

**PRODUCT** 2025.Q1 V1.0  
**SELECTION GUIDE**



Developed and manufactured all by China independently



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Bonray Headquarter  
Third-Generation Semiconductor  
Industry Innovation Center

## Company Profile

Bonray (Xi'an) Integrated Information Electronics Technology Co., Ltd. is a leading provider of independent control core chips and special communication equipment in China. We focus on the R&D, producing, testing and sales of whole set equipment and core chips in communications, radar, avionics and other fields by providing completely independent and controllable innovative technologies and a whole package of product solutions, which can meet the personalized needs of different users and the requirements for quick response to innovation and upgradation.

Bonray's main products are microwave radio frequency chips and mixed-signal chips based on GaAs, GaN, and CMOS processes. It currently has multiple specialized product lines, including small-signal, large-signal, time-frequency, SiP, and board cards, achieving comprehensive coverage from shortwave, ultra-shortwave to microwave and millimeter-wave bands. These products feature broad bandwidth, low power consumption, high integration, high reliability, and cost-effectiveness, and have been widely applied in fields such as special communications, Beidou systems, radar, and electronic countermeasures.

Bonray holds 43 patents and comprehensive qualifications for the special industries. It has undertaken over more than 100 national-level key projects. The company has been recognized as the national-level "Little Giant" enterprise of specialized and innovative excellence, the national high-tech enterprise, the provincial postdoctoral innovation research base and the communication chip technology research center.

With the vision of "Developed and manufactured all by China independently." Bonray is committed to creating value for customers in the field of communication core chips.



**Autonomous & Controllable**

Invested by State-owned enterprises  
All products meet the requirements of self-controllable technology  
Key Products of Military-Civilian integration in Shaanxi Province  
The 19th "China Core Chip" Spark Product Award

**Talent Team**

Led by leading talents of the National "Ten Thousand Talents Plan"  
Special government allowances of the State Council  
Provincial Postdoctoral Innovation Base  
Provincial "Scientists and Engineers" Team  
Provincial Science and Technology Innovation Team  
Xi'an Special Communication Chip Technology Research Center  
Bonray-Xi'an Jiaotong University 3rd Generation Compound Semiconductor Innovation Research Institute

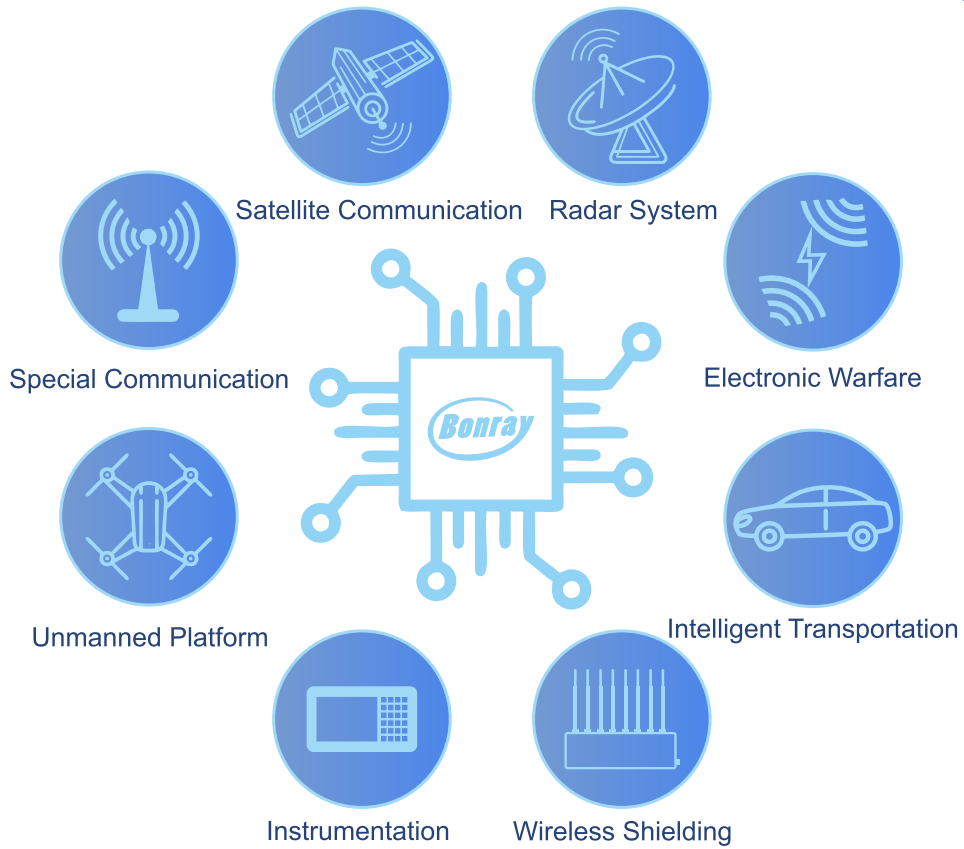
**Quality System**

Comprehensive Planning, Precision Manufacturing, Strict Monitoring, Continuous Improvement  
Implement High-Standard Quality Control and Factory Inspection

**Enterprise Honor**

National Key Specialized, High-End and Innovation-Driven "Little Giant" Enterprises  
National High-Tech Enterprises  
Shaanxi Province Gazelle Enterprises  
Shaanxi Province Special Communication Chip Technology University-Enterprise Research Center  
Xi'an Academician Workstation

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**IPR**

**Bonray**  
Holds 43 IPs and 51 integrated circuit layout design protections  
All these patents have been fully implemented in our products



**R&D Capability**

**Bonray**  
Relying on the talent team of top universities in China, the core technology is independent and controllable, with high level of chip R&D and design capability

- RFIC Product Design Technology
- Integrated Circuit Device Modeling Technology
- 3D package simulation technology
- Microwave communication system integration design capability



**IC Assembly**

**Bonray**

Relying on high-standard packaging and testing production lines, we possess the capability for chip manufacturing, assembly, and testing, supporting various product forms such as QFN, DFN, SOT, SOP plastic packaging, and more

- Capable of packaging products of different quality grades with flexible customization
- High-precision, fully automatic thermosonic gold wire bonding capability, with wire diameters ranging from Ø18um to Ø50um and bonding accuracy of ±2.0um @ 3sigma
- Omni-directional 270° observable 3-light inspection equipment, featuring the ability to laser mark defective products cut, bonding wires, and perform frame mapping
- RF and microwave chip and system test verification platform, equipped with a full suite of RF and microwave test equipment, on-wafer test systems, and automated test, systems enabling high and low-temperature testing of in-wafer and finished chips developed in-house
- The full-process manufacturing execution system with traceability to every single chip



**Package Specificatio**

**Bonray**

All kinds of packaging, can provide Die, plastic, pottery, gold and other different forms

Package	Size(units:mm)	Pictures
SMO-8C	12.2*12.2*5	
SOT89	4.5*4.1*1.5	
SOT343	2.1*2.25*0.95	
SOT23-6	2.92*2.8*1.15	
MSOP8	3*4.9*1	
eMSOP8	3*4.9*1	
DFN6	2*1.3*0.75	
	1.5*1.2*0.75	
DFN8	2*2*0.8	
DFN8L	4.9*6*0.9	
QFN16	3*3*0.8	
	4*4*0.75	
QFN20	4*4*1	
	5*5*0.75	

Package	Size(units:mm)	Pictures
QFN24	4*4*0.8	
	5*5*0.8	
QFN32	5*5*0.8	
QFN48	7*7*1.7	
QFN64	9*9*1.7	
PD	5.1*4.1*3.05	
PG	14*4.1*3.05	
PC	20.3*5.8*3.88	
PF	29*5.8*3.88	
PN	34*9.8*4.7	
PH	18*8.7*2.34	
PJ	24*17.4*4.5	

Reliability  
Test**Failure Analysis and Reliability Testing Capabilities****Rigorous Product Reliability Testing**

We support a comprehensive range of tests, including: High- and Low-Temperature Testing、 Die Shear Strength Testing、 Bond Strength Testing、 X-ray Inspection、 Ultrasonic Examination、 High-Temperature Storage、 Temperature Cycling、 Burn-in Testing、 Highly Accelerated Steady-State Humidity Testing、 Pressure Cooker Testing 、 Visual Inspection (External and Internal)、 Dimensional Measurements

- Humidity Resistance Testing
- Internal Defect Detection
- Thermal Cycling Resistance Testing
- Bonding Strength Testing
- High/Low Temperature Life Testing
- High-Temperature Storage Testing
- External/Internal Visual Inspection and Measurement





**Main Products**

**Small Signal Products**

- Low Noise Amplifier
- Low Phase Noise Amplifier
- Gain Block/Amplifier
- Anti-blocking Amplifier
- RF Switch
- Attenuator
- Phase Shifter
- Mixer
- Limiter
- Equalizer
- RMS Detector



**Frequency Source&Timing Products**

- PLL with Integrated VCO
- Voltage-Controlled Oscillator
- Prescaler
- Direct Digital Synthesis(DDS)
- Fanout Buffer
- SPI



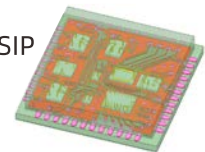
**Large Signal Products**

- GaN Transistor
- Internal Matched PA
- Driver Amplifier
- GaN MMIC PA
- GaN Switch



**Integrated Products**

- Variable Gain Amplifier
- Amplitude limiting&Phase shift SIP
- Bilateral Amplifier
- Beamforming Chip for K-band
- Micro Module



**Product Feature**

- Comprehensive coverage of short wave, ultrashort wave to microwave, millimeter wave
- The device boasts a wide frequency spectrum, minimal power consumption, superior integration levels, and enhanced reliability
- With small signal, large signal, Frequency Source&Timing, sip and other characteristic product, can provide a complete solution

## Small Signal Products >>>

### Mature and Stable, Covering Full-Scenario Demands

Deeply engaged in the fields of LNA, Gain Amplifier, Switch, Mixer, Attenuator, Phase Shifter, Limiter, and other components, achieving full-frequency coverage from shortwave and ultra-shortwave to microwave and millimeter wave. Products feature low noise, high linearity, low power consumption, and ultra-wideband characteristics, deeply aligned with application scenarios such as complex environmental communications, satellite communications, electronic countermeasures, radar systems, medical education, and special rescue operations. Leveraging a rapid product development platform, the line delivers ultra-short-cycle turnaround capabilities, providing comprehensive solutions from discrete components to complete link systems.

### Small Signal Active Amplifier Products:

- Ultra-Low Noise Series
- Low Power Consumption Series
- Anti-Blocking Series
- High Linearity Series
- Low Phase Noise Series
- High Gain Flatness Series
- Shortwave and Medium-Long Wave Series

### Small Signal Passive Products:

- Wide Bandwidth, Comprehensive Range
- Attenuator, Phase Shifter
- RF Switch
- Mixer
- Equalizer
- Limiter
- Detector

#### Low Noise Amplifier BR9371DAJ

- Frequency Band Coverage: 30 MHz to 4 GHz
- Features: low noise (0.7 dB), high flatness, high P1dB, low power consumption
- Suitable for applications with high requirements for power consumption, size, and noise, such as radio stations, satellite communications, and phased array radar



#### Anti-blocking Amplifier BR8121/8122/8123

- Covers the UV frequency band
- Low noise, high linearity, high input P1, internally matched
- Suitable for complex communication environments



#### High-Power Limiter BR9309FPJ

- Frequency Range: DC to 4 GHz
- High power (50W), wide bandwidth, low insertion loss
- Used in BeiDou anti-jamming antennas and front-end protection of communication receiving systems



## Low Noise Amplifier



Part Number	Features	Freq. (GHz)	Gain (dB)	OP1dB (dBm)	OIP3 (dBm)	NF (dB)	Vs (V)	Is (mA)	Package	Product Lifecycle
BR9513TA	Short wave	0.001~1	17.1	21.6	33.0	1.8	5	68	SOT89	Production
BR9117TA	Short wave, High IP1	0.001~2.5	14.8	19.7	31.5	1.9	5	65	SOT89	Production
BR9534TA	Short wave, Low power	0.001~4	22.5	14.9	21.9	2.0	3.3	37	SOT89	Production
<b>HOT</b> BR9112TA	Short wave, High linearity	0.001~4	22.7	23.2	35.9	1.2	5	130	SOT89	Production
BR9515TA	Short wave	0.001~4	26.9	16.4	27.7	1.9	5	82	SOT89	Production
BR9115TA	Short wave	0.001~4	31.7	15.1	25.3	1.2	5	67	SOT89	Production
<b>HOT</b> BR8121AF	High linearity, High IP1	0.02~1	10.7	19.1	37.2	1.5	5	61	SMO-8C	Production
<b>HOT</b> BR8122AFF	High linearity, High IP1	0.02~0.7	10.9	24.1	43.6	1.2	5	100~160	SMO-8C	Production
<b>HOT</b> BR8123AFF	High linearity, High IP1	0.02~0.7	16.2	24.0	42.3	1.0	5	100~160	SMO-8C	Production
BR9562FD	High linearity	0.03~1	20.7	22.4	37.5	1.2	5	92	QFN16	Production
<b>HOT</b> BR9555TA	Ultra low noise, High linearity	0.03~1	27.8	23.9	38.6	0.7	5	117	SOT89	Production
BR9533DC	Ultra low noise, Low power	0.03~2	18.7	19.3	18.3	0.6	5	14	DFN6	Production
<b>HOT</b> BR9518TA	Low power, High IP1	0.03~2.5	19.1	21.4	27.6	1.2	5	22	SOT89	Production
BR9116TA	Low power	0.03~3	15.0	17.1	28.9	1.7	5	36	SOT89	Production
BR9038TA	Low power	0.03~4	14.6	21.5	27.1	1.0	5	45	SOT89	Production
BR9124TA	High linearity, High gain flatness	0.05~4	14.6±1.3	19.9	35.1	1.5	5	52	SOT89	Production
BR91241TAJ	High linearity, High gain flatness	0.03~4	14.7±2.0	21.6	32.2	1.6	5	55	SOT89	Production
<b>HOT</b> BR9339TAJ	Low power, High gain flatness	0.03~4	14.7±1.3	20.3	29.5	1.5	5	35	SOT89	Production
BR9554TA	High linearity, High gain flatness	0.03~4	15.1±0.2	20.8	35.9	2.2	5	94	SOT89	Production
BR9554FD	High linearity, High gain flatness	0.03~4	15.4±0.2	20.9	36.6	2.2	5	95	QFN16	Production
<b>HOT</b> BR9118TC	Ultra low noise, Low power	0.03~4	16.6	22.3	31.1	0.7	5	43	SOT343	Production
BR9105TA	Low power	0.03~4	16.6	15.0	27.7	1.4	5	38	SOT89	Production
BR9104TA	High linearity, High IP1	0.03~4	17.3	20.3	35.1	1.7	5	66	SOT89	Production
BR9122TC	Ultra low power	0.03~4	17.5	11.6	21.0	1.4	2.7	20	SOT343	Production
<b>HOT</b> BR91221TCJ	Ultra low power	0.03~4	17.9	12.5	23.3	1.4	2.7	19	SOT343	Production
BR95321TCJ	Ultra low noise, High linearity	0.03~4	18.0	20.5	33.3	0.7	5	54	SOT343	Production
<b>HOT</b> BR9123TA	Ultra low noise, Low power	0.03~4	18.9	22.1	32.4	0.7	5	46	SOT89	Production

## Low Noise Amplifier



Part Number	Features	Freq. (GHz)	Gain (dB)	OP1dB (dBm)	OIP3 (dBm)	NF (dB)	Vs (V)	Is (mA)	Package	Product Lifecycle
BR9549TA	High linearity	0.03~4	19.4	22.7	36.5	1.2	5	81	SOT89	Production
BR9549FD	High linearity	0.03~4	19.6	22.4	36.3	1.3	5	81	QFN16	Production
BR9103TA	High linearity, Low power	0.03~4	20.0	20.0	30.0	1.5	5	60	SOT89	Production
<b>HOT</b> BR9371DAJ	Ultra low noise, Low power	0.03~4	22.3±2.0	23.1	29.8	0.7	5	43 /21	DFN8	Production
BR9372FDJ	High gain flatness	0.03~4.5	30.5±1.0	19.2	30.6	0.8	5	95 /75	QFN16	Production
BR9537DA	Ultra low noise	0.3~3	19.1	20.9	32.9	0.5	5	63	DFN8	Production
<b>HOT</b> BR9511DA	Shutdown, Ultra low noise	0.6~4.2	20.8	19.1	35.5	0.6	5	67	DFN8	Production
BR9625DA	Shutdown, Ultra low noise	0.7~6	18.0	21.8	35.4	0.5	5	77	DFN8	Production
<b>HOT</b> BR9617DAJ	Ultra broadband, High gain flatness	0.02~8	23.2	20.1	36.3	1.1	5	87	DFN8	Production
BR9335DA	Ultra low noise, High IP1	1~1.7	13.5	20.9	37.0	0.6	5	60	DFN8	Production
<b>NEW</b> BR9373LDZ	High gain flatness	2~8	26±0.4	17.8	30.1	1.0	5	86 /56	Die	Production
<b>NEW</b> BR9373FDJ	High gain flatness	2~8	26.2±0.6	18.3	30.0	1.0	5	84 /55	QFN16	Production
<b>NEW</b> BR9375LDZ	High gain flatness	4~8	22.3±0.4	18.1	29.5	1.2	5	68 /45	Die	Production
<b>NEW</b> BR9375FDJ	High gain flatness	4~8	22.5±0.4	18.3	28.9	1.3	5	68 /45	QFN16	Production
<b>NEW</b> BR9376LDZ	High gain flatness	6~13	21.5±1.0	17.1	24.6	1.4	5	66 /41	Die	Production
<b>NEW</b> BR9376FDJ	High gain flatness	5~14	21.7±1.0	17.0	24.8	1.2	5	66 /43	QFN16	Production
<b>NEW</b> BR9377LDZ	Positive gain slope	8~12	25.2±0.4	16.0	27.8	1.6	5	73 /48	Die	Production
<b>NEW</b> BR9377FDJ	Positive gain slope	8~12	26.2±0.5	16.6	29.1	1.6	5	73 /47	QFN16	Production
<b>NEW</b> BR9379LDZ	Low power, High gain flatness	6~18	19.6±0.4	9.8	24.1	1.5	5	27	Die	Production
<b>NEW</b> BR9381LDZ	High gain flatness	6~20	28.4±0.4	13.7	28.6	1.1	5	53	Die	Production
BR9845	Ultra broadband, High linearity	0.05~6	17.0	23.3	39.0	2.5	5	145	DFN4	Samples
BR9616LD	High gain flatness	1~9	22.3±0.3	20.5	33.1	1.2	5	85	Die	Samples
<b>NEW</b> BR9616FDJ	High gain flatness	1~9	22.3±0.5	20.5	33.1	1.4	5	85	QFN16	Samples
<b>NEW</b> BR9374FDJ	High IP1	4~8	11.5	15.5	16.4	2.0	3.3	23	QFN16	Samples
<b>NEW</b> BR9374LDZ	High IP1	4~8	12.5	15.8	14.1	2.0	3.3	23	Die	Samples
BR9618LD	High gain flatness	6~18	26.9±2.0	17.7	29.4	1.4	5	71	Die	Samples
<b>NEW</b> BR9618FDJ	High gain flatness	6~18	26.5±1.0	16.0	28.5	1.7	5	82	QFN16	Samples

# Low Noise Amplifier



Part Number	Features	Freq. (GHz)	Gain (dB)	OP1dB (dBm)	OIP3 (dBm)	NF (dB)	Vs (V)	Is (mA)	Package	Product Lifecycle
<b>NEW</b> BR9382LDZ	Low power, Positive gain slope	6~18	23.0±1.5	14.0	26.0	1.5	5	39	Die	Samples
<b>NEW</b> BR9384LDZ	Ultra broadband, High gain flatness	0.05~20	23.0±1.0	11.5	23.0	1.7	5	60	Die	Samples
BR9615LD	Ultra broadband, High gain flatness	0.1~20	17.0±0.5	13.9	24.2	1.2	5	48	Die	Samples
<b>NEW</b> BR9615FLJ	Ultra broadband, High gain flatness	0.1~20	16.0±1.0	13.9	24.2	2.0	5	48	QFN32	Samples
BR9614LD	Ultra broadband, High gain flatness	2~20	16.1±1.5	18.0	28.1	1.7	5	70	Die	Samples
<b>NEW</b> BR9614FLJ	Ultra broadband, High gain flatness	2~20	16.1±1.5	17.5	28.1	2.2	5	70	QFN32	Samples
BR9619LD	High gain flatness	18~26	21.0±0.4	15.8	20.0	1.8	5	55	Die	Samples
<b>NEW</b> BR9619FDJ	High gain flatness	18~26	21.0±0.75	15.8	20.0	2.4	5	55	QFN16	Samples
<b>NEW</b> BR9383LDZ	Positive gain slope	18~32	25.5±1.0	13.0	25.0	1.7	5	67	Die	Samples
BR9379FDJ	Low power, Positive gain slope	6~18	20.0±1.0	11.0	24.0	1.5	5	34	QFN16	Pre-release
BR9381FDJ	High gain flatness	6~20	28.0±1.0	14.5	20.0	1.4	5	61	QFN16	Pre-release
BR9382FDJ	Low power, Positive gain slope	6~18	23.0±1.5	14.0	26.0	1.5	5	39	QFN16	Pre-release
BR9384FLJ	Ultra broadband, High gain flatness	0.05~20	23.0±1.0	11.5	23.0	1.7	5	60	QFN32	Pre-release
BR9383FDJ	Positive gain slope	18~32	25.5±1.0	13.0	25.0	1.7	5	67	QFN16	Pre-release

## Gain Block/Amplifier



Part Number	Features	Freq. (GHz)	Gain (dB)	OP1dB (dBm)	OIP3 (dBm)	NF (dB)	Vs (V)	Is (mA)	Package	Product Lifecycle
BR9035TA	Low power	0.03~3	21.0	11.8	23.0	4.3	5	39	SOT89	Production
BR9613TC	Low power	0.03~4	13.8	15.3	29.6	1.9	5	42	SOT343	Production
<b>HOT</b> BR9522TA	High linearity, High gain flatness	0.03~4	21.4	19.9	38.6	2.2	5	81	SOT89	Production
BR9612TC	Ultra low power	0.03~5	12.1	6.5	21.2	2.8	5	24	SOT343	Production
BR9034DC	Ultra broadband, Low power	0.03~8	17.5	14.0	26.1	4.2	5	45	DFN6	Production
BR9035DC	Ultra broadband, Low power	0.03~8	21.7	11.0	24.4	3.9	5	38	DFN6	Production
<b>NEW</b> BR9641LDZ	Ultra broadband, High Pout	0.02~8	16.6±0.3	19.5	29.3	3.14	5	97 /62	Die	Production
<b>NEW</b> BR9641FDJ	Ultra broadband, High Pout	0.02~8	16.8±0.5	21.1	34.6	2.7	5	97 /60	QFN16	Production
<b>NEW</b> BR9642LDZ	High gain flatness	6~12	16.0±0.8	17.1	29.1	1.4	5	54	Die	Production
<b>NEW</b> BR9642FDJ	High gain flatness	6~12	16.0±1.0	16.6	28.9	1.4	5	53	QFN16	Production
<b>NEW</b> BR9643LDZ	Low power	2~20	15.0	16.6	25.4	2.1	5	48	Die	Production
<b>NEW</b> BR9644LDZ	High gain flatness, Low power	2~20	20.5	12.1	24.7	2.8	5	40	Die	Production
<b>NEW</b> BR9647LDZ	Positive gain slope	13~32	10.5±0.5	17.0	28.0	2.0	5	54	Die	Samples
<b>NEW</b> BR9648LDZ	Ultra broadband, Low power	12~40	11.0±1.0	11.0	23.0	3.0	5	40	Die	Samples
<b>NEW</b> BR9646LDZ	High gain flatness	18~40	17.0±0.5	15.0	26.0	2.3	5	68	Die	Samples
<b>NEW</b> BR9398LDZ	High gain flatness, Low power	18~40	10.0±0.5	12.5	25.0	2.6	5	38	Die	Samples
BR9643FLJ	Low power	2~20	15.0±0.6	18.0	29.0	2.7	5	49	QFN32	Pre-release
BR9644FLJ	High gain flatness, Low power	2~20	20.0±1.0	14.0	25.0	2.5	5	39	QFN32	Pre-release
BR9647FLJ	Positive gain slope	13~32	10.5±0.5	17.0	28.0	2.0	5	54	QFN32	Pre-release
BR9648FLJ	Ultra broadband, Low power	12~40	11.0±1.0	11.0	23.0	3.0	5	40	QFN32	Pre-release
BR9646FLJ	High gain flatness	18~40	17.0±0.5	15.0	26.0	2.3	5	68	QFN32	Pre-release
BR9398FLJ	High gain flatness, Low power	18~40	10.0±0.5	12.5	25.0	2.6	5	38	QFN32	Pre-release

## Low Phase Noise Amplifier



Part Number	Features	Freq. (GHz)	Gain (dB)	OP1dB (dBm)	OIP3 (dBm)	Excess Phase Noise (10KHz Freq Offset) (dBc/Hz)	NF (dB)	Vs (V)	Is (mA)	Package	Product Lifecycle
<b>HOT</b> BR9192TA	Low phase noise	0.03~1	20.0±0.7	21.1	39.8	-165	3.4	5	89	SOT89	Production
BR9192DA	Low phase noise	0.03~1	20.0±0.3	20.8	41.0	-165	3.1	5	92	DFN8	Production
<b>HOT</b> BR9191TA	Low phase noise	0.05~1	23.1	19.9	33.5	-165	3.3	5	75	SOT89	Production
<b>HOT</b> BR9108TA	Low phase noise	0.03~4	19.7	21.1	30.9	-165	4.0	5	72	SOT89	Production

## Limiter



Part Number	Features	Freq. (GHz)	IL. (dB)	Response Time (ns)	Flat Leakage (dBm)	Maximum Input Power (dBm)	Package	Product Lifecycle
BR9301DA	Low limiting level	0.01~1	0.36@500MHz	2.4	11.0	30.0	DFN8	Production
BR93011DAJ	Low limiting level	0.01~3	0.39@1GHz	2.4	12.0	30.0	DFN8	Production
<b>HOT</b> BR9309FPJ	High power, Broadband	DC~4	0.3@2GHz	3.2	13.3	47.0	QFN24	Production
BR9306FVJ	Low insertion loss, Broadband	0.03~4	0.07@3GHz	3.3	14.0	35.0	DFN2	Production
BR9307FPJ	High power, Broadband	0.03~4	0.3@2GHz	3.7	14.0	40.0	QFN24	Production
BR9308FPJ	High power, Broadband	0.03~6	0.27@3GHz	3.2	14.0	37.0	QFN24	Production
<b>NEW</b> BR9308LDZ	Ultra broadband, Low insertion loss	0.03~18	0.17@4GHz	11.7	14.0	37.0	Die	Production
BR9731FPJ	High power, Broadband	0.03~18	0.35	11.7	14.0	36.0	QFN24	Pre-release

## Attenuator



Part Number	Features	Freq. (GHz)	IL (dB)	Peak Attenuation (dB)	Step (dB)	Vs (V)	Is (mA)	Package	Product Lifecycle
<b>HOT</b> BR9158FP	7bit, Parallel control	0.001~0.5	0.33	31.75	0.25	5	3	QFN24	Production
BR9155FP	6bit, Parallel control	0.01~4	1.3	31.5	0.5	5	3	QFN24	Production
<b>HOT</b> BR9155S	6bit, Serial and parallel control	0.1~4	1.6	31.5	0.5	5	4	QFN24	Production
BR9153S	6bit, Serial and parallel control	DC~8	1.2	31.5	0.5	5	3	QFN24	Production
<b>NEW</b> BR91531FPJ	6bit, Parallel control	DC~8	1.3	31.5	0.5	5	3	QFN24	Production
BR9153FP	6bit, Parallel control	DC~8	1.3	31.5	0.5	5	2	QFN24	Production
BR9154FD	5bit, Parallel control	0.001~8	1.2	31.0	1.0	5	2	QFN16	Production
<b>NEW</b> BR9361FPJ	7bit, Serial and parallel control	0.01 ~ 8	1.2	31.75	0.25	5	3	QFN24	Production
BR9156FD	6bit, Parallel control	2~8	2.0	31.5	0.5	5	2	QFN16	Production
<b>NEW</b> BR9363FPJ	6bit, Parallel control	0.05~10	1.6	31.5	0.5	5	2	QFN24	Production
BR7052-2/3/4/6/8/10/20	Fixed attenuator	DC~40	-	2/3/4/6/8/10/20	-	-	-	Die	Production
BR9364LDZ	6bit, Parallel control	0.2~20	2.9	31.5	0.5	5	3	Die	Samples
BR9364FPJ	6bit, Parallel control	0.2~20	4.0	31.5	0.5	5	3	QFN24	Pre-release

## Coaxial Attenuator



Part Number	Features	Freq. (GHz)	Attenuation (dB)	Maximum attenuation accuracy (dB)	Max VSWR (: 1)	Max P-in (average) (W)	Max P-in (peak) (W)	Connector Type	Product Lifecycle
BR8491B	Coaxial fixed attenuator	DC-18	3/6/10/20/30/40/50/60	±2.0	1.5	2	100	N(m,f)	Samples
BR8493B	Coaxial fixed attenuator	DC-18	3/6/10/20/30	±1.0	1.5	2	100	SMA(m,f)	Samples
BR8498A	Coaxial fixed attenuator	DC-18	30	±1.0	1.3	30	500	N(m,f)	Samples
BR8493C	Coaxial fixed attenuator	DC-26.5	3/6/10/20/30/40	±1.3	1.25	2	100	3.5mm(m,f)	Samples
BR8490D	Coaxial fixed attenuator	DC-50	3/6/10/20/30/40	-1.8/+1.5	1.1/1.45	1	100	2.4mm(m,f)	Samples



## Phase shifter



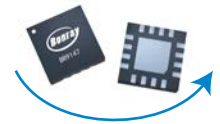
Part Number	Features	Freq. (GHz)	IL. (dB)	Return loss (dB)	Step (°)	Precision (°)	Amplitude (dB)	Package	Product Lifecycle
<b>NEW</b> BR9591LDZ	6 bit, Parallel control	5~6	5.0	15	5.625	2.2	1.8	Die	Samples
<b>NEW</b> BR9592LDZ	6 bit, Parallel control	8~12	6.5	10	5.625	2.5	0.8	Die	Samples
<b>NEW</b> BR9593LDZ	6 bit, Parallel control	14~18	9.0	10	5.625	3.0	2.5	Die	Samples
BR9591FPJ	6 bit, Parallel control	5~6	6.0	15	5.625	2.5	2.0	QFN24	Pre-release
BR9592FPJ	6 bit, Parallel control	8~12	7.0	10	5.625	3.0	1.0	QFN24	Pre-release
BR9593FPJ	6 bit, Parallel control	14~18	10.0	10	5.625	3.5	3.0	QFN24	Pre-release

## Equalizer



Part Number	Features	Freq. (GHz)	IL. (dB)	Equalization (dB)	VSWR (: 1)	Package	Product Lifecycle
BR9313DA	2dB equalization	0.5~3	0.5	2	1.2	DFN8	Production
BR9314DA	3dB equalization	0.5~3	0.5	3	1.1	DFN8	Production
BR9315DA	4dB equalization	0.5~3	0.5	4	1.2	DFN8	Production
BR9316DA	5dB equalization	0.5~3	0.4	5	1.2	DFN8	Production
BR9317DA	6dB equalization	0.5~3	0.5	6	1.2	DFN8	Production
<b>HOT</b> BR9311DA	3dB equalization	DC~6	0.4	3	1.2	DFN8	Production
<b>HOT</b> BR9312DA	5dB equalization	DC~6	0.8	5	1.1	DFN8	Production
BR9318LD	3dB equalization	2~18	0.5	3	1.5	Die	Production
BR9319LD	6dB equalization	2~18	0.5	6	1.5	Die	Production
BR9318DAJ	3dB equalization	2~18	0.6	3	1.5	DFN8	Pre-release
BR9319DAJ	6dB equalization	2~18	0.6	6	1.5	DFN8	Pre-release

## Switch



Part Number	Features	Freq. (GHz)	IL. (dB)	Iso. (dB)	IP1dB (dBm)	Control Voltage (V)	Switching Time (ns)	Package	Product Lifecycle
BR9572TD	Reflective, SPDT	0.001~2.5	0.2	28.6	34.9	0/+3/+5	220	SOT23-6	Production
BR9573TDJ	Reflective, SPDT	0.001~2.5	0.22	28.6	35.6	0/+3/+5	320	SOT23-6	Production
BR9142TD	Reflective, SPDT	0.02~3	0.6	27.0	34.0	0/+3/+5/+8	90	SOT23-6	Production
BR9502TD	Reflective, SPDT	0.001~4	0.6	28.5	33.1	0/+3/+5	66	SOT23-6	Production
BR9146FD	Reflective, SPDT	0.03~4	0.6	46.0	33.0	0/+3/+5/+8	25	QFN16	Production
BR9503DA	Absorption, SPST	0.03~4	0.6	45.4	31.7	0/+3/+5	100	DFN8	Production
<b>HOT</b> BR9147EA	Absorption, SPDT	0.01~4	0.9	51.4	34.0	0/+3/+5	140	eMSOP8	Production
<b>HOT</b> BR9147FD	Absorption, SPDT	0.01~6	0.6	52.0	34.0	0/+3/+5	130	QFN16	Production
<b>HOT</b> BR9508TD	3W, SPDT	DC~3	0.3	32.3	38.2	0/+3/+5/+8	30	SOT23-6	Production
BR9509FD	Absorption, SP4T	0.01~4	1.0	50.0	28.3	0/+3/+5	100	QFN16	Production
BR9506EA	10W, SPDT	0.01~4	0.4	30.0	39.6	0/+3/+5/+8	55	eMSOP8	Production
BR9505EA	Fast switching, SPDT	DC~6	0.7	33.5	33.1 @ IP0.3dB	0/+3/+5	7	eMSOP8	Production
<b>NEW</b> BR9575LDZ	Absorption, SPDT	DC~20	1.5	45.0	25.0	0/+5	40	Die	Samples
<b>NEW</b> BR9576LDZ	Absorption, SP4T	DC~20	1.7	45.0	20.0	0/+5	20	Die	Samples
BR9575FPJ	Absorption, SPDT	DC~20	2.5	40.0	24.0	0/+5	40	QFN24	Pre-release
BR9576FPJ	Absorption, SP4T	DC~20	3.0	40.0	20.0	0/+5	20	QFN24	Pre-release

## Mixer



Part Number	Features	RF Freq. (GHz)	IFFreq. (GHz)	LOFreq. (GHz)	CL (dB)	IP1dB (dBm)	IIP3 (dBm)	LO Power (dBm)	Package	Product Lifecycle
<b>HOT</b> BR9133EA	High linearity, Low LO power	1.0~3.5	DC~0.5	1.0~3.5	7.5	18.0	26.0	-2/0/2	eMSOP8	Production
BR9134EA	Double balanced mixer	1.5~4.5	DC~1.5	1.5~4.5	7.5	12.1	19.0	11/13/15	eMSOP8	Production
<b>HOT</b> BR9132EA	Double balanced mixer	3~8	DC~3	3~8	7.1	11.3	17.8	11/13/15	eMSOP8	Production
BR9136LD	Double balanced mixer	10~20	DC~6	10~20	7.6	13.8	20.9	13/15	Die	Production
<b>HOT</b> BR9136FDJ	Double balanced mixer	10~20	DC~6	10~20	7.6	13.8	20.9	13/15	QFN16	Production

## RMS Detector

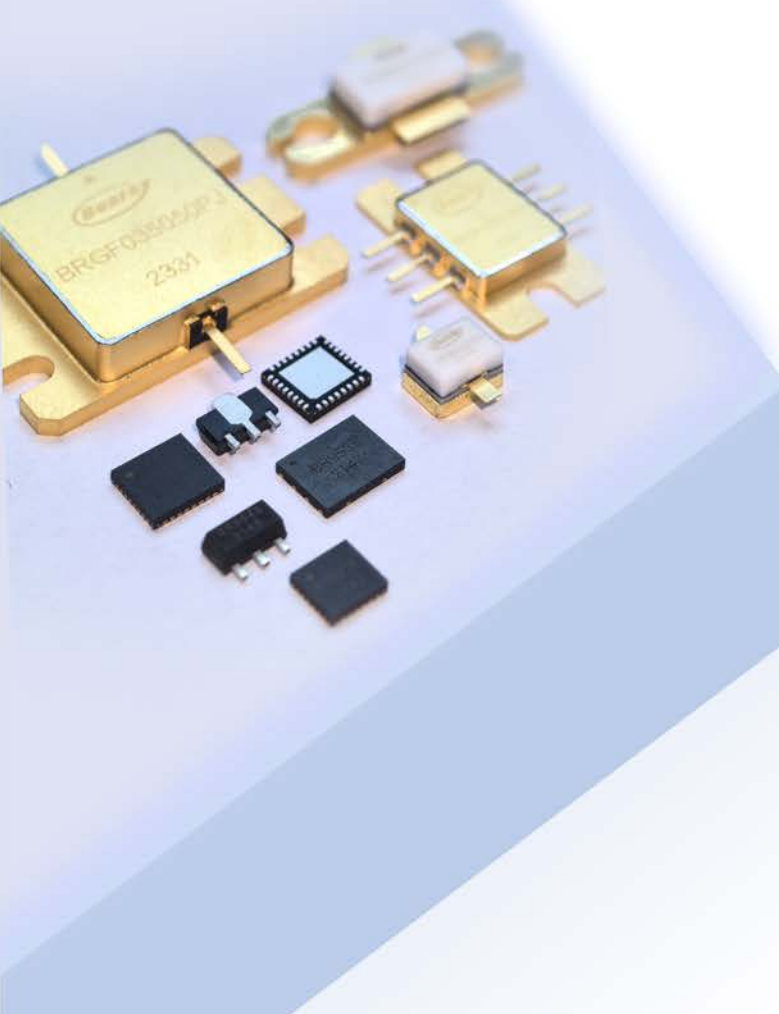


Part Number	Features	Freq. (GHz)	Dynamic Range (dB)	RMS Conversion Gain (V/Vrms)	Vs (V)	Is (mA)	Package	Product Lifecycle
BR9261	RMS response	0.002~2.5	27	8~18	+2.7~+5.5	0.45@3V; 0.6@5V	MSOP8	Production
BR9262EAJ	RMS response	0.002~1.8	25~28	4.0~10.5	+2.7~+5.5	3.8@3V; 8@5V	eMSOP8	Production

# Large Signal Products >>>

## Technology Leadership, Breaking Efficiency Limits

Focusing on RF Power Devices, our products feature ultra-wide bandwidth, high efficiency, and high linearity, widely applied in radar, data links, satellite communications, and other fields. We provide comprehensive services ranging from customized products to full-chain solutions tailored to clients' specific requirements. Leveraging our self-built wafer fabrication line and proprietary process development, we achieve independent control over product development, empowering clients to establish dual competitive advantages in performance and cost within niche markets.



### Integrated Matched Power Amplifier

- High output power, high power added efficiency, high reliability
- Complete RF chain solution available

### GaN MMIC PA

- High gain, high power added efficiency
- Compact size, easy to use
- Available in different forms such as bare die, plastic encapsulation, and gold encapsulation

### GaN Transistor

- Over 300 mature solutions available
- High reliability, high cost-effectiveness, multi-application

### Driver Amplifier

- Covering 0.25W to 4W
- Ultra-wideband, integrated matching
- Multi-application, high linearity

### High Gain Driver Amplifier BR9213/9214/9215

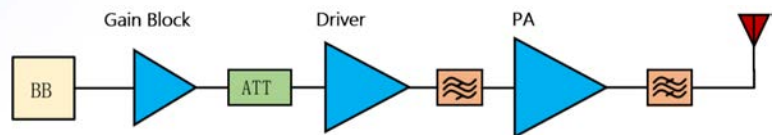
- Covers S and C bands, power 0.5~1W
- +5V single power supply, high gain, compact size, high reliability
- Applications: Electronic countermeasures, radar, point-to-point communication, data link, etc

### GaN MMIC PA BRGF035012/060010/060020

- Covers S and C bands, power 10~20W
- Ultra-wideband, high efficiency, high reliability
- Applications: Electronic countermeasures, broadband communication, data link, radar, etc

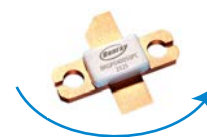
### Integrated Matched Power Amplifier BRGF016030/024025/035025/042050

- Covers L, S, and C bands, power 25~50W
- Compact metal packaging, high efficiency, high reliability
- Applications: Data link, satellite communication, radar, telemetry, and other transmitter systems



We provide a full-chain solution

## GaN Transistor



Part Number	Features	Freq. (GHz)	Psat (W)	Gain (dB)	PAE (%)	Vd (V)	Product Lifecycle	Package	Pictures
<b>HOT</b> BR9274FL	Pre-matched, Ultra broadband	0.01~2.8	10	19.1	50.4	28	Production	QFN32	
BRGM060015PD	Multi-application, High PAE	DC~6	15	18.4	47.5	28	Production	PD	
BRGM060025PD	Multi-application, High PAE	DC~6	25	17.3	62.4	28	Production	PD	
BRGM060015PG	Flange package, High PAE	DC~6	15	18.4	47.5	28	Production	PG	
<b>HOT</b> BRGM060025PG	Flange package, High PAE	DC~6	25	17.3	62.4	28	Production	PG	
BRGM060025PGG	Flange package, High PAE	DC~6	25	17.3	62.4	28	Production	PG	
<b>HOT</b> BRGM040050PC	Multi-application, High PAE	DC~4	50	19.2	57.1	28	Production	PC	
BRGP040050PC	Pre-matched, Ultra broadband	DC~4	50	15.7	52.7	28	Production	PC	
BRGM032080PC	Multi-application, High PAE	DC~3.2	80	18	51.4	28	Production	PC	
BRGP038080PC	Pre-matched, Ultra broadband	DC~3.8	80	17.8	53.6	28	Production	PC	
<b>HOT</b> BRGP035110PC	Pre-matched, Ultra broadband	DC~3.5	110	15.6	49.1	28	Production	PC	
BRGP040070PFD	Two-channel, Ultra broadband	DC~4	70	15.1	48.6	28	Production	PF	
BRGP025250PND	Two-channel, Ultra broadband	DC~2.5	250	16.4	61	28	Production	PN	
<b>HOT</b> BRGM060006PGD	Multi-application, High PAE	DC~6	6	20.5	66.1	28	Production	PG	
BRGM060006FPJ	Compact, High PAE	DC~6	6	20.5	67	28	Production	QFN24	
BRGM032120PF	Two-channel, High PAE	DC~3.2	120	18.9	54	28	Samples	PF	
BRGM030150PF	Two-channel, High PAE	DC~3.0	150	18.6	50.8	28	Samples	PF	

## GaN MMIC PA



Part Number	Features	Freq. (GHz)	Psat (W)	Power Gain (dB)	PAE (%)	Vd (V)	Product Lifecycle	Package	Pictures
BRGF060010PHG	Broadband, High Gain	2~6	10	17	49.1	28	Production	PH	
BRGF060010LD	Broadband, High Gain	2~6	10	18.2	44.5	28	Production	Die	-
BRGF060020LD	Broadband, High Gain	2~6	20	17	32.1	28	Production	Die	-
<b>HOT</b> BRGF035012FWJ	Compact, High Gain	2.5~4	12	21	50.4	28	Production	QFN24	
BR9701FWJ	Compact, High Gain	2.7~3.9	20	24	50	28	Pre-release	QFN24	
BR9702FWJ	Compact, High Gain	3.7~6	15	22	45	28	Pre-release	QFN24	
BR9703PHG	High PAE, High Gain	3.7~6	25	20	45	28	Pre-release	PH	
BR9704PHG	High PAE, High Gain	7~13	10	22	40	28	Pre-release	PH	

## Internal Matched PA



Part Number	Features	Freq. (GHz)	Psat (W)	Power Gain (dB)	PAE (%)	Vd (V)	Product Lifecycle	Package	Pictures
BRGF010010FLJ	Compact, High PAE	0.01~1	10	15.6	59.9	28	Production	QFN32	
BRGF010010PHG	Ultra broadband, High PAE	0.01~1	10	16.1	60.6	28	Production	PH	
<b>HOT</b> BRGF027010FLJ	Compact, High PAE	0.03~2.7	10	12.7	45.9	28	Production	QFN32	
BRGF027010PHG	Ultra broadband, High PAE	0.03~2.7	10	14.2	54.5	28	Production	PH	
BRGF016030PHG	High PAE	1.6~1.65	28	15	74.2	28	Production	PH	
<b>HOT</b> BRGF021050PJG	High PAE	1.9~2.2	60	14	61.5	28	Production	PJ	
<b>NEW</b> BRGF024025PHG	High PAE	1.9~2.4	30	13.9	59.5	28	Production	PH	
<b>HOT</b> BRGF024050PJG	High PAE	2~2.4	50	15	62.9	28	Production	PJ	
<b>NEW</b> BRGF035025PHG	High PAE	2.7~3.5	30	13.3	59.2	28	Production	PH	
BRGF035050PJG	High PAE	2.7~3.5	50	11.8	55.7	28	Production	PJ	
BRGF042050PJG	High PAE	3.5~4.2	50	11.9	51.7	28	Production	PJ	
BRGF024015PTG	High PAE	1.9~2.4	15	16	65	28	Samples	PT	-
BRGF016030PPG	High Gain, High PAE	1.6~1.65	30	30	70	28	Samples	PP	-
BRGF031300PJG	High power, High PAE	2.7~3.1	300	12	55	28	Samples	PJ	
BRGF021100PJG	High PAE	1.9~2.1	100	11	50	28	Pre-release	PJ	
BRGF052050PJG	High PAE	4.3~5.2	50	12	55	28	Pre-release	PJ	
BRGF052100PJG	High PAE	4.3~5.2	100	11	50	28	Pre-release	PJ	
BRGF060050PJG	High PAE	5~6	50	12	50	28	Pre-release	PJ	
BRGF060030PQG	Ultra broadband	0.6~6	30	9	40	28	Pre-release	PQ	

## Driver Amplifier



Part Number	Features	Freq. (GHz)	Gain (dB)	OP1dB (dBm)	OIP3 (dBm)	NF (dB)	Vs (V)	Is (mA)	Package	Product Lifecycle
<b>HOT</b> BR9548TA	Low noise, High linearity	0.001~1	22.1	27.7	42.0	1.35	8	220	SOT89	Production
<b>HOT</b> BR9322TA	Low noise, High linearity	0.03~2	22.3	28.1	41.8	1.1	8	230	SOT89	Production
BR9536TA	Ultra broadband, High linearity	0.03~2	15.1	26.3	45.3	3.6	9	177	SOT89	Production
BR9321TA	Ultra broadband, High linearity	0.03~6	13.5	26.9	38.8	4.2	9	175	SOT89	Production
<b>HOT</b> BR9535DA	Ultra broadband, High linearity	0.03~2.7	17.4	30.2	49.4	3.1	11	339	DFN8L	Production
BR9211FE	Broadband, High Gain	1.1~1.9	28.7	30.1	41.6	5.7	5	253	QFN20	Production
BR9212FE	Broadband, High Gain	1.4~3.4	25.0	30.2	38.6	5.4	5	249	QFN20	Production
<b>NEW</b> BR9213FPJ	Broadband, High Gain	1.8~6.4	25.3	26.8	-	-	5	144	QFN24	Production
<b>NEW</b> BR9214FPJ	Broadband, High Gain	4~6	26.2	30.2	-	-	5	162	QFN24	Production
<b>NEW</b> BR9215FPJ	Broadband, High Gain	3.5~8.5	23.6	27.0	-	-	5	178	QFN24	Production
BR9541TAJ	Multi-application, High linearity	0.4~5	13.1	24.2	41.1	-	5	89	SOT89	Production
<b>HOT</b> BR9542TAJ	Multi-application, High linearity	0.4~5	11.5	28.3	40.0	-	5	89	SOT89	Production
<b>HOT</b> BR9543TA	Multi-application, High linearity	0.4~4	17.4	30.1	44.6	-	5	245	SOT89	Production
<b>HOT</b> BR9544FP	Multi-application, High linearity	0.05~3	18.5	32.8	45.0	4.9	5	446	QFN24	Production
BR9545TA	Multi-application, High linearity	0.05~1.5	17.7	31.9	42.2	-	5	251	SOT89	Production
BR9546FPJ	High Power, High Gain	1.5~2.4	35.7	36.2	45.0	-	5	99	QFN24	Production
BR9216FAJ	Broadband, High Gain	2.7~4.2	22	35	43	-	8	800	QFN20	Pre-release
BR9217FAJ	Broadband, High Gain	4~6	22	34	43	-	8	800	QFN20	Pre-release
BR9218FAJ	Broadband, High Gain	6~9.5	20	30	-	-	6	400	QFN20	Pre-release
BR9219PUJ	Broadband, High Gain	8~13.5	27	32	-	-	6	1200	PU	Pre-release

## GaN Switch

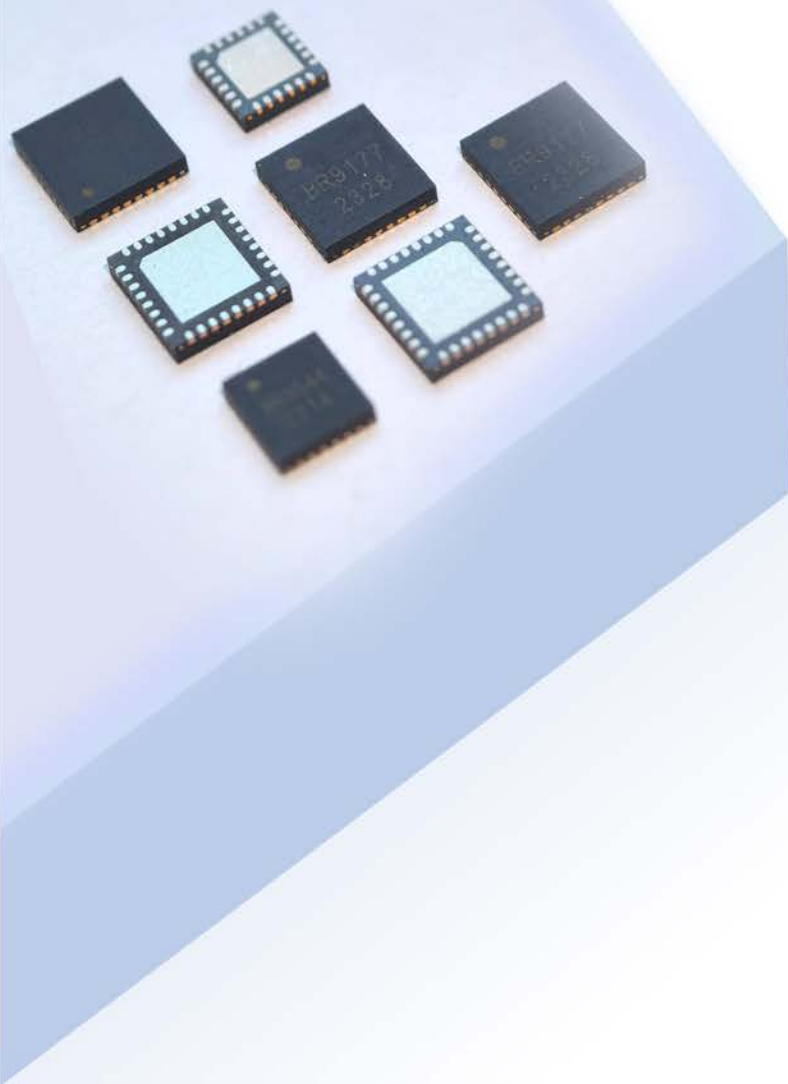


Part Number	Features	Freq. (GHz)	IL. (dB)	Iso. (dB)	IP1dB (dBm)	IIP3 (dBm)	Control Voltage (V)	Switching Time (ns)	Package	Product Lifecycle
BR9148FP	50W, SPDT	DC~4	0.3	40.0	47.0	-	0/-40	50	QFN24	Production

# Frequency Source & Timing Products

## Precision Synchronization, Capturing Emerging Opportunities

Focusing on the development of high-precision clocks, voltage-controlled oscillators (VCOs), frequency synthesizers, and other components, we address the surging demands of analog transmission industries by delivering real-time analog data transmission solutions. The products feature core advantages including low phase noise, fast locking, low power consumption, and high cost-effectiveness. Through rapid response and efficient delivery, we empower clients to seize market opportunity windows and capitalize on emerging trends.



- PLL with Integrated VCO
- Voltage-Controlled Oscillator
- Prescaler
- Direct Digital Synthesis (DDS)
- Fanout Buffer
- SPI



### PLL with Integrated VCO BR9177FL

- Output Frequency: 25.5 MHz to 3.24 Ghz
- Fast locking, low power consumption, multi-application
- High cost-performance ratio, easy to use

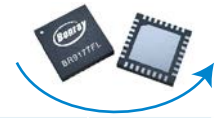


### MMIC Voltage-Controlled Oscillator BR9184FL

- Output Frequency: 13.0 GHz to 14.9 Ghz
- Wide bandwidth, high output power, low phase noise
- High reliability, easy to use



## PLL with Integrated VCO



Part Number	Features	Freq. (GHz)	Pout (dBm)	Phase Noise(10kHz offset @1.62GHz) (dBc/Hz)	Phase Noise(100kHz offset@1.62GHz) (dBc/Hz)	VDD (V)	IDD (mA)	Package	Product Lifecycle
<b>HOT</b> BR9177FL	Fractional PLL	0.025~3.24	2	-102	-97	3.3	125	QFN32	Production
<b>NEW</b> BR9068FPJ	Low Power, Fractional PLL	0.025~3.24	0	-90	-103	1.8/2.5	47@1.8V 15@2.5V	QFN24	Production

## Prescaler

Part Number	Features	Freq. (GHz)	Input Signal Swing (mV)	Frequency Dividing Ratio	VDD (V)	IDD (mA)	Package	Product Lifecycle
BR9071	Low Power Programmable	0.1~1.1	400~1000	10, 20, 40, 80	5	4	CSOP08	Samples

## Direct Digital Synthesis (DDS)

Part Number	Features	Freq. (GHz)	DAC Resolution (bit)	Integral Nonlinearity (LSB)	Differential Nonlinearity (LSB)	VDD (V)	Power (mW)	Package	Product Lifecycle
BR9818	Low Power Programmable	0.1Hz~25MHz	10	±1.0	±0.5	2.3~5.5	27	CSOP10	Samples

## Fanout Buffer

Part Number	Features	Maximum Operation Frequency(GHz)	Propagation Delay (ps)	Output Swing (mV)	RMS Phase Jitter (fsRMS)	Vcc (V)	Icc (mA)	Package	Product Lifecycle
BR9293	1:4 LVPECL	2	230	1560	150	3.3	420	QFN16	Samples

## SPI

Part Number	Features	Data Rate (MHZ)	Output High Voltage (V)	Output Low Voltage (V)	Response Time (ns)	Package	Product Lifecycle
BR9341LD	6bit, S/P Convert	10	Vdd-0.5	0.8	-	Die	Samples
BR9342LD	7bit, S/P Convert	10	Vdd-0.5	0.8	-	Die	Samples

## VCO

Part Number	Features	Output Frequency (RFOUT) (GHz)	Output Power (RFOUT) (dBm)	Output Frequency (RFout/2) (GHz)	Output Frequency (RFout/4) (GHz)	Phase Noise (dBc/Hz)	Power (mA)	Package	Product Lifecycle
<b>NEW</b> BR9184FL	MMIC VCO	13~14.9	≥4	6.5~7.45	3.25~3.725	≤-103	≤300	QFN32	Production

## Integrated Products >>>

### Multi-Dimensional Integration, Empowering System Innovation

The product series encompasses multifunctional SIP(System-in-Package) and SoC(System-on-Chip). Leveraging our profound expertise in chip R&D, packaging design, and board-level debugging, combined with a comprehensive bare die resource library, we deliver professional customized solutions to precisely meet diverse client needs.



### Board-Level Debugging Experience

- Quickly understand client requirements and develop design solutions, link budgets, and device selection that align with application scenarios

### Chip Design Capability

- Rapidly and efficiently develop customized bare dies to meet specific performance requirements, enhancing product competitiveness and uniqueness

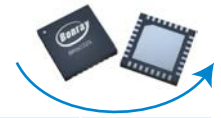
### Bare Die Resource Library

- Possess a comprehensive library of self-developed bare dies, enabling quick customization of SiP (System in Package) products based on client needs and reducing the development cycle for dedicated chips

### High-Quality Packaging Line

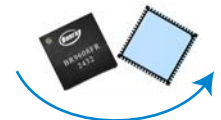
- Equipped with a high-standard plastic packaging and testing production line, capable of multi-chip plastic packaging for QFN/DFN/SOT/SOP packages, with design and customization options tailored to client requirements

## Variable Gain Amplifier



Part Number	Features	Freq. (GHz)	Gain Control Range (dB)	步进 (dB)	OIP3 (dBm)	NF (dB)	Vs (V)	Is (mA)	Package	Product Lifecycle
BR9032FL	6bit , Parallel control	0.03~1	13.5~45	0.5	33.0	1.8	5	126	QFN32	Production
BR9032S	6bit , Serial control	0.03~1	13.5~45	0.5	34.2	1.8	5	130	QFN32	Production
BR9606FP	6bit , Parallel control	0.5~4.2	-11.5~20	0.5	36.1@2GHz	1.9@2GHz	5	144	QFN24	Production
BR9607FM	6bit, Parallel Dual-Channel	0.175~1.15	-12~19.5	0.5	33.1	3.6	5	75	QFN48	Samples

## Limiting Amplifier

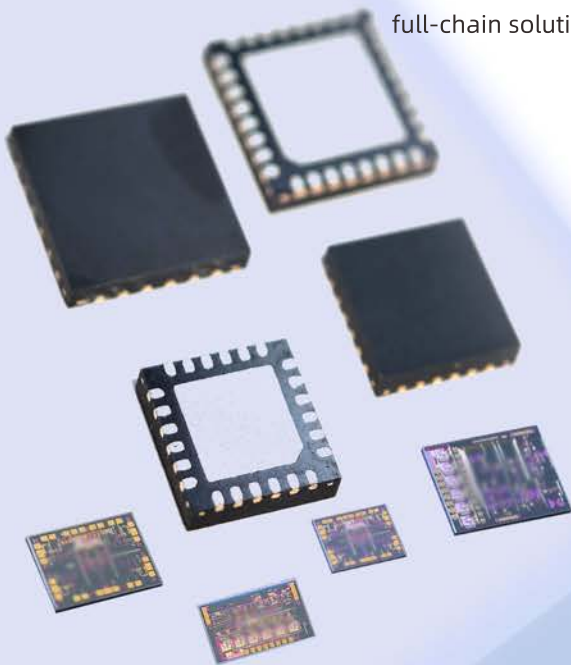


Part Number	Features	Freq. (GHz)	Gain (dB)	Dynamic Range (dB)	OIP3 (dBm)	NF (dB)	Limiting Output (dBm)	Vs (V)	Is (mA)	Package	Product Lifecycle
BR9608FR	High Input Dynamic Range	0.08~1.15	39.3±0.6	37	27.7	5.3	≤12.3	5	150	QFN64	Production

# Microwave & Millimeter-wave Products

## High-Frequency Precision, Leading Technological Innovation

To better address the rapid development of new technologies and systems in the microwave and millimeter-wave domains, Bonray has successfully developed a comprehensive portfolio of microwave and millimeter-wave product series. These include LNA, Gain Amplifier, Driver Amplifier, RF Switch, Attenuator, Phase Shifter, Mixer, Limiter, Equalizer, and VCO, forming a high-quality, high-grade, and cost-effective product spectrum. These products cover critical application scenarios such as radar, electronic countermeasures, and satellite communications, providing customers with full-chain solutions from components to systems.



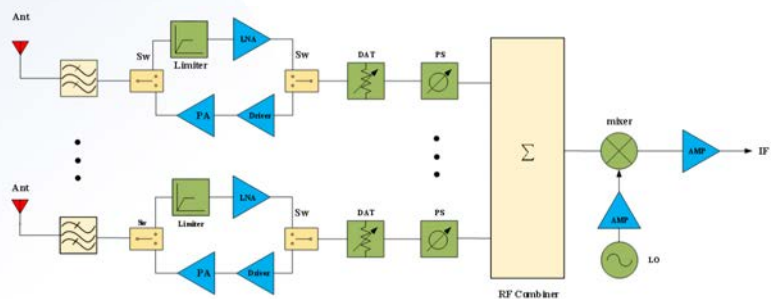
- Covers C, X, Ku, K, Ka, and other frequency bands
- Comprehensive range, superior performance, and high reliability
- Can provide Die, plastic, pottery and other different forms
- Provides complete RF microwave chain solutions
- Widely used in electronic countermeasures, radar systems, satellite communications, and other fields

### Gain Block/Amplifier BR9642FDJ

- Operating frequency: 6GHz to 12GHz
- High gain flatness, low power consumption
- Supports +5V, +3.3V power supply
- Suitable for radar systems, satellite communications, and other application scenarios

### Packaged Mixer BR9136FDJ

- Frequency band coverage: 10GHz to 20GHz
- Low conversion loss, high isolation, wide intermediate frequency
- Suitable for satellite communications, electronic countermeasures, base stations, and other application fields



We provide a full-chain solution

## Low Noise Amplifier



Part Number	Features	Freq. (GHz)	Gain (dB)	OP1dB (dBm)	OIP3 (dBm)	NF (dB)	Vs (V)	Is (mA)	Package	Product Lifecycle
BR9617DAJ	Ultra broadband, High gain flatness	0.02~8	23.2	20.1	36.3	1.1	5	87	DFN8	Production
BR9373LDZ	High gain flatness	2~8	26±0.4	17.8	30.1	1.0	5	86 / 56	Die	Production
BR9373FDJ	High gain flatness	2~8	26.2±0.6	18.3	30.0	1.0	5	84 / 55	QFN16	Production
BR9375LDZ	High gain flatness	4~8	22.3±0.4	18.1	29.5	1.2	5	68 / 45	Die	Production
BR9375FDJ	High gain flatness	4~8	22.5±0.4	18.3	28.9	1.3	5	68 / 45	QFN16	Production
BR9376LDZ	High gain flatness	6~13	21.5±1.0	17.1	24.6	1.4	5	66 / 41	Die	Production
BR9376FDJ	High gain flatness	5~14	21.7±1.0	17.0	24.8	1.2	5	66 / 43	QFN16	Production
BR9377LDZ	Positive gain slope	8~12	25.2±0.4	16.0	27.8	1.6	5	73 / 48	Die	Production
BR9377FDJ	Positive gain slope	8~12	26.2±0.5	16.6	29.1	1.6	5	73 / 47	QFN16	Production
BR9379LDZ	Low power, High gain flatness	6~18	19.6±0.4	9.8	24.1	1.5	5	27	Die	Production
BR9381LDZ	High gain flatness	6~20	28.4±0.4	13.7	28.6	1.1	5	53	Die	Production
BR9616LD	High gain flatness	1~9	22.3±0.3	20.5	33.1	1.2	5	85	Die	Samples
BR9616FDJ	High gain flatness	1~9	22.3±0.5	20.5	33.1	1.4	5	85	QFN16	Samples
BR9374FDJ	High IP1	4~8	11.5	15.5	16.4	2.0	3.3	23	QFN16	Samples
BR9374LDZ	High IP1	4~8	12.5	15.8	14.1	2.0	3.3	23	Die	Samples
BR9618LD	High gain flatness	6~18	26.9±2.0	17.7	29.4	1.4	5	71	Die	Samples
BR9618FDJ	High gain flatness	6~18	26.5±1.0	16.0	28.5	1.7	5	82	QFN16	Samples
BR9382LDZ	Low power, Positive gain slope	6~18	23.0±1.5	14.0	26.0	1.5	5	39	Die	Samples
BR9384LDZ	Ultra broadband, High gain flatness	0.05~20	23.0±1.0	11.5	23.0	1.7	5	60	Die	Samples
BR9615LD	Ultra broadband, High gain flatness	0.1~20	17.0±0.5	13.9	24.2	1.2	5	48	Die	Samples
BR9615FLJ	Ultra broadband, High gain flatness	0.1~20	16.0±1.0	13.9	24.2	2.0	5	48	QFN32	Samples
BR9614LD	Ultra broadband, High gain flatness	2~20	16.1±1.5	18.0	28.1	1.7	5	70	Die	Samples
BR9614FLJ	Ultra broadband, High gain flatness	2~20	16.1±1.5	17.5	28.1	2.2	5	70	QFN32	Samples
BR9619LD	High gain flatness	18~26	21.0±0.4	15.8	20.0	1.8	5	55	Die	Samples
BR9619FDJ	High gain flatness	18~26	21.0±0.75	15.8	20.0	2.4	5	55	QFN16	Samples
BR9383LDZ	Positive gain slope	18~32	25.5±1.0	13.0	25.0	1.7	5	67	Die	Samples

## Low Noise Amplifier



Part Number	Features	Freq. (GHz)	Gain (dB)	OP1dB (dBm)	OIP3 (dBm)	NF (dB)	Vs (V)	Is (mA)	Package	Product Lifecycle
BR9379FDJ	Low power, Positive gain slope	6~18	20.0±1.0	11.0	24.0	1.5	5	34	QFN16	Pre-release
BR9381FDJ	High gain flatness	6~20	28.0±1.0	14.5	20.0	1.4	5	61	QFN16	Pre-release
BR9382FDJ	Low power, Positive gain slope	6~18	23.0±1.5	14.0	26.0	1.5	5	39	QFN16	Pre-release
BR9384FLJ	Ultra broadband, High gain flatness	0.05~20	23.0±1.0	11.5	23.0	1.7	5	60	QFN32	Pre-release
BR9383FDJ	Positive gain slope	18~32	25.5±1.0	13.0	25.0	1.7	5	67	QFN16	Pre-release

## Switch



Part Number	Features	Freq. (GHz)	IL. (dB)	Iso. (dB)	IP1dB (dBm)	Control Voltage (V)	Switching Time (ns)	Package	Product Lifecycle
BR9575LDZ	Absorption, SPDT	DC~20	1.5	45.0	25.0	0/+5	40	Die	Samples
BR9576LDZ	Absorption, SP4T	DC~20	1.7	45.0	20.0	0/+5	20	Die	Samples
BR9575FPJ	Absorption, SPDT	DC~20	2.5	40.0	24.0	0/+5	40	QFN24	Pre-release
BR9576FPJ	Absorption, SP4T	DC~20	3.0	40.0	20.0	0/+5	20	QFN24	Pre-release

## Gain Block/Amplifier



Part Number	Features	Freq. (GHz)	Gain (dB)	OP1dB (dBm)	OIP3 (dBm)	NF (dB)	Vs (V)	Is (mA)	Package	Product Lifecycle
BR9034DC	Ultra broadband, Low power	0.03~8	17.5	14.0	26.1	4.2	5	45	DFN6	Production
BR9035DC	Ultra broadband, Low power	0.03~8	21.7	11.0	24.4	3.9	5	38	DFN6	Production
BR9641LDZ	Ultra broadband, High Pout	0.02~8	16.6±0.3	19.5	29.3	3.14	5	97 /62	Die	Production
BR9641FDJ	Ultra broadband, High Pout	0.02~8	16.8±0.5	21.1	34.6	2.7	5	97 /60	QFN16	Production
BR9642LDZ	High gain flatness	6~12	16.0±0.8	17.1	29.1	1.4	5	54	Die	Production
BR9642FDJ	High gain flatness	6~12	16.0±1.0	16.6	28.9	1.4	5	53	QFN16	Production
BR9643LDZ	Low power	2~20	15.0	16.6	25.4	2.1	5	48	Die	Production
BR9644LDZ	High gain flatness, Low power	2~20	20.5	12.1	24.7	2.8	5	40	Die	Production
BR9647LDZ	Positive gain slope	13~32	10.5±0.5	17.0	28.0	2.0	5	54	Die	Samples
BR9648LDZ	Ultra broadband, Low power	12~40	11.0±1.0	11.0	23.0	3.0	5	40	Die	Samples
BR9646LDZ	High gain flatness	18~40	17.0±0.5	15.0	26.0	2.3	5	68	Die	Samples
BR9398LDZ	High gain flatness, Low power	18~40	10.0±0.5	12.5	25.0	2.6	5	38	Die	Samples
BR9643FLJ	Low power	2~20	15.0±0.6	18.0	29.0	2.7	5	49	QFN32	Pre-release
BR9644FLJ	High gain flatness, Low power	2~20	20.0±1.0	14.0	25.0	2.5	5	39	QFN32	Pre-release
BR9647FLJ	Positive gain slope	13~32	10.5±0.5	17.0	28.0	2.0	5	54	QFN32	Pre-release
BR9648FLJ	Ultra broadband, Low power	12~40	11.0±1.0	11.0	23.0	3.0	5	40	QFN32	Pre-release
BR9646FLJ	High gain flatness	18~40	17.0±0.5	15.0	26.0	2.3	5	68	QFN32	Pre-release
BR9398FLJ	High gain flatness, Low power	18~40	10.0±0.5	12.5	25.0	2.6	5	38	QFN32	Pre-release

## Driver Amplifier



Part Number	Features	Freq. (GHz)	Gain (dB)	OP1dB (dBm)	OIP3 (dBm)	NF (dB)	Vs (V)	Is (mA)	Package	Product Lifecycle
BR9213FPJ	Broadband, High Gain	1.8~6.4	25.3	26.8	-	-	5	144	QFN24	Production
BR9214FPJ	Broadband, High Gain	4~6	26.2	30.2	-	-	5	162	QFN24	Production
BR9215FPJ	Broadband, High Gain	3.5~8.5	23.6	27.0	-	-	5	178	QFN24	Production
BR9217FAJ	Broadband, High Gain	4~6	22	34	43	-	8	800	QFN20	Pre-release
BR9218FAJ	Broadband, High Gain	6~9.5	20	30	-	-	6	400	QFN20	Pre-release
BR9219PUJ	Broadband, High Gain	8~13.5	27	32	-	-	6	1200	PU	Pre-release

## GaN MMIC PA



Part Number	Features	Freq. (GHz)	Psat (W)	Power Gain (dB)	PAE (%)	Vd (V)	Product Lifecycle	Package	Pictures
BR9702FWJ	Compact, High Gain	3.7~6	15	22	45	28	Pre-release	QFN24	
BR9703PHG	High PAE, High Gain	3.7~6	25	20	45	28	Pre-release	PH	
BR9704PHG	High PAE, High Gain	7~13	10	22	40	28	Pre-release	PH	



## Limiter



Part Number	Features	Freq. (GHz)	IL. (dB)	Response Time (ns)	Flat Leakage (dBm)	Maximum Input Power (dBm)	Package	Product Lifecycle
BR9308LDZ	Ultra broadband, Low insertion loss	0.03~18	0.17@4GHz	11.7	14.0	37.0	Die	Production
BR9731FPJ	High power, Broadband	0.03~18	0.35	11.7	14.0	36.0	QFN24	Pre-release

## Attenuator



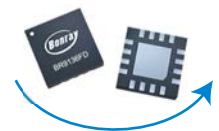
Part Number	Features	Freq. (GHz)	IL. (dB)	Peak Attenuation (dB)	Step (dB)	Vs (V)	Is (mA)	Package	Product Lifecycle
BR9153S	6bit, Serial and parallel control	DC~8	1.2	31.5	0.5	5	3	QFN24	Production
BR91531FPJ	6bit, Parallel control	DC~8	1.3	31.5	0.5	5	3	QFN24	Production
BR9153FP	6bit, Parallel control	DC~8	1.3	31.5	0.5	5	2	QFN24	Production
BR9154FD	5bit, Parallel control	0.001~8	1.2	31.0	1.0	5	2	QFN16	Production
BR9361FPJ	7bit, Serial and parallel control	0.01 ~ 8	1.2	31.75	0.25	5	3	QFN24	Production
BR9156FD	6bit, Parallel control	2~8	2.0	31.5	0.5	5	2	QFN16	Production
BR9363FPJ	6bit, Parallel control	0.05~10	1.6	31.5	0.5	5	2	QFN24	Production
BR7052-2/3/4/6/8/10/20	Fixed attenuator	DC~40	-	2/3/4/6/8/10/20	-	-	-	Die	Production
BR9364LDZ	6bit, Parallel control	0.2~20	2.9	31.5	0.5	5	3	Die	Samples
BR9364FPJ	6bit, Parallel control	0.2~20	4.0	31.5	0.5	5	3	QFN24	Pre-release

## Equalizer



Part Number	Features	Freq. (GHz)	IL. (dB)	Equalization (dB)	VSWR (: 1)	Package	Product Lifecycle
BR9318LD	3dB equalization	2~18	0.5	3	1.5	Die	Production
BR9319LD	6dB equalization	2~18	0.5	6	1.5	Die	Production
BR9318DAJ	3dB equalization	2~18	0.6	3	1.5	DFN8	Pre-release
BR9319DAJ	6dB equalization	2~18	0.6	6	1.5	DFN8	Pre-release

## Mixer



Part Number	Features	RF Freq. (Ghz)	IF Freq. (GHz)	LO Freq. (GHz)	CL (dB)	IP1dB (dBm)	IIP3 (dBm)	LO Power (dBm)	Package	Product Lifecycle
BR9132EA	Double balanced mixer	3~8	DC~3	3~8	7.1	11.3	17.8	11/13/15	eMSOP8	Production
BR9136LD	Double balanced mixer	10~20	DC~6	10~20	7.6	13.8	20.9	13/15	Die	Production
BR9136FDJ	Double balanced mixer	10~20	DC~6	10~20	7.6	13.8	20.9	13/15	QFN16	Production

## Phase shifter



Part Number	Features	Freq. (GHz)	IL. (dB)	Return loss (dB)	Step (°)	Precision (RMS) (°)	Amplitude (dB)	Package	Product Lifecycle
BR9592LDZ	6 bit, Parallel control	8~12	6.5	10	5.625	2.5	0.8	Die	Samples
BR9593LDZ	6 bit, Parallel control	14~18	9.0	10	5.625	3.0	2.5	Die	Samples
BR9592FPJ	6 bit, Parallel control	8~12	7.0	10	5.625	3.0	1.0	QFN24	Pre-release
BR9593FPJ	6 bit, Parallel control	14~18	10.0	10	5.625	3.5	3.0	QFN24	Pre-release

# Service and Support >>>

We provide customers with comprehensive professional services, including consultation, implementation, training, and technical support, and offer customized solutions tailored to different application scenarios to meet diverse customer needs



## Product Selection

We provide optimal product selection schemes based on specific customer application requirements



## Technical Consulting

We supply technical data such as product specifications, test data, and other technical materials required by customers



## Professional Team

Our team consists of professional R&D personnel and a complete technical support system, delivering systematic solutions

### Technical Support

- Rapid response and efficient delivery
- Product selection guidance
- Provision of systematic solutions
- Free sample trial offer

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