typ] (dB)
BGU7051	SOT650-1	3.3	65	500	750	23.5	0.6	17	32	27.5	18
				65	850	21.5	0.63	16.5	32	26	17.5
				65	1500	21	0.65	16.5	33	24.5	18
BGU7052	SOT650-1	3.3	80	1500	1750	21.5	0.76	15.5	37	23	22
				3.3	80	20	0.76	14.5	35.5	23	22
				3.3	80	19.7	0.79	14.5	35	22	21
BGU7053	SOT650-1	3.3	90	2300	2500	18.5	0.85	13.5	36	23	19.5
				3.3	90	17.5	0.9	13	36	26	23
BGU7060	SOT1301AA	5	200	700	800	3	21	11	25.5	20	19
						5	200	7.5	22.5	20	19
						5	200	-7	4.5	20	19
						5	200	-12.5	2.5	24	19
BGU7061	SOT1301AA	5	200	800	950	3	21	11	25.5	20	19
						5	200	7.5	22.5	20	19
						5	200	-7	4.5	20	19
						5	200	-12.5	2.5	24	19
BGU7062	SOT1301AA	5	185			3	20.6	10.7	25.6	23	16
				1710	1785	5	200	5.4	21	23	16
				1710	1785	5	200	-7	3.4	23	16
						5	200	-12.8	1	26	16
BGU7063	SOT1301AA	5	190	1920	1980	18	6.4	-6.4	5.4	35	15
			230			230	1.05	-12.5	0.9	31	15
BGU8051	SOT1327	5	50	500	900						
				900	900	18	0.43	19.5	41	27	20
				900	1500						
BGU8052	SOT1327	5	47	1500	1900						
				1900	1900	18	0.52	19	39	27	12
				1900	2300						
BGU8053	SOT1327	5	51	2300	2500						
				2500	2500	18	0.63	20	39	23	12
				2500	5000						

VGA for wireless infrastructure

Type number	Package	type	@V_{CC} [typ] (V)	@I_{CC} [typ] (mA)	f_{min} (MHz)	f_{max} (MHz)	G_p @ minimum attenuation (dB)	@ range (dB)	NF [typ] (dB)	$P_{L(1dB)}$ [typ] (dBm)	$IP3_O$ [typ] (dBm)
BGA7204	SOT617-3	single	5	115	400	700	18.5	31.5	7	21	38
			5	115	700	1450	18.5	31.5	6.5	21	37.5
			5	115	1450	2100	17.5	30.5	6.5	20.5	36
			5	115	2100	2750	16.5	30	7	20	34
BGA7210	SOT617-3	single	5	185	700	1400	30	31.5	6.5	21	39
			5	185	1400	1700	29.5	31.5	6.5	21	37
			5	185	1700	2200	29	31.5	6.5	21	35
			5	185	2200	2800	28	30.5	7	23	35
			5	185	3400	3800	26	29.5	8	19	27
BGA7350	SOT617-1	dual	5	245	50	250	18.5	24	6	17	43
BGA7351	SOT617-1	dual	5	280	50	250	22	28	6	16.5	46

Medium power amplifier

Type number	Package	@V_{CC} [typ] (V)	@I_{CC} [typ] (mA)	f_{min} (MHz)	f_{max} (MHz)	G_p [typ] (dB)	$P_{L(1dB)}$ [typ] (dBm)	$IP3_O$ [typ] (dBm)	NF [typ] (dB)
BGA6589	SOT89	4.8	81	400 - 2700	950	22	21	33	3
					1950	17	20	31	3.3
					2500	15	18	30	3.4
BGA7014	SOT89	5	70	30 - 6000	2000	13	13	25.5	6
BGA7017	SOT89	5	87	30 - 6000	2000	13	15.5	29.3	6
BGA7020	SOT89	5	120	30 - 6000	2000	13.3	18.5	33	6.2
BGA7024	SOT89	5	110	400 - 2700	940	22	24	37.5	2.9
					1960	16	25.5	38	3.7
					2140	15	25.5	38	3.7
					2445	14	24.5	37.5	4
BGA7027	SOT89	5	165	400 - 2700	940	19	29	41.5	2.6
					1960	11.5	27.5	43	3.8
					2140	11	28	42.5	3.9
BGA7124	SOT908	5	140	400 - 2700	940	23	25	38.5	5.2
					1960	16.5	24.5	38	4.6
					2140	16	24.5	37.5	4.8
					2445	14	23.5	36	5.4
BGA7127	SOT908	5	180	400 - 2700	940	20	27.5	41.5	3.1
					1960	13	28.5	42.5	4.5
					2140	12	28	42	4.6
					2445	10.5	27.5	41.5	4.7
BGA7130	SOT908	5	450	400 - 2700	750	18	30	43	5
					2140	10	30	44	5

IQ modulator for wireless infrastructures

Type number	Package	@V_{CC} [typ] (V)	@I_{CC} [typ] (mA)	flo range (MHz)	flo (MHz)	Po [typ] (dBm)	BWmod [typ] (MHz)	Nflr(o) * [typ] (dBm/Hz)	$P_{L(1dB)}$ [typ] (dBm)	$IP2_O$ [typ] (dBm)	$IP3_O$ [typ] (dBm)	SBS [typ] (dBc)	CF [typ] (dBm)
BGX7100	SOT616-3	5	165	400 - 4000	750	-0.2	400	-159/-158.5	11.5	71	29	55	-55
			165		910			-159/-158.5	11.5	72	29	49	-55
			173		1840			-158.5/-158	11.5	69	27	47	-50
			173		1960			-158.5/-158	11.5	72.5	27	49	-48
			178		2140			-158.5/-158	11.5	74	27	51	-45
			178		2650			-158/-158	11.5	62	26	60	-45
			184		3650			-158/-158	11.5	60	25	53	-43
BGX7101	SOT616-3	5	172	400 - 4000	750	4	650	-159/-158.5	12	71	28	63	-51
			172		910			-159/-158.5	12	75	28	49	-57
			180		1840			-158.5/-158	12	71	27	55	-50
			180		1960			-158.5/-158	12	72	27	57	-47
			178		2140			-158.5/-158	12	75	27	63	-45
			182		2650			-158/-158	12	65	26	50	-45
			188		3650			-158/-158	12	65	25	57	-42

* without modulation/with modulation

Dual mixer for wireless infrastructure

Type number	Package	@V_{CC} [typ] (V)	@I_{CC} [typ] (mA)	RF input frequency [min] (MHz)	RF input frequency [max] (MHz)	Local oscillator frequency [min] (MHz)	Local oscillator frequency [max] (MHz)	Second-order spurious rejection 2RF-2LO [max] (dBc)	NFSSB single-sideband [typ] (dB)	$IP3_{io}$ [typ] (dBm)	Gconv [typ] (dB)
BGX7220	SOT1092-2	5	330	700	950	500	1150	-60	10	26	8
BGX7221	SOT1092-2	5	365	1400	2700	1500	2500	-60	10	25.5	8.5

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