

Product Features

Frequency: 80MHz~1150MHz

Gain: 39.3dB@900MHz

In-band Flatness: ± 1 dB

Limiting Output: $\leq +12.3$ dBm

OIP3: 27.7dBm@900MHz

Noise Figure: 5.3dB@900MHz

Reverse Isolation: 58.4dB@900MHz

+5V single power supply, working current
150mA

Package: QFN64 (9mm×9mm)

Application

Test and Measuring Equipment

Unmanned Equipment

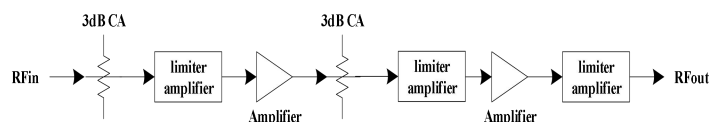
Peer-to-peer Communication

VHF/UHF Stations

General Description

The BR9608FR is a limiter amplifier with a high input dynamic range, which operates in the frequency range of 80MHz to 1150MHz, with a typical gain of 39.3dB and a typical limiter output signal of 11.6dBm. The product has good input and output echo characteristics, can withstand large input power, can effectively realize the amplification of the input signal and the protection of the post-stage circuit, suitable for 50 ohm system, can be widely used in the front end of the receiving system.

Functional Block Diagram



Ordering Information

Part Number	Package	Description
BR9608FR	QFN64	80MHz~1150MHz Limiting Amplifier

Electrical Specifications

Parameters	Test Conditions	Min.	Typ.	Max.	Units
Gain	80MHz	-	39.5	-	dB
	900MHz	-	39.3	-	dB
	1150MHz	-	40.1	-	dB
Input Return Loss	80MHz	-	-19.5	-	dB
	900MHz	-	-20.4	-	dB
	1150MHz	-	-19.9	-	dB
Output Return Loss	80MHz	-	-14.0	-	dB
	900MHz	-	-10.7	-	dB
	1150MHz	-	-7.8	-	dB
Reverse Isolation	80MHz	-	-62.4	-	dB
	900MHz	-	-58.4	-	dB
	1150MHz	-	-54.6	-	dB
Limiter Output Power	80MHz	-	12.3	-	dBm
	900MHz	-	11.6	-	dBm
	1150MHz	-	11.7	-	dBm
Output Third-Order Interception	80MHz	-	30.3	-	dBm
	900MHz	-	27.7	-	dBm
	1150MHz	-	29.3	-	dBm
Noise Figure	80MHz	-	5.2	-	dB
	900MHz	-	5.3	-	dB
	1150MHz	-	5.3	-	dB
Operating Voltage	-	-	5	-	V
Static Working Current	-	-	150	-	mA
Test Conditions: Vdd=+5V, I=150mA, OIP3 spacing=1MHz, Pout= -5dBm/tone, TA=+25°C					

Absolute Maximum Ratings

Maximum Operating Voltage (VDD) : +6.5V;

Max RF input Power: +30dBm;

ESD Rating: Class 1C

Recommended Operating Conditions

Power Supply Voltage: 5V;

Static Operating Current: 150mA;

Storage Temperature: -55°C ~ +125°C;

Operating Temperature: -40°C ~ +85°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

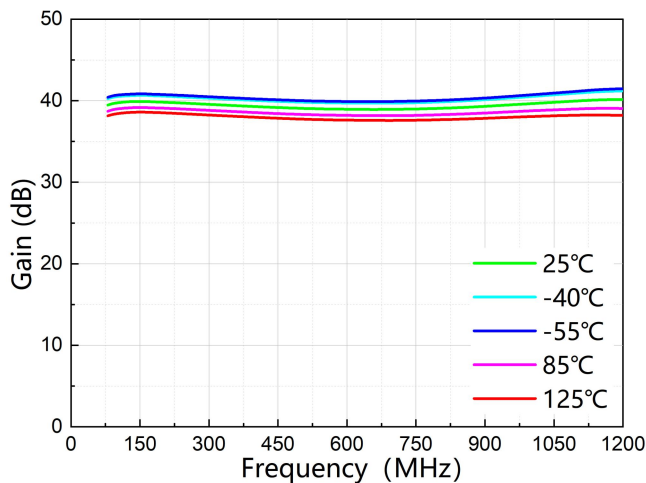
OBSERVE HANDLING PRECAUTIONS

ESD Rating: Class 1

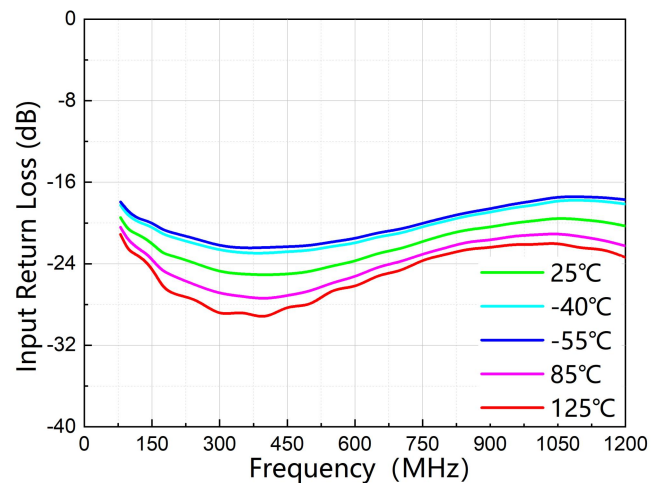
Typical Performance (EVB test results+8V)

Parameters	Typ.											Units
Frequency	80	200	300	400	500	600	700	800	900	1000	1150	MHz
Gain	39.5	39.8	39.5	39.3	39.1	39.0	38.9	39.1	39.3	39.6	40.1	dB
Input Return Loss	-19.5	-23.3	-24.8	-25.1	-24.8	-23.8	-22.6	-21.2	-20.4	-19.8	-20.3	dB
Output Return Loss	-14.0	-22.0	-27.2	-25.5	-21.6	-17.7	-14.8	-12.7	-10.7	-9.6	-7.8	dB
Reverse Isolation	-62.4	-63.7	-68.8	-68.7	-73.2	-68.5	-64.8	-61.3	-58.4	-56.7	-54.2	dB
Limiter Output Power	12.3	11.5	10.7	10.4	11.4	11.1	11.4	11.5	11.6	11.4	11.7	dBm
Output Third-Order Interception	30.3	31.2	30.4	31.3	29.0	29.9	29.4	28.6	27.7	28.4	29.3	dBm
Noise Figure	5.2	5.1	5.1	5.1	5.1	5.1	5.1	5.2	5.3	5.2	5.3	dB

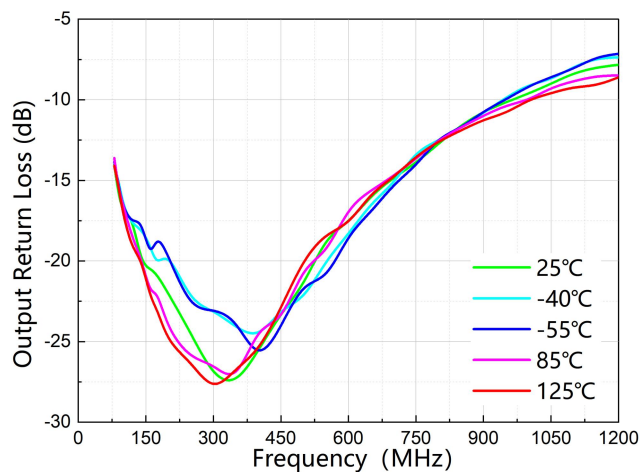
Test Conditions: Vdd=+5V, I=150mA; OIP3 spacing=1MHz, Pout= -5dBm/tone; TA=+25°C



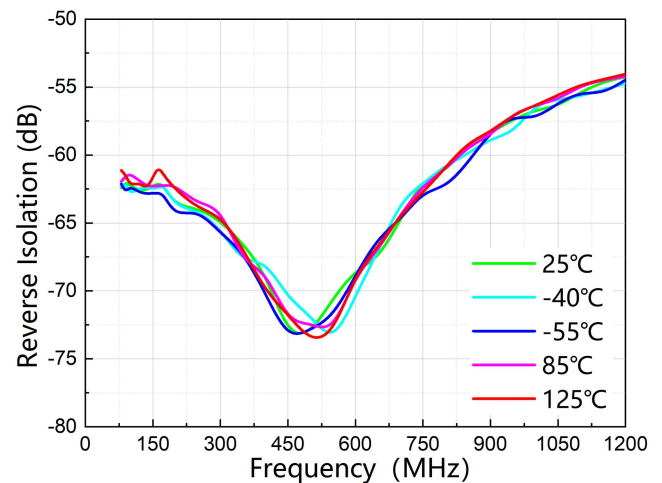
Gain vs. Freq



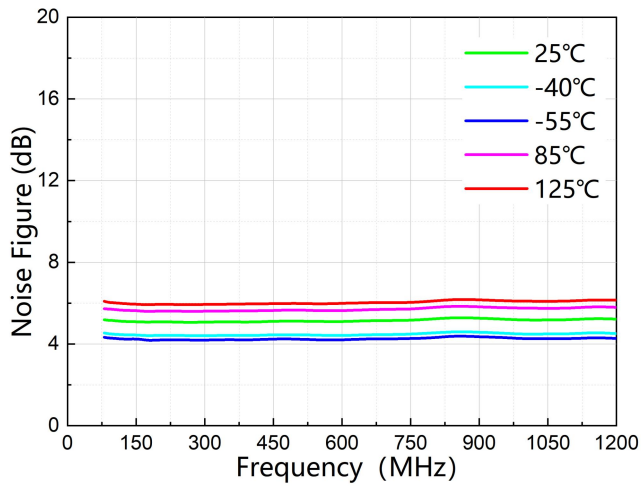
Input Return Loss vs. Freq



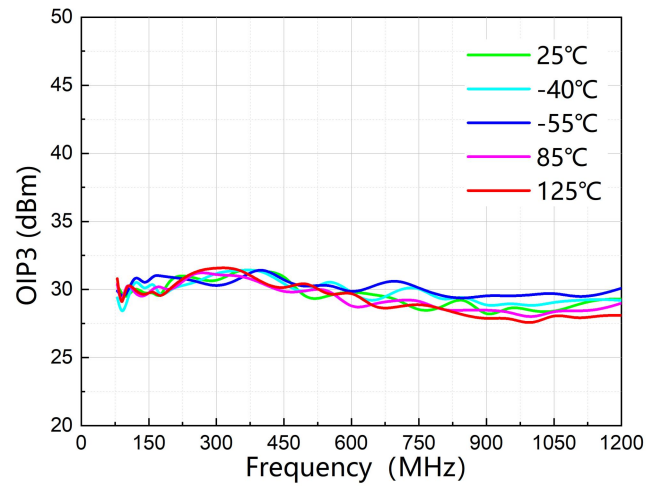
Output Return Loss vs. Freq



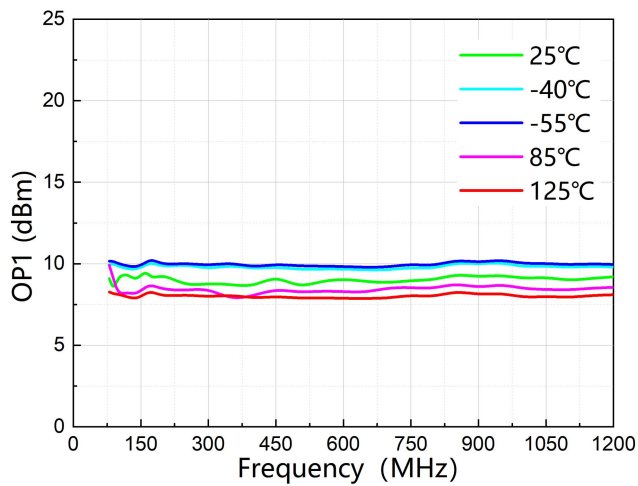
Reverse Isolation vs. Freq



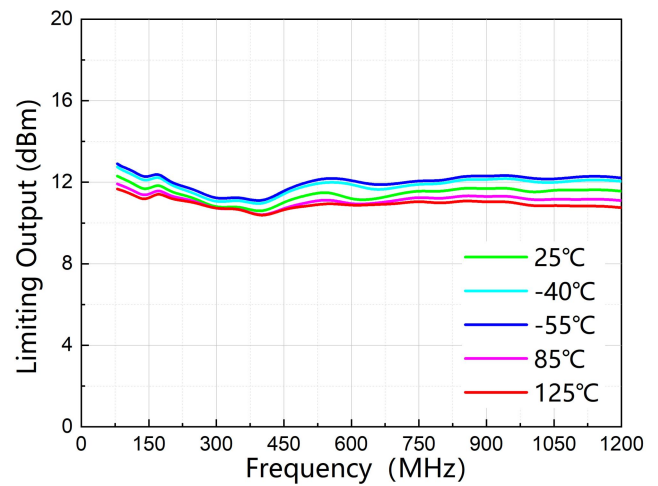
Noise Figure vs. Freq



Output Third-Order Interception vs. Freq

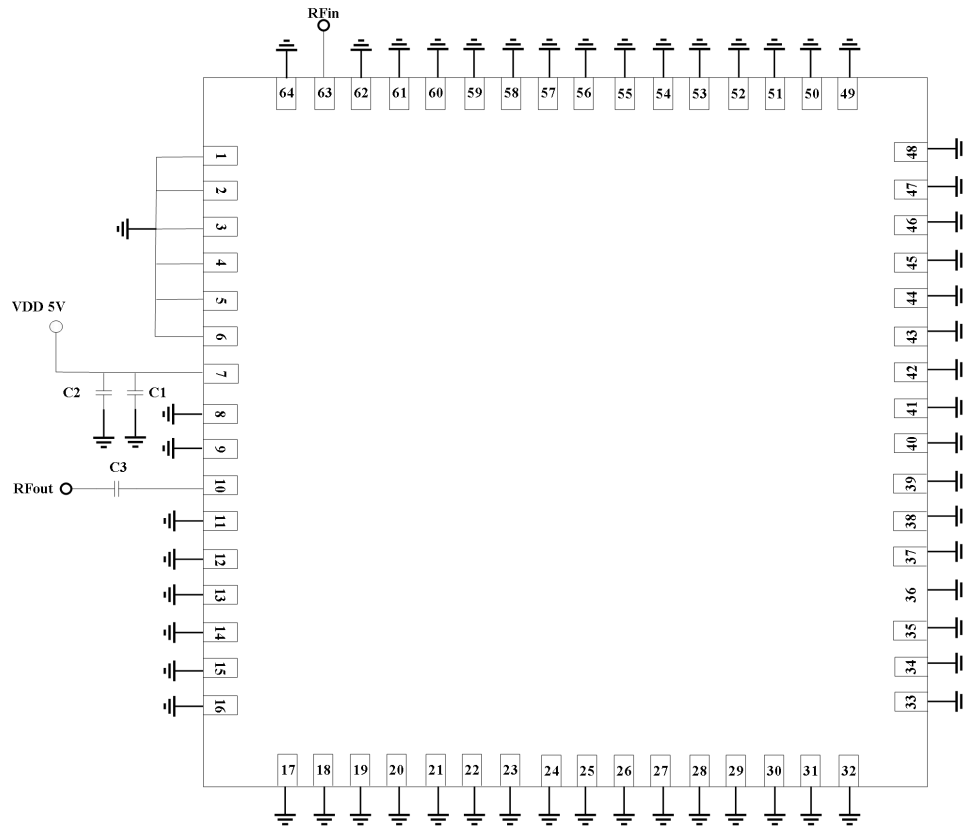


Output Power for 1dB Compression vs. Freq



Limiting Output vs. Freq

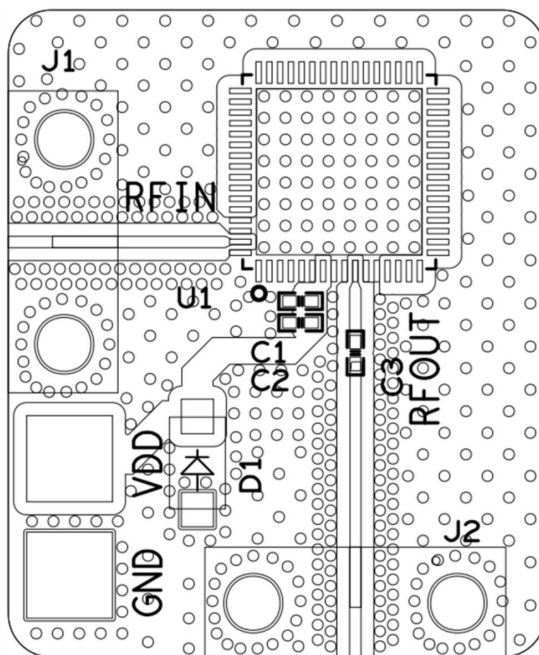
Typical Application Schematic



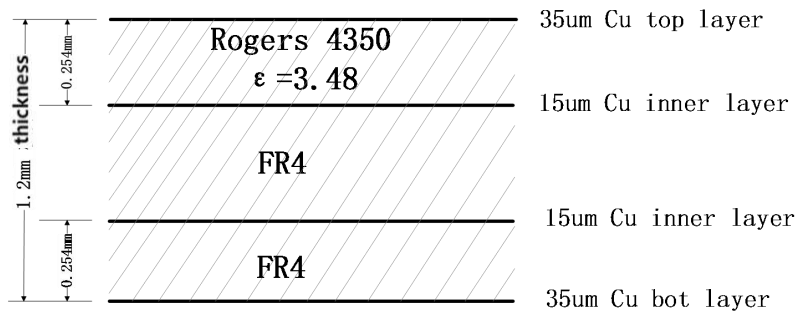
Bill of Material

Designator	Package	Description	Part Number
C2	C0603	1uF	CC0603KRX5R9BB105
C1, C3	C0402	1nF	GRM1555C1H102JA01D

PCB Evaluation Board

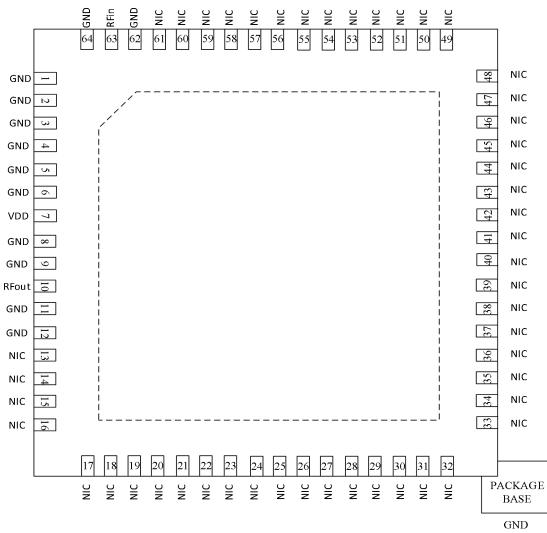


PCB



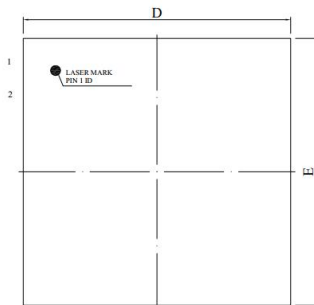
50 ohms Impedance Signal Lines: width=0.53mm, spacing=0.53mm

Pin Configuration and Description

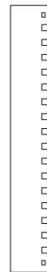


Pin Number	Pin Name	Description
1 to 6, 8 to 9, 11 to 12, 62, 64	GND	Ground. This pin must be connected to the RF and dc ground
7	VDD	+5V Supply voltage
10	RFout	RF output. This pin must be connected to a DC blocking capacitor
13-61	NC	No Connect. This pin is not connected internally. For normal operation, this pin should be connected to ground.
63	RFin	RF input. The RFin pin is ac-coupled and matched to 50Ω.

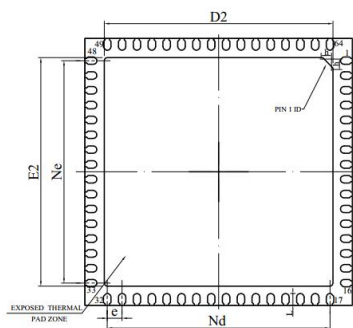
Package Dimensions (mm)



TOP VIEW



SIDE VIEW



BOTTOM VIEW

SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	1.65	1.70	1.75
A1	—	0.02	0.05
b	0.20	0.25	0.30
b1	0.15REF		
c	0.203REF		
D	8.90	9.00	9.10
D2	7.60	7.70	7.80
e	0.50RSC		
Ne	7.50RSC		
Nd	7.50RSC		
E	8.90	9.00	9.10
E2	7.60	7.70	7.80
L	0.35	0.40	0.45
h	0.30	0.35	0.40

