Product Features

Operating Frequency: 3.5GHz ~ 8.5GHz

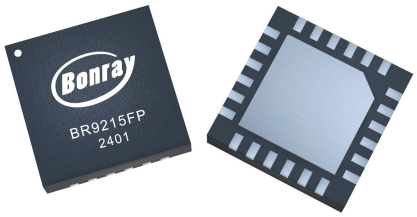
Gain: 23.6dB@6GHz

Psat: 29.3dBm@6GHz

Gain Flatness: ±0.6dB

Operation Voltage: 5V, static current 178mA

Package: QFN24 (4mm×4mm)



Application

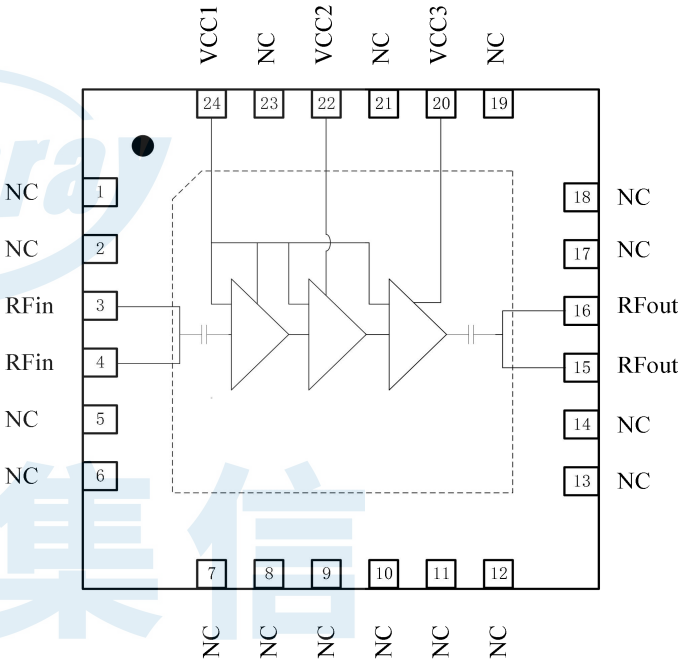
Wireless Infrastructure

Data Link

Radar

Electronic Countermeasures

Functional Block Diagram



General Description

The BR9215FPJ is a gallium arsenide (GaAs) driven amplifier that covers the frequency range from 3.5GHz to 8.5GHz with a 5V single Supply Voltage and a static operating current of 178mA.

Ordering Information

Part Number	Package	Description
BR9215FPJ	QFN24	3.5 GHz to 8.5 GHz High Gain Drive Amplifier

Electrical Specifications

Parameters	Typ.							Units
Frequency	3.5	4	5	6	7	8	8.5	GHz
Small Signal Gain	25.0	24.5	23.9	23.6	24.1	24.6	24.5	dB
Input Return Loss	-10.3	-11.4	-15.7	-15.4	-18.8	-11.6	-19.7	dB
Output Return Loss	-17.8	-24.3	-10.0	-10.7	-9.9	-10.0	-11.0	dB
$I_C@P_{sat}$	504	525	585	681	675	477	312	mA
Saturated Output Power	28.6	28.8	28.6	29.3	29.2	28.7	26.1	dBm
Output Power for 1dB Compression	27.7	27.5	27.2	27.0	26.6	27.4	25.4	dBm
Test Condition: Temp =+25 ° C, VCC=5V, I_{CC}=178mA Note: P_{sat} defined as the Psat output of the evaluation board								

Absolute Maximum Ratings

Maximum Supply Voltage: +5.15V

Maximum RF input Power: +30dBm

ESD Rating: Class 1C

Recommended Operating Conditions

Power Supply Voltage: +5V

Static Operating Current: 178mA

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.

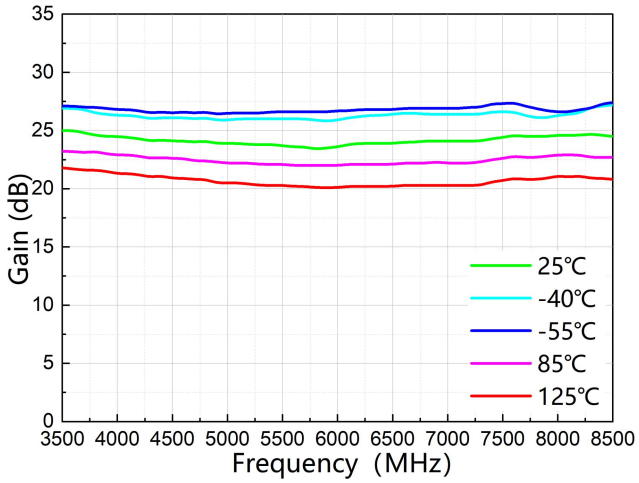
ESD WARNING

ELECTROSTATIC SENSITIVE DEVICE

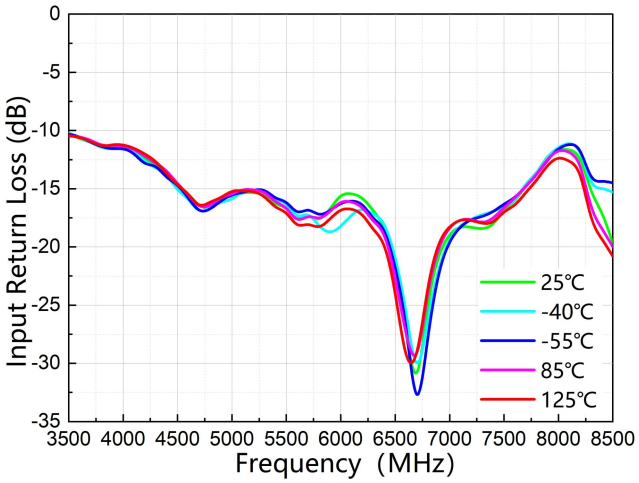
OBSERVE HANDLING PRECAUTIONS

ESD Rating: Class 1

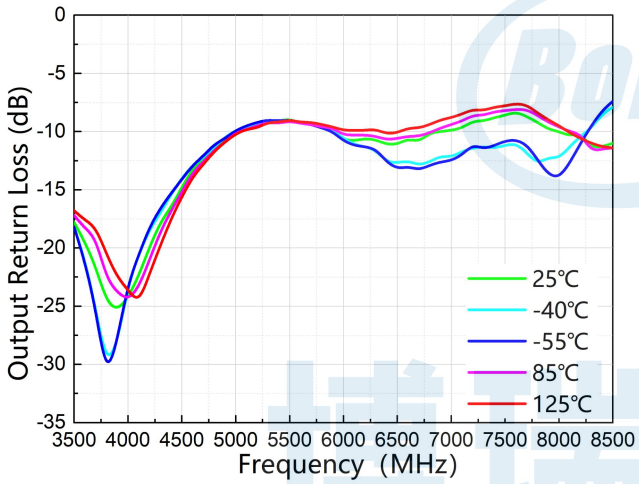
Typical Performance (EVB test results)



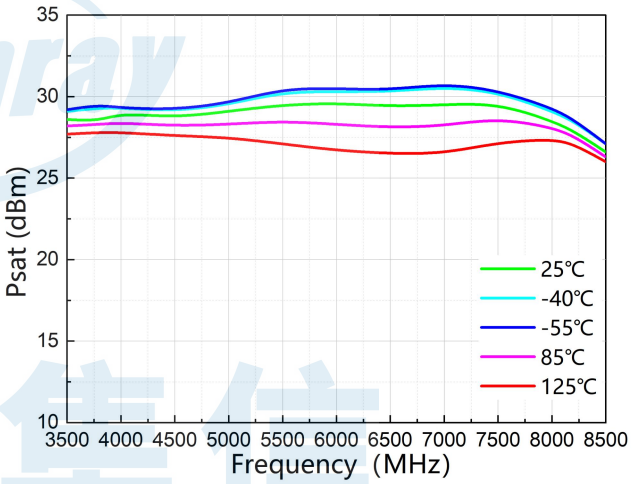
Small Signal Gain vs. Freq



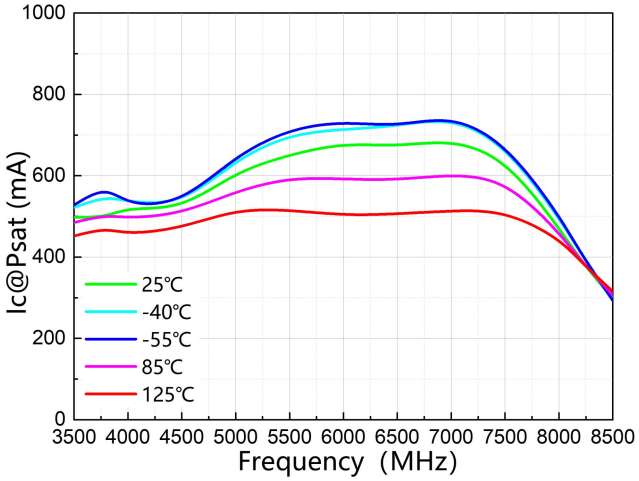
Input Return Loss vs. Freq



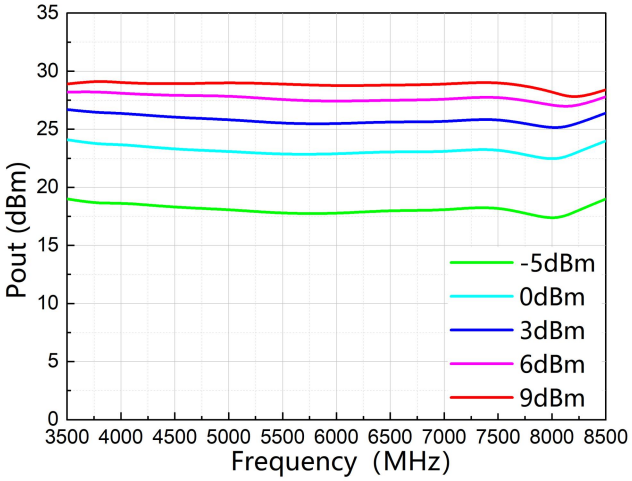
Output Return Loss vs. Freq



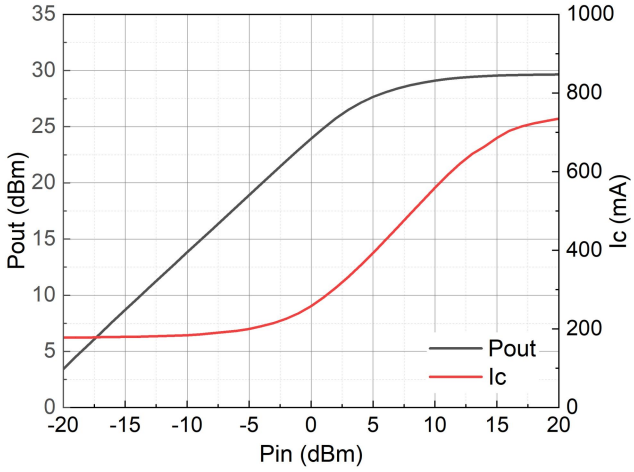
Saturated Output Power vs. Freq



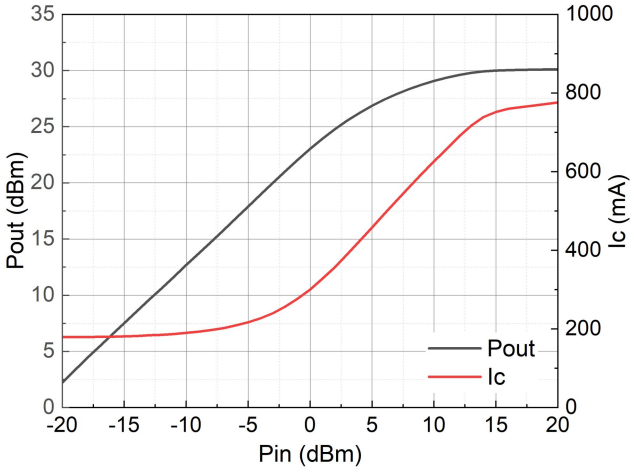
Saturated Operating Current vs. Freq



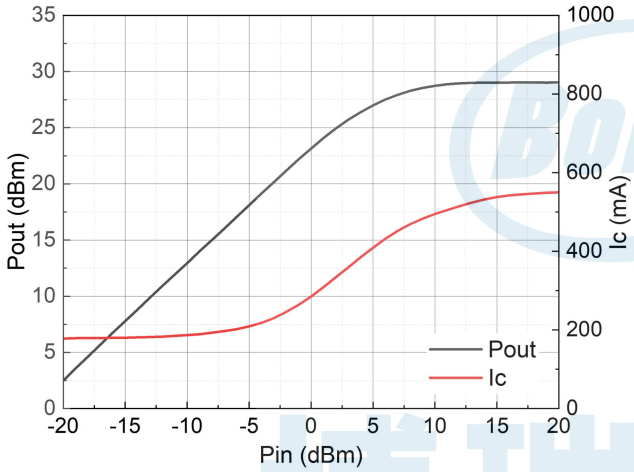
Pout vs. Freq vs. Pin



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

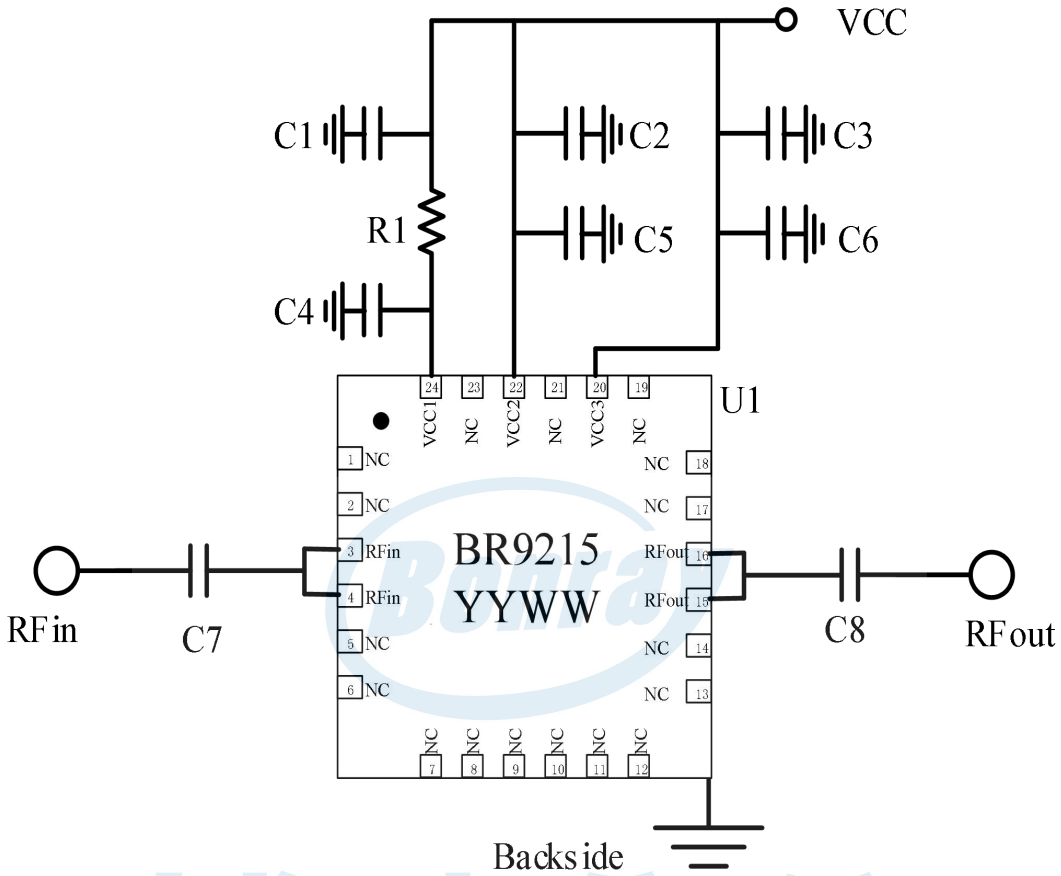


P_{out}, Ic vs. P_{in} @6GHz



P_{out}, Ic vs. P_{in} @8GHz

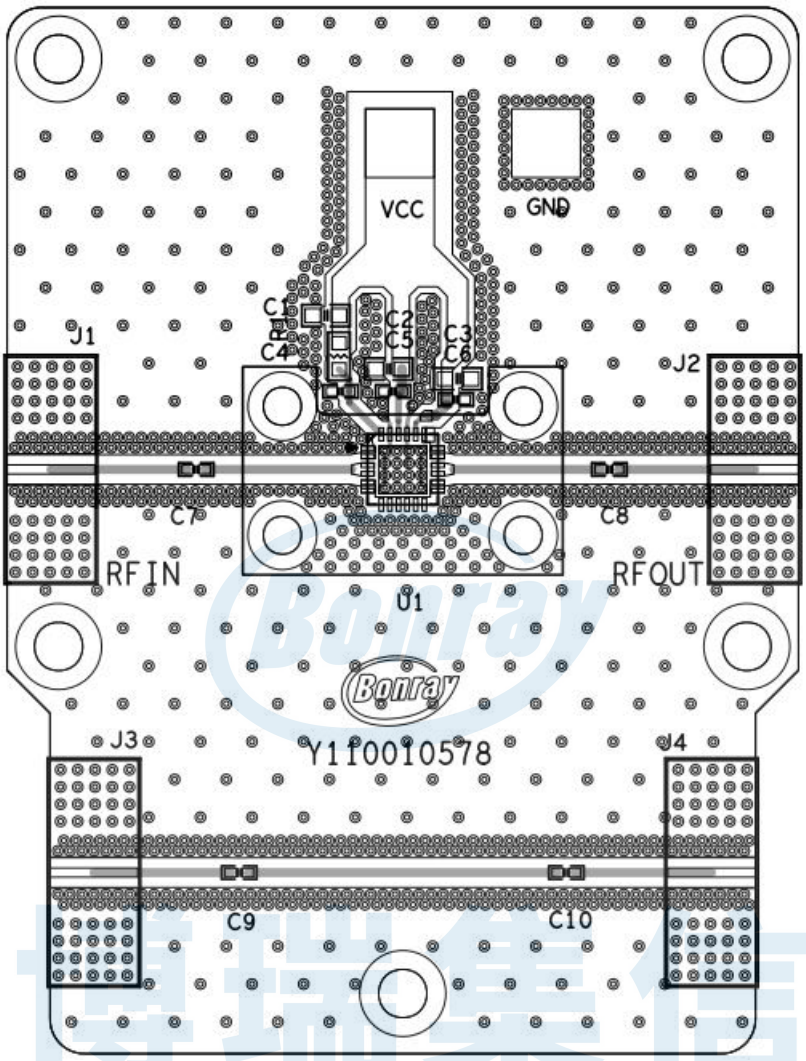
Typical Application Schematic

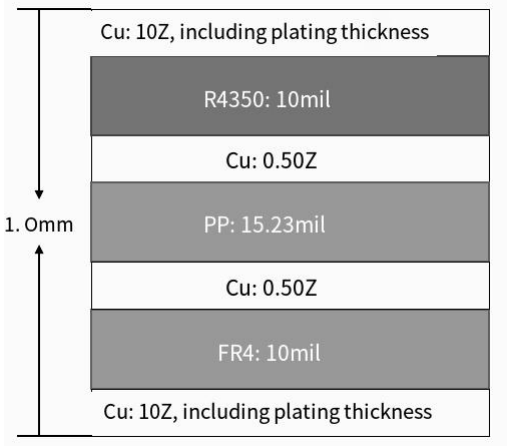


Bill of Material

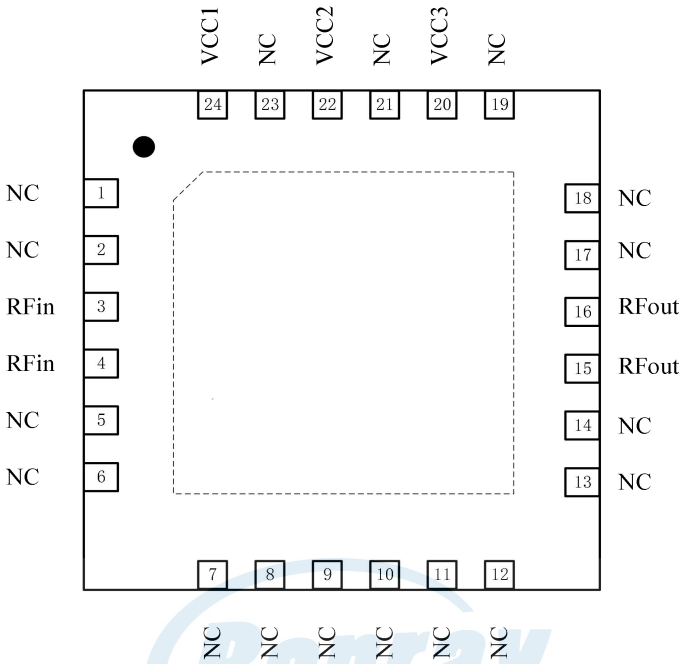
Designator	Package	Description	Part Number
U1	QFN24	4GHz~8GHz high gain drive amplifier	BR9215FPJ
C1, C2, C3	0603 Patch capacitor	4.7uF 50V ±5%	GRM188R71H472JA01
C4, C5, C6	0402 Patch capacitor	50V 1nF ±5%	GRM1555C1H102JA01D
R1	0603 Patch Resistor	10Ω ±5% 100mW	RC0603JR-0710RL
C7, C8	/	Lassy short	/

PCB Evaluation Board



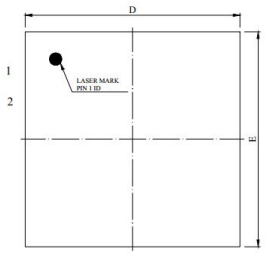


Pin Configuration and Description

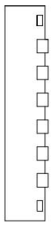


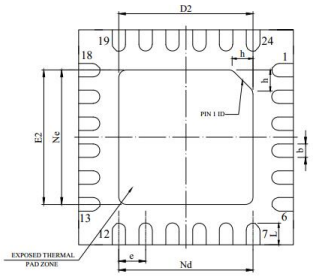
Pin Number	Pin Name	Description
3, 4	RFin	Rf input, already matched to 50Ω, with integrated isolation capacitor
15, 16	RFout	Rf output, matched to 50Ω, with integrated isolation capacitor
20	VCC3	Third stage power supply
22	VCC2	Second level power supply
24	VCC1	First stage power supply and third stage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

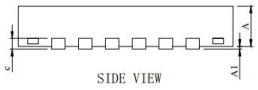


TOP VIEW


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