Product Features

Frequency: 1.8GHz ~ 6.4GHz

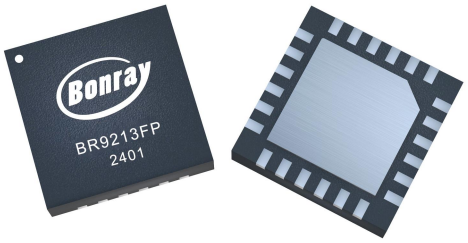
Gain : 25.3dB@4GHz

Psat: 28.5dBm@4GHz

Gain Flatness: ±0.5dB

Operation Voltage:5V, static current 144mA

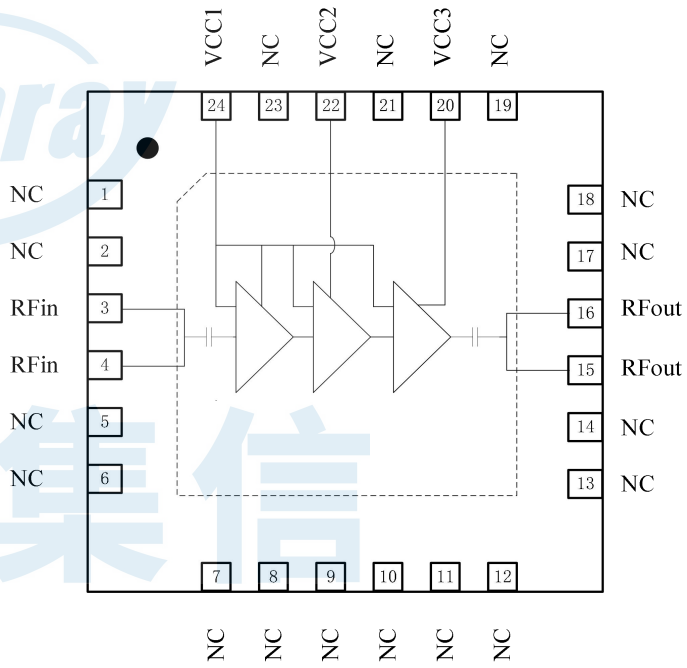
Package: QFN24 (4mm×4mm)



General Description

The BR9213FPJ is a Gallium arsenide (GaAs) driven amplifier covering the frequency range from 1.8GHz to 6.4GHz, using a 5V single supply Supply Voltage, the static operating current 144mA.

Functional Block Diagram



Applications

Wireless Infrastructure

Data Link

Radar

Electronic Countermeasures

Ordering Information

Part Number	Package	Description
BR9213FPJ	QFN24	1.8 GHz to 6.4 GHz High Gain Drive Amplifier

Electrical Specifications

Parameters	Typ.								Units
Frequency	1.8	2	3	4	5	6	6.2	6.4	GHz
Small Signal Gain	25.8	25.5	25.2	25.3	25.7	25.9	25.8	25.4	dB
Input Return Loss	-13.0	-15.9	-36.9	-18.0	-12.0	-15.0	-16.2	-15.9	dB
Output Return Loss	-11.2	-10.8	-14.7	-8.8	-18.9	-12.2	-12.0	-12.6	dB
I_C@P_{sat}	494	517	394	623	552	518	520	488	mA
Saturated Output Power	27.0	27.2	26.6	28.5	29.3	28.4	28.3	27.7	dBm
Output Power for 1dB Compression	25.9	26.3	25.4	26.8	28.4	28.1	27.7	25.9	dBm
Test Conditions: Temp =+25℃, VCC=5V, I_{CC}=144mA									

Note: P_{sat} defined as the saturation power output by the evaluation board, I_C is defined as the total current of the Reference Designator when operating.

Absolute Maximum Ratings

Maximum Operating Voltage: +5.15V

Maximum RF Pin (dBm): +30dBm

ESD Rating: Class 1C

Recommended Operating Conditions

Supply Voltage: +5V

Static Supply Current: 144mA

Storage Temperature: -65℃ ~ +150℃

Operating Temperature: -55℃ ~ +125℃

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.

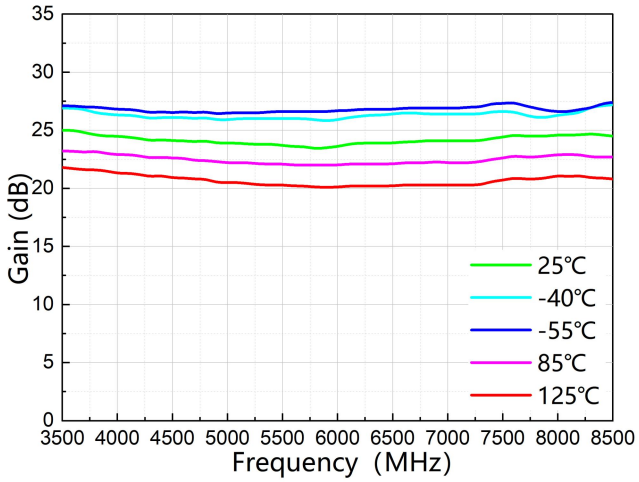
ESD WARNING

ELECTROSTATIC SENSITIVE DEVICE

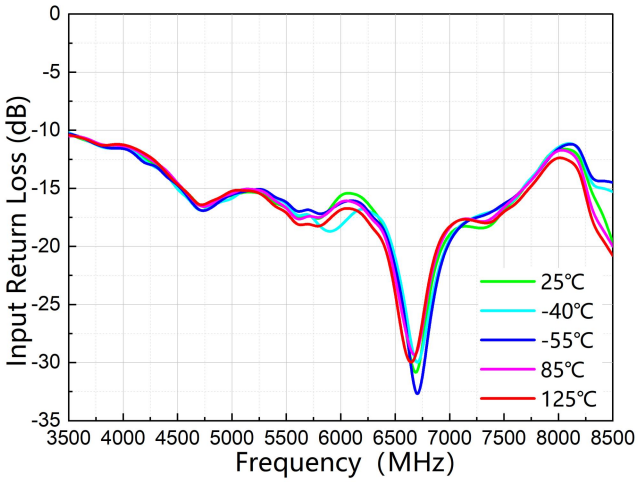
OBSERVE HANDLING PRECAUTIONS

ESD Rating: Class 1

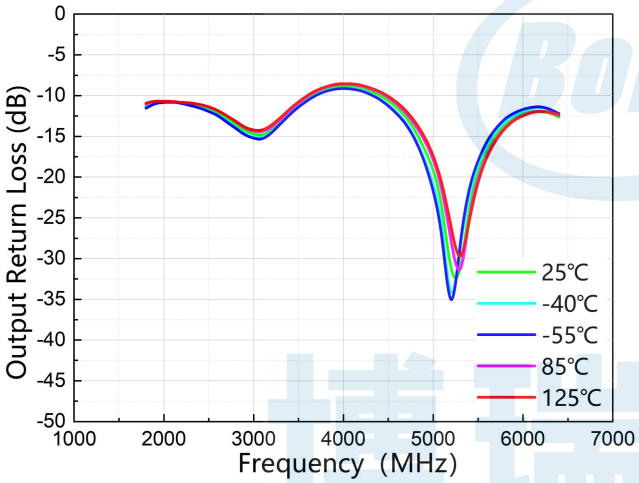
Typical Performance (EVB test results)



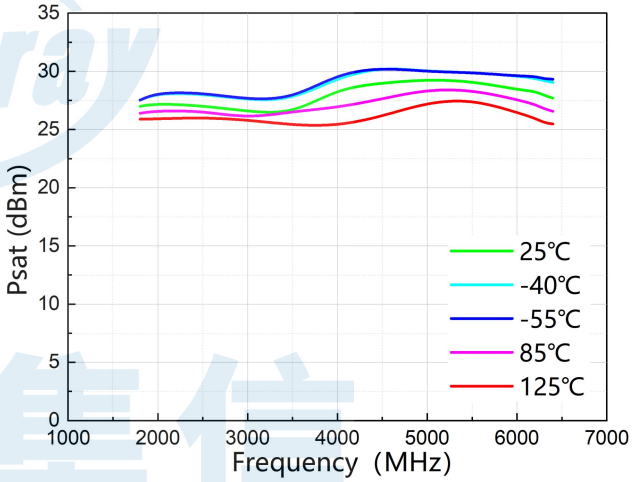
Small Signal Gain vs. Freq



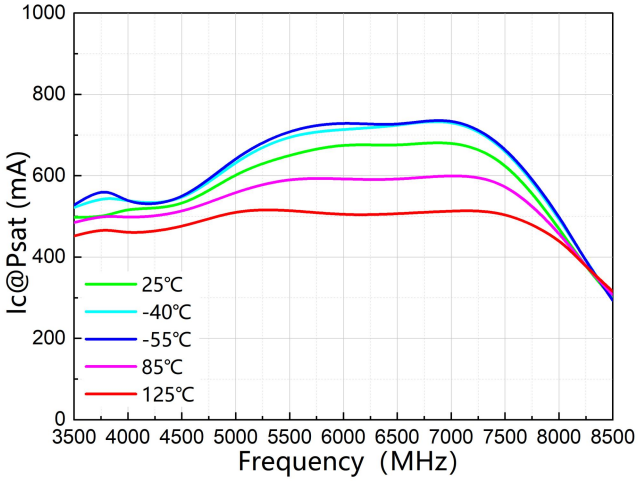
Input Return Loss vs. Freq



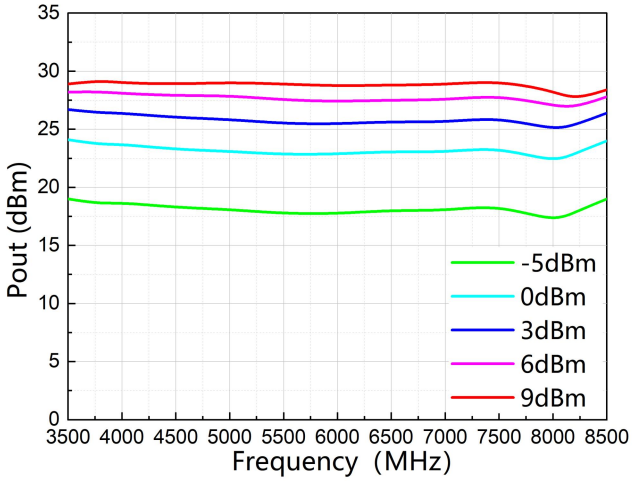
Output Return Loss vs. Freq



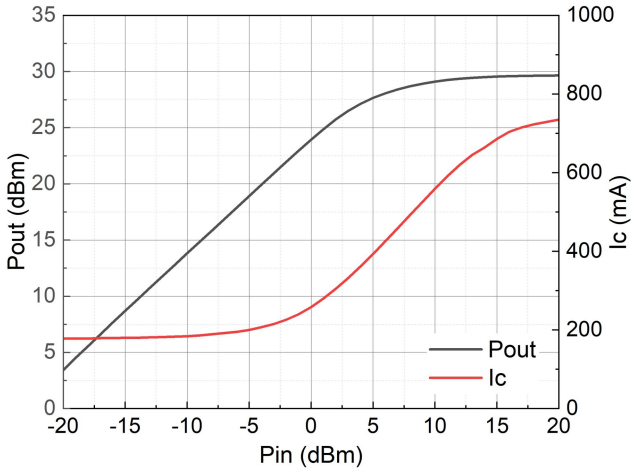
Saturated Output Power vs. Freq



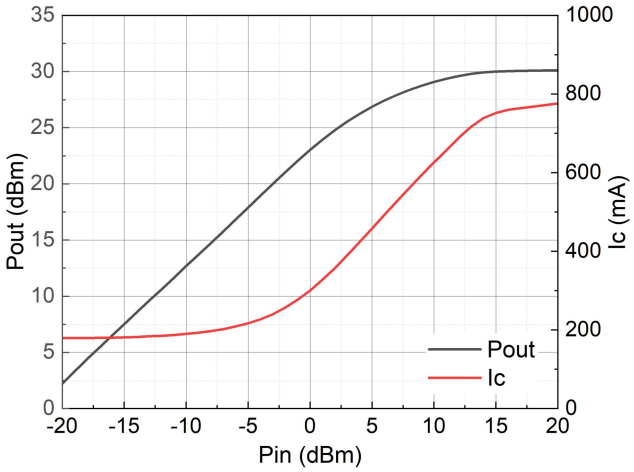
Saturation Supply Current vs. Freq



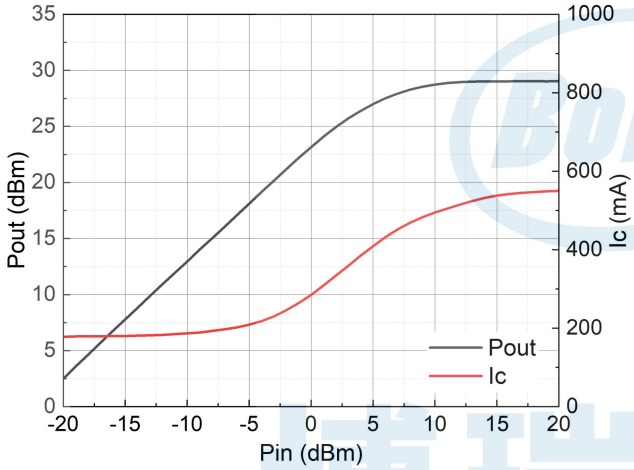
Pout vs. Freq vs. Pin



P_{out} , Ic vs. P_{in} @2GHz

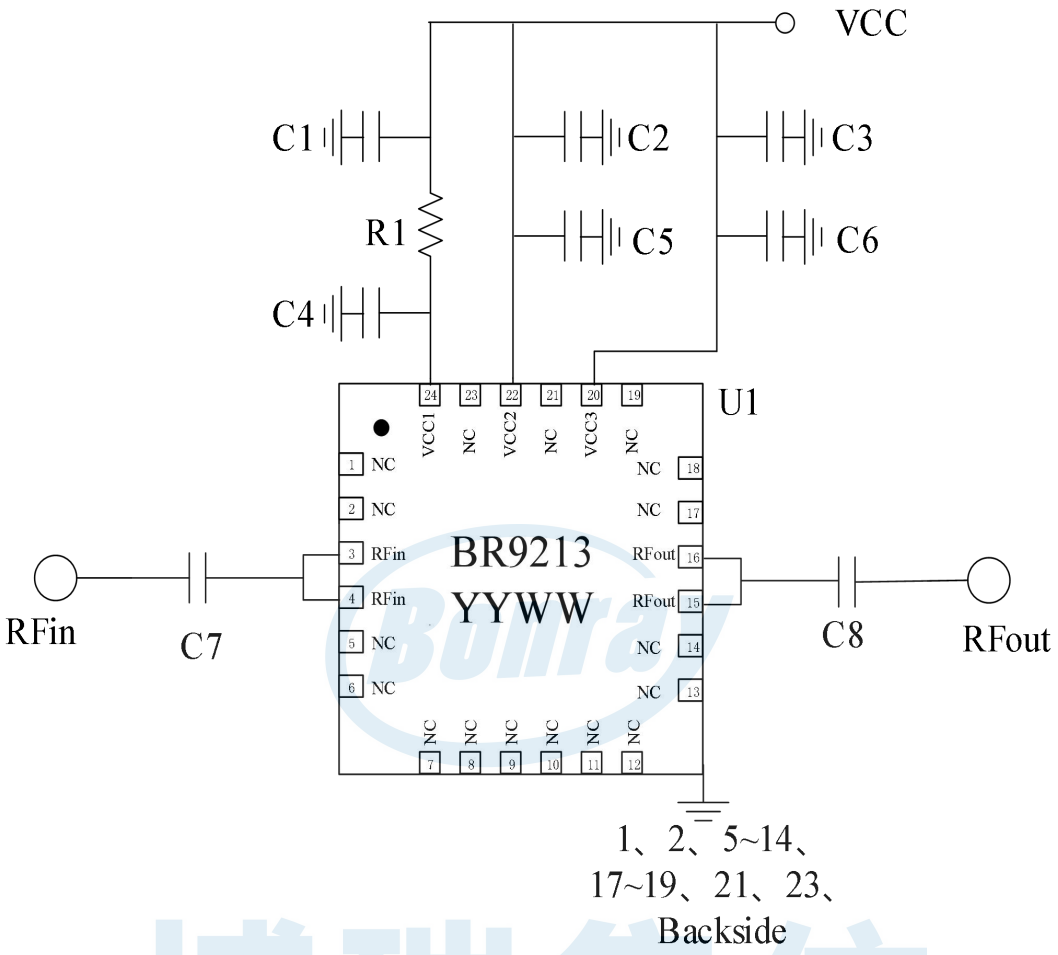


P_{out} , Ic vs. P_{in} @4GHz



P_{out} , Ic vs. P_{in} @6GHz

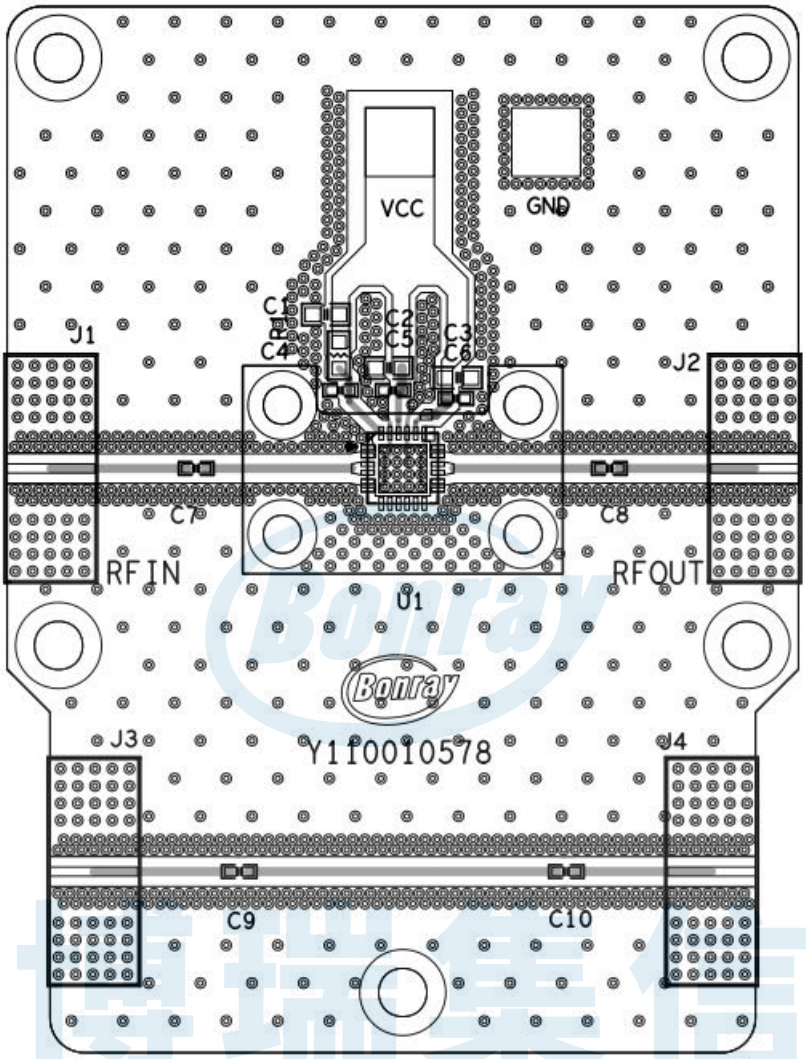
Typical Application Schematic

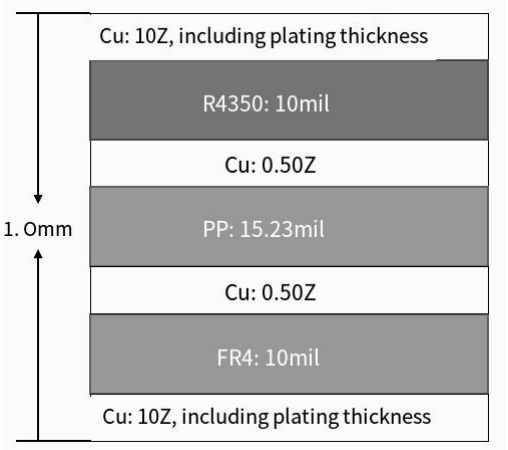


Bill of Material

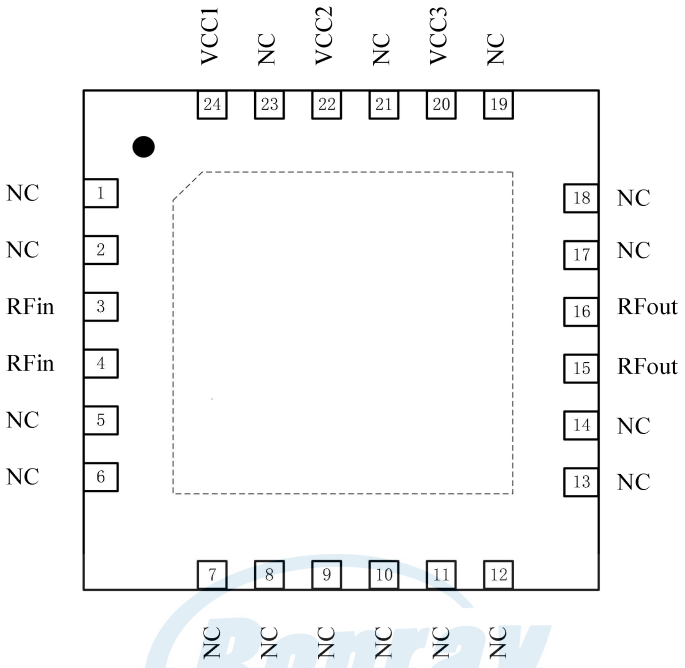
Designator	Package	Description	Part Number
U1	QFN24	1.8GHz~6.6GHz high gain drive amplifier	BR9213FPJ
C1, C2, C3	0603 Patch capacitor	4.7uF 50V ±5%	GRM188R71H472JA01
C4, C5, C6	0402 Patch capacitor	50V 1nF ±5%	GRM1555C1H102JA01D
R1	0603 Patch Resistor	20Ω ±5% 100mW	RS-03K200JT
C7, C8	/	Lassy short	/

PCB Evaluation Board



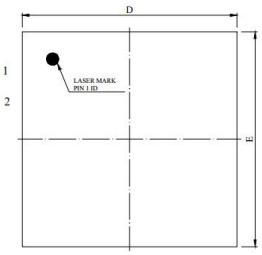


Pin Configuration and Description



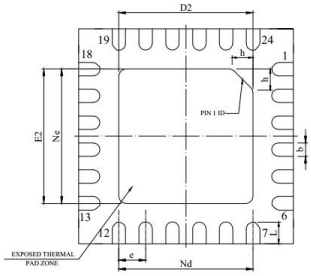
Pin Number	Pin Name	Description
3, 4	RFin	Rf input, already matched to 50Ω, with integrated isolation capacitor
15, 16	RFout	Rf output, matched to 50Ω, with integrated isolation capacitor
20	VCC3	Third stage power supply
22	VCC2	Second level power supply
24	VCC1	First stage power supply and third stage 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)

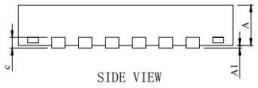


TOP VIEW

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

Bonray
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