

### Product Features

Frequency: 4GHz ~ 6GHz

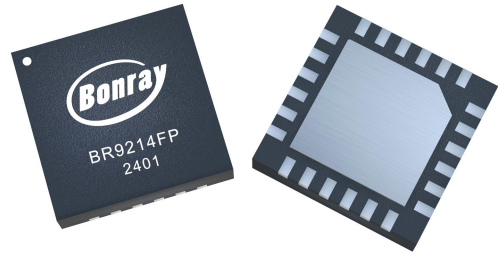
Gain : 26.2dB@5.2GHz

Psat: 31.4dBm@5.2GHz

Gain Flatness: ±1dB

Operation Voltage: 5V, static current 162mA

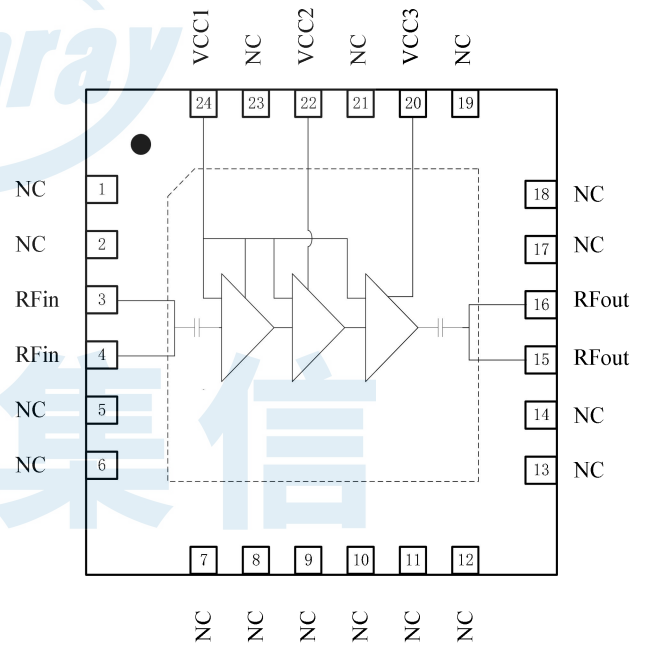
Package: QFN24 (4mm×4mm)



### General Description

The BR9214FPJ is a Gallium arsenide (GaAs) driven amplifier that covers the frequency range from 4GHz to 6GHz. The product is powered by a 5V single power supply with a static Supply Current 162mA.

### Functional Block Diagram



### Applications

Wireless Infrastructure

Data Link

Point To Point Communication

Universal Transmitter Applications

### Ordering Information

Part Number	Package	Description
BR9214FPJ	QFN24	4GHz~6GHz High Gain Drive Amplifier

### Electrical Specifications

Parameters	Typ.							Units
	4	4.2	4.4	4.8	5.2	5.6	6	
Frequency	4	4.2	4.4	4.8	5.2	5.6	6	GHz
Small Signal Gain	26.3	26.4	26.0	25.8	26.2	27.2	27.2	dB
Input Return Loss	-12.9	-15.3	-15.6	-11.7	-10.8	-13.6	-19.1	dB
Output Return Loss	-17.4	-20.0	-16.0	-15.1	-11.8	-14.0	-18.7	dB
Saturated Output Power	31.75	31.4	30.9	31.3	31.4	30.1	29.8	dBm
Output Power for 1dB Compression	30.87	31.1	30.6	30.8	30.2	29.8	29.8	dBm
PAE@OP1	30.70%	34.22%	34.64%	35.05%	30.18%	27.13%	28.76%	

Test Conditions: Temp =+25 ° C, V<sub>CC</sub>=5V, I<sub>CC</sub>=162mA

Note: P<sub>sat</sub> defined as the saturation power output of the evaluation board

#### Absolute Maximum Ratings

Maximum Operating Voltage: +5.15V

Maximum RF Pin ( dBm ): +30dBm

ESD Rating: Class 1C

#### Recommended Operating Conditions

Power Supply Voltage: +5V

Static Supply Current: 162mA

Storage Temperature: -65°C ~ +150°C

Operating Temperature: -55°C ~ +125°C

Note: Operation of the device outside the parameter ranges given absolute-maximum-ratings conditions may cause permanent damage, and. exposure to absolute-maximum-ratings conditions for extended periods will affect the reliability.

#### ESD WARNING

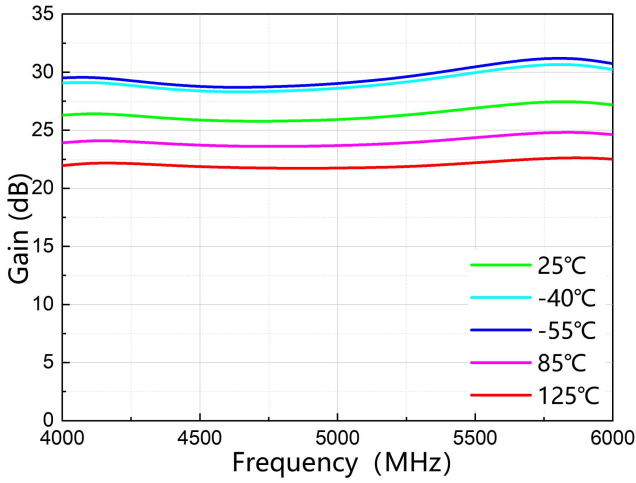


**ELECTROSTATIC SENSITIVE DEVICE**

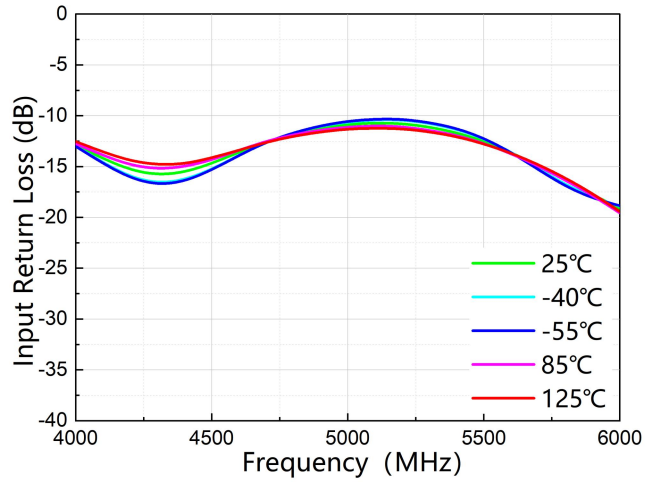
**OBSERVE HANDLING PRECAUTIONS**

**ESD Rating: Class 1**

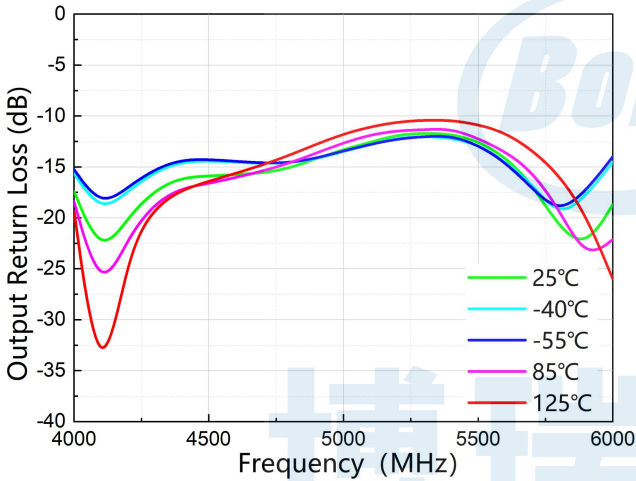
Typical Performance (EVB test results)



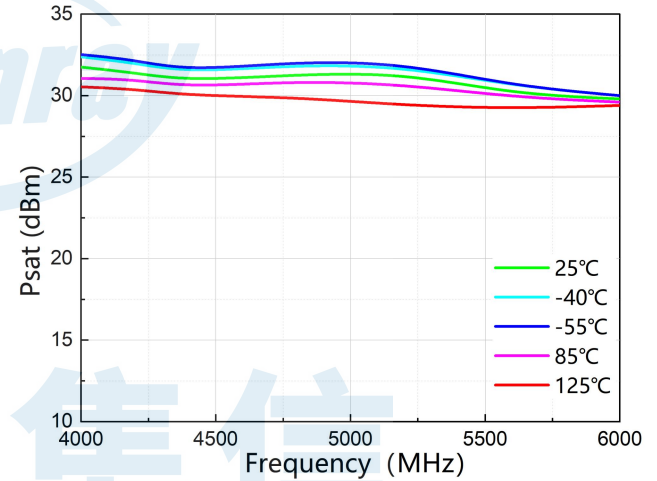
Small Signal Gain vs. Freq



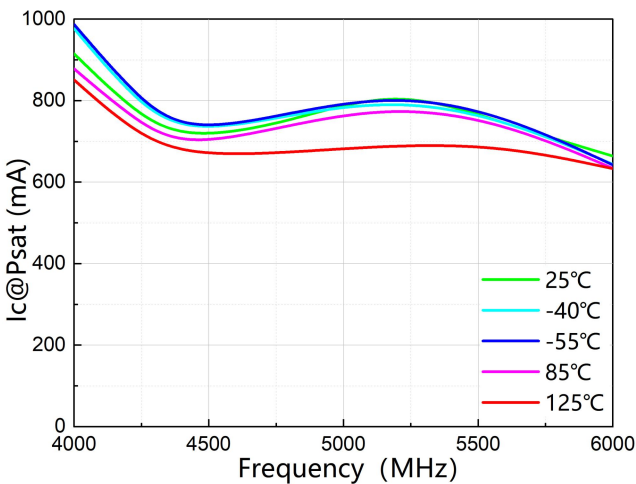
Input Return Loss vs. Freq



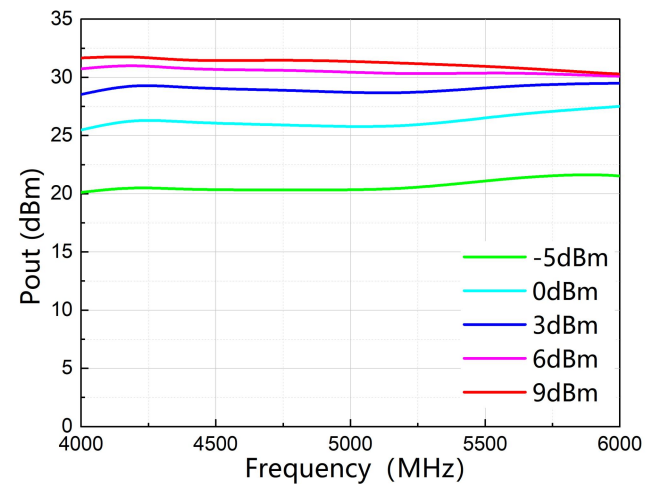
Output Return Loss vs. Freq



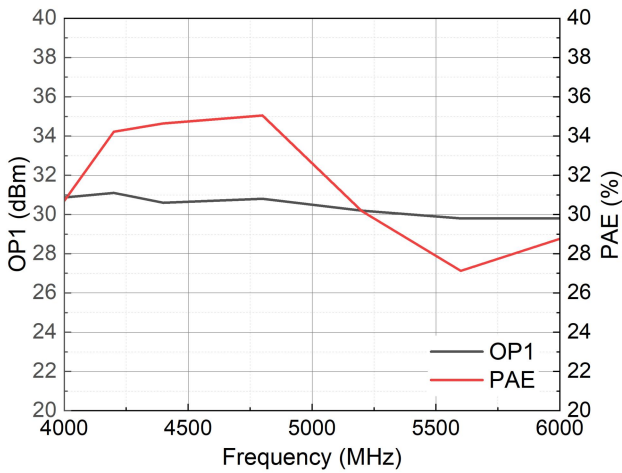
Saturated Output Power vs. Freq



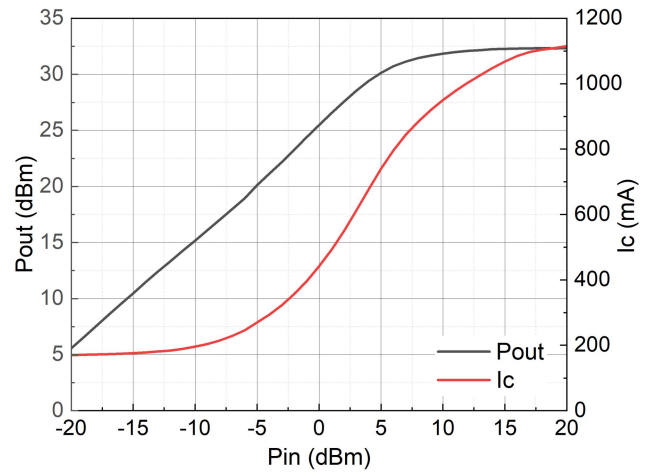
Saturation Supply Current vs. Freq



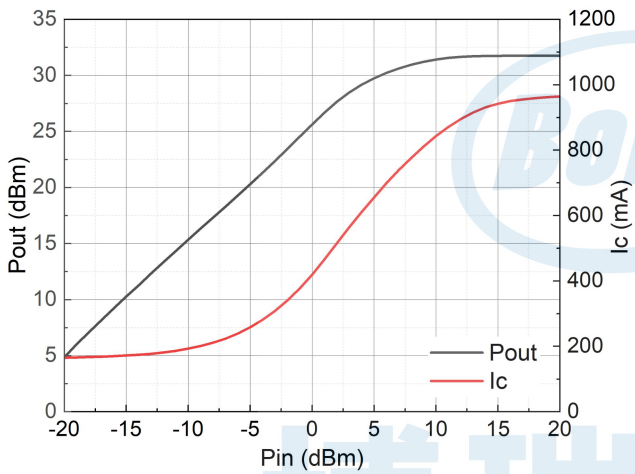
Pout vs. Freq vs. Pin



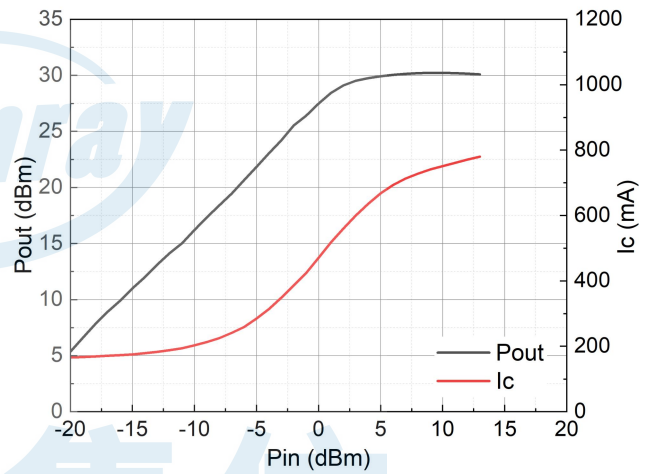
**OP1, PAE vs. Freq**



**P<sub>out</sub>, I<sub>c</sub> vs. P<sub>in</sub> @4GHz**

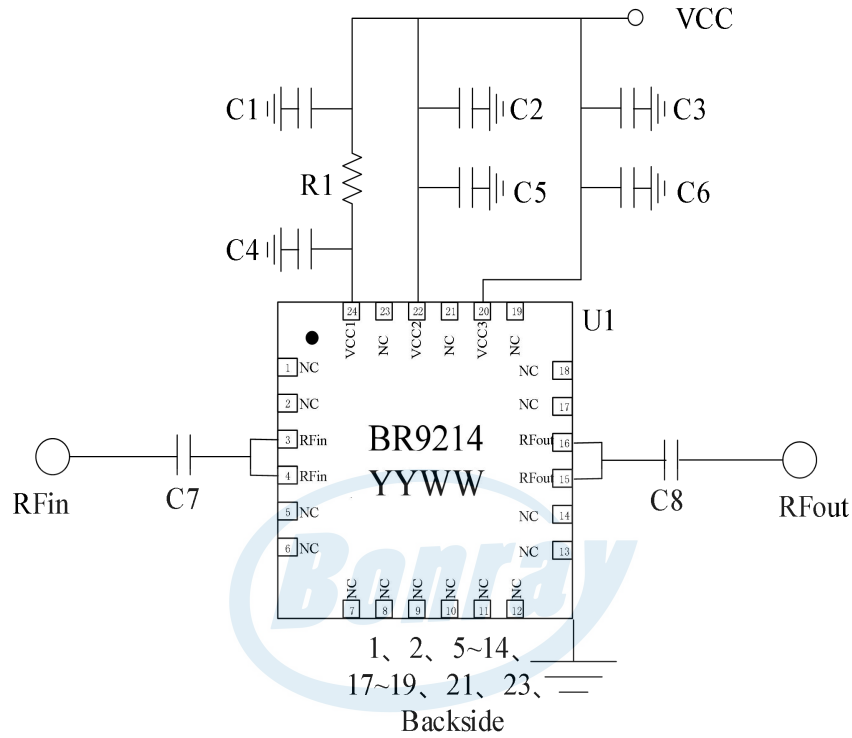


**P<sub>out</sub>, I<sub>c</sub> vs. P<sub>in</sub> @5.2GHz**



**P<sub>out</sub>, I<sub>c</sub> vs. P<sub>in</sub> @6GHz**

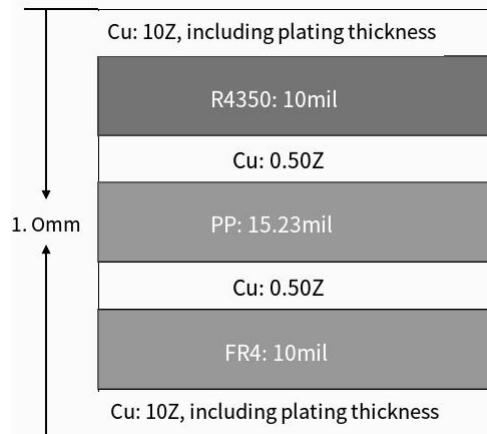
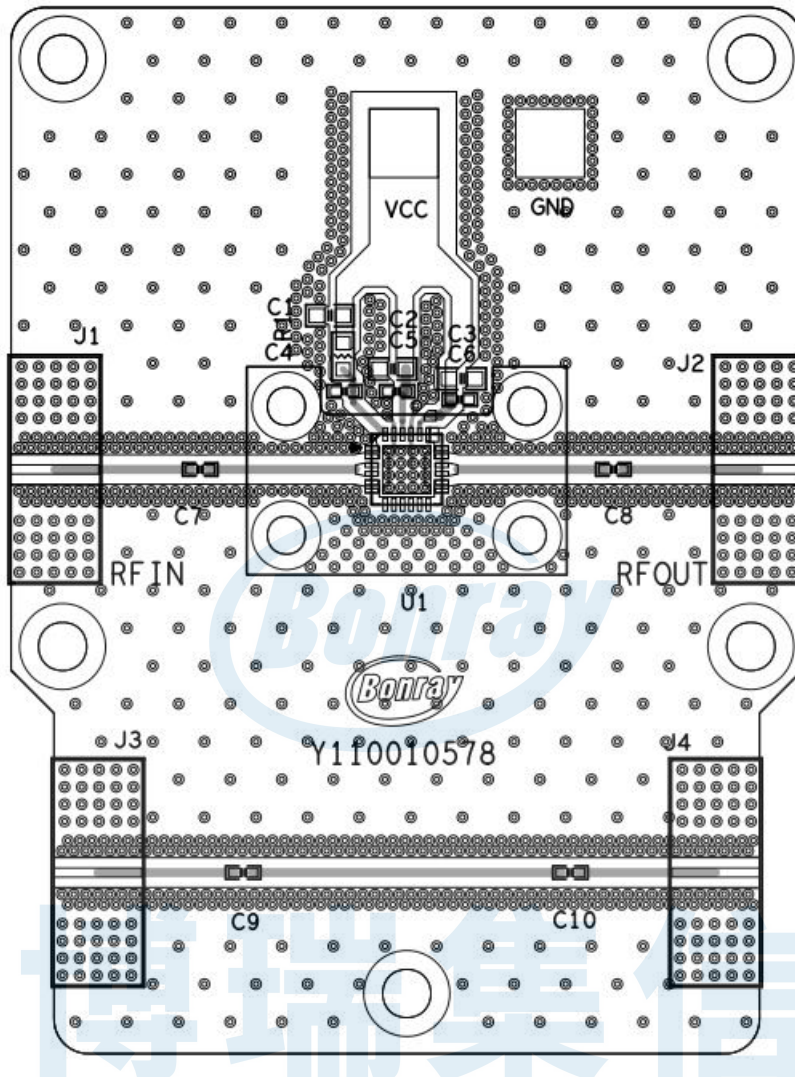
**Typical Application Schematic**



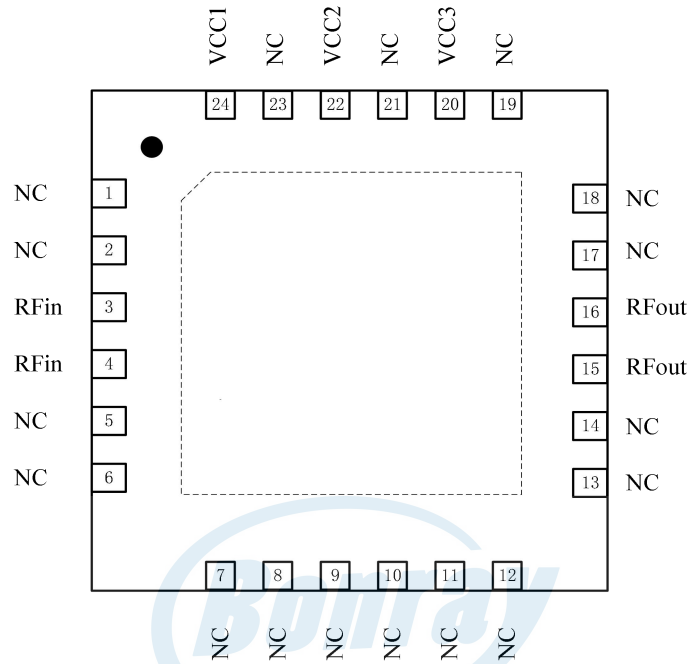
**Bill of Material**

Designator	Package	Description	Part Number
U1	QFN24	4GHz~6GHz high gain drive amplifier	BR9214FPJ
C1, C2, C3	0603 Patch capacitor	4.7uF 50V ±5%	GRM188R71H472JA01
C4, C5, C6	0402 Patch capacitor	50V 1nF ±5%	GRM1555C1H102JA01D
R1	0603 Patch Resistor	10 Ohms±5%, 1/10W	RC0603JR-0710RL
C7, C8	/	Lassy short	/

### PCB Evaluation Board

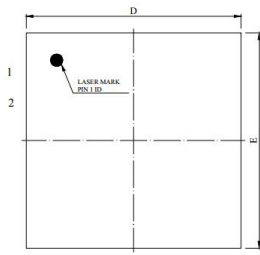


### Pin Configuration and Description



Pin Number	Pin Name	Description
3, 4	RFin	Rf input, already matched to 50Ω, with integrated isolation capacitor
15, 16	RFout	Rf output, matched to 50Ω, with integrated isolation capacitor
20	VCC3	Third stage power supply
22	VCC2	Second level power supply
24	VCC1	First stage power supply and third stage bias
1~2, 5~14, 17~19, 21, 23	NC	No connection inside the pin, RF/DC ground is recommended for testing or use
Backside	GND	Backside for the back pad, RF ground and heat dissipation

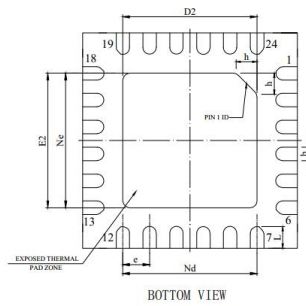
Package Dimensions (mm)



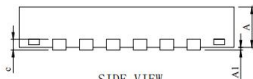
TOP VIEW



SIDE VIEW



BOTTOM VIEW



SIDE VIEW

SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	0.75	0.80	0.85
A1	0.01	0.02	0.05
b	0.20	0.25	0.30
c	0.270REF		
D	3.90	4.00	4.10
D2	2.60	2.70	2.80
e	0.50BSC		
Ne	2.50BSC		
Nd	2.50BSC		
E	3.90	4.00	4.10
E2	2.60	2.70	2.80
L	0.35	0.40	0.45
h	0.35	0.40	0.45



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