

Product Features

Operating Frequency: 300MHz ~ 3GHz

Gain : 19.1dB@1GHz

Output Power for 1dB Compression:

20.9dBm@1GHz

Noise Figure: 0.5dB@1GHz

Output Third-Order Interception:

32.9dBm@1GHz

Vdd=5V, Quiescent current 63mA

Package: DFN8 (plastic seal)

General Description

The BR9537DA is a wideband MMIC low noise amplifier. At 1GHz, the amplifier typically offers a gain of 19.1dB , a noise figure of 0.5dB, an output P1dB of 20.9dBm, and an output IP3 of 32.9dBm. The chip has been internally matched to 50Ω, with good input and output echoes over a wide frequency range, suitable for high linear, low noise application scenarios.

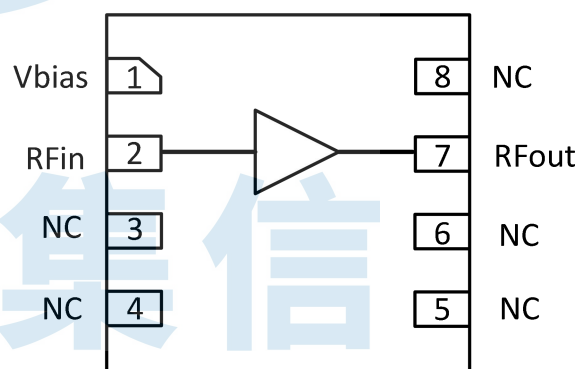
Application

IF Amplification/RF Drive Amplification

Test and Measure Equipment

VHF/UHF Stations

Functional Block Diagram



Ordering Information

Part Number	Package	Description
BR9537DA	DFN8	300MHz to 3GHz Low Noise Amplifier

Electrical Specifications

Parameters	Test Conditions	Min.	Typ.	Max.	Units
Gain	300MHz	-	25.8	-	dB
	1000MHz	-	19.1	-	
	3000MHz	-	8.6	-	
Input Return Loss	300MHz	-	-6.8	-	dB
	3000MHz	-	-11.8	-	
Output Return Loss	300MHz	-	-15.1	-	dB
	3000MHz	-	-10.2	-	
Reverse Isolation	300MHz	-	-32.4	-	dB
	3000MHz	-	-15.9	-	
Output Power for 1dB Compression	300MHz	-	18.0	-	dBm
	1000MHz	-	20.9	-	
	3000MHz	-	21.9	-	
Output Third-Order Interception	300MHz	-	28.2	-	dBm
	1000MHz	-	32.9	-	
	3000MHz	-	34.7	-	
Noise Figure	300MHz	-	0.5	-	dB
	1000MHz	-	0.5	-	
	3000MHz	-	1.0	-	
Operating voltage	-	-	5	-	V
Quiescent current	-	-	63	-	mA
Test Condition: Vdd=+5V, I=63mA, OIP3 spacing=1MHz, Pout=5dBm/tone, TA=+25°C					

Absolute Maximum Ratings

Maximum Operating Voltage (Vdd) : +6V

Maximum RF input Power: +20dBm

ESD Rating: 1kV (Class 1C)

Recommended Operating Conditions

Power Supply Voltage: +5V

Working Current: 63mA

Storage Temperature: -65°C ~ +150°C

Operating Temperature: -55°C ~ +125°C

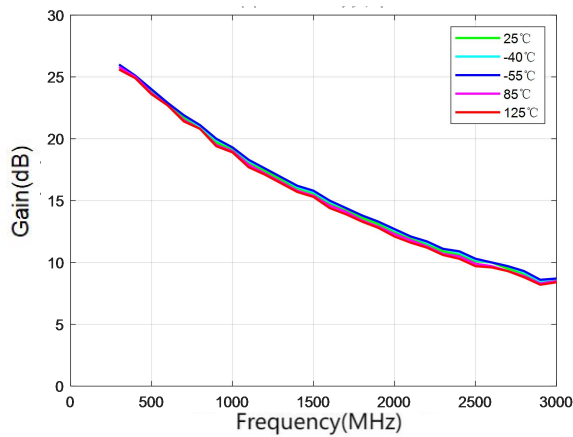
ESD WARNING


ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS

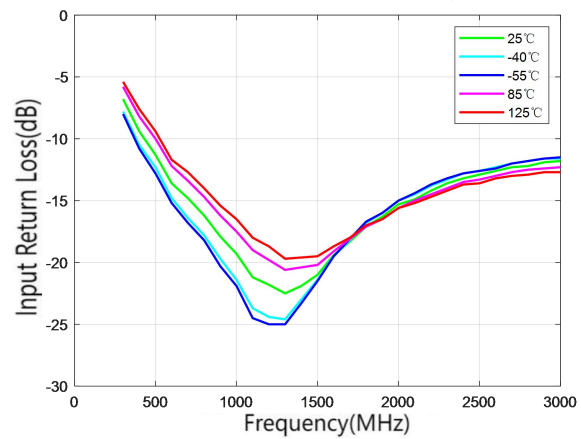
Typical Performance (EVB test results)

Parameters	Typ.											Units
Frequency	300	400	500	600	700	800	900	1000	1100	1200	1300	MHz
Gain	25.8	25.0	23.9	22.8	21.7	20.9	19.7	19.1	18.1	17.4	16.7	dB
Input Return Loss	-6.8	-9.4	-11.3	-13.6	-14.8	-16.2	-17.9	-19.3	-21.2	-21.8	-22.5	dB
Output Return Loss	-15.1	-20.1	-23.7	-21.7	-20.3	-18.9	-17.4	-16.1	-14.8	-13.7	-13.1	dB
Reverse Isolation	-32.4	-29.9	-28.0	-26.8	-25.7	-24.4	-23.6	-22.9	-22.0	-21.5	-20.9	dB
Output Power for 1dB Compression	18.0	19.9	20.4	20.5	20.7	20.8	21.0	20.9	20.5	20.9	20.7	dBm
Output Third-Order Interception	28.2	29.5	30.3	30.8	31.1	32	32.4	32.9	33.1	33.3	33	dBm
Noise Figure	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	dB
Frequency	1400	1500	1600	1700	1800	2000	2200	2400	2600	2800	3000	MHz
Gain	16.0	15.6	14.7	14.2	13.6	12.5	11.5	10.6	10.0	9.1	8.6	dB
Input Return Loss	-21.9	-21.0	-19.4	-18.3	-17.1	-15.3	-14.2	-13.2	-12.6	-12.2	-11.8	dB
Output Return Loss	-12.1	-11.7	-11.0	-10.5	-10.2	-9.6	-9.5	-9.5	-9.7	-10.0	-10.2	dB
Reverse Isolation	-20.4	-19.9	-19.4	-19.1	-18.7	-18.1	-17.5	-17.0	-16.5	-16.0	-15.9	dB
Output Power for 1dB Compression	21.3	21.2	21.2	21.4	21.2	21.5	21.7	21.9	22.0	22.1	21.9	dBm
Output Third-Order Interception	32.8	32.7	33	34	34	34	33.7	34.3	35.5	34.6	34.7	dBm
Noise Figure	0.6	0.5	0.6	0.7	0.7	0.7	0.6	0.7	0.8	1.1	1.0	dB

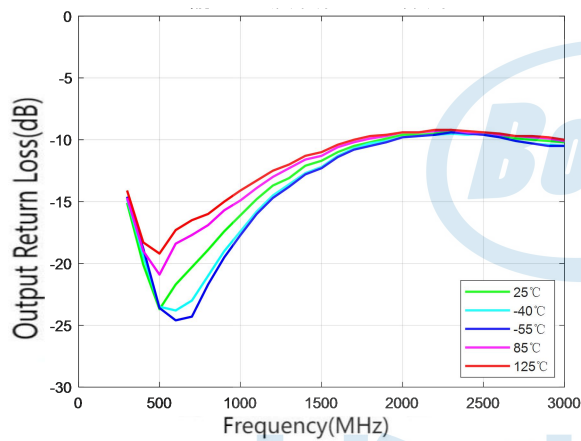
Test Condition: Vdd=+5V, I=63mA, OIP3 spacing=1MHz, Pout=5dBm/tone, TA=+25°C



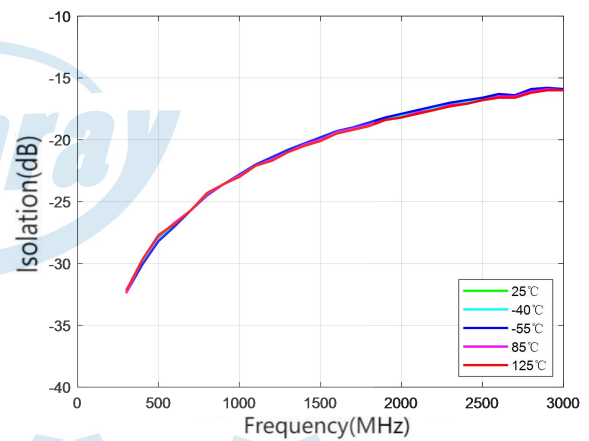
Gain



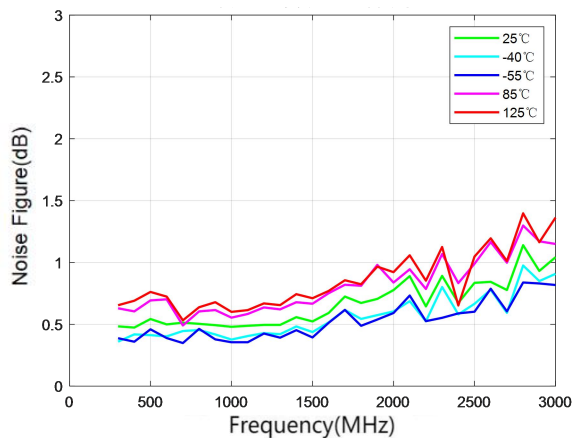
Input Return Loss



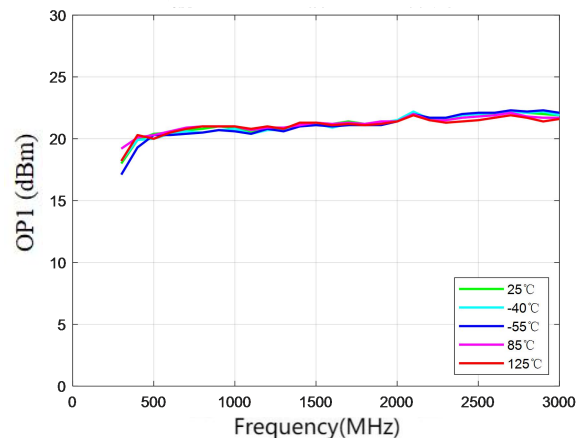
Output Return Loss



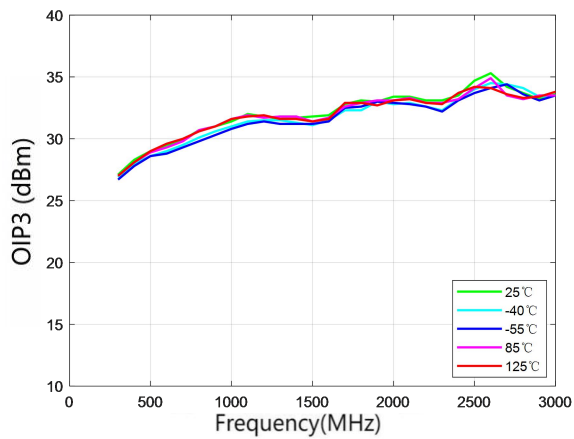
Reverse Isolation



Noise Figure

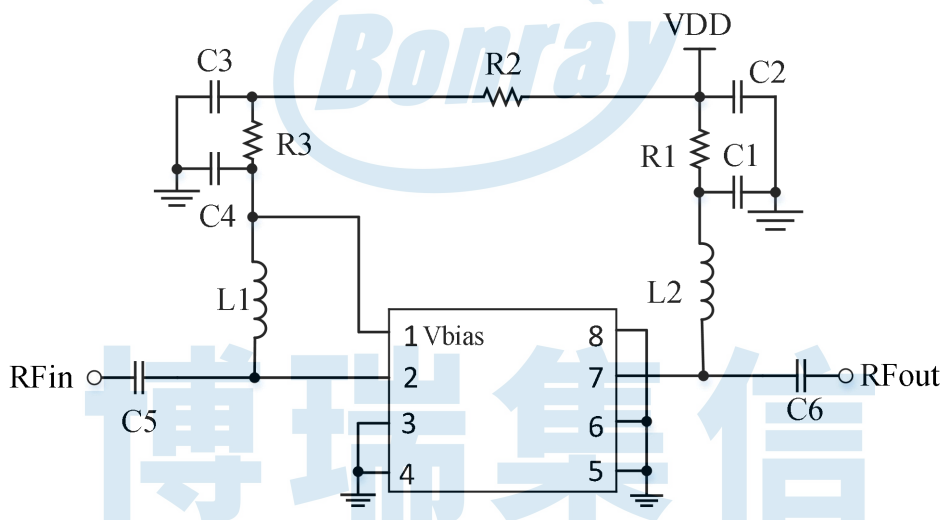


Output Power for 1dB Compression



Output Third-Order Intercept

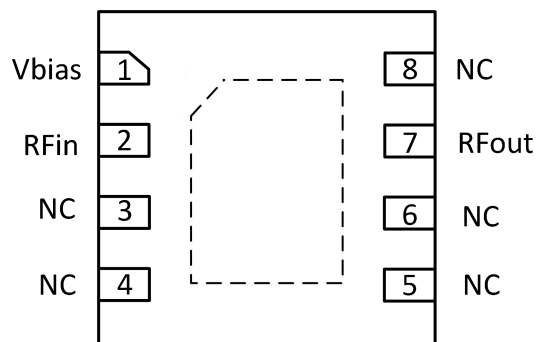
Typical Application Schematic



Bill of Material

Reference Designator	Package	Value	P/N
C1, C4	0402	33PF 50V ±5%	GRM1555C1H330JA01D
C2, C3	0402	10nF 50V ±5%	GRM155R71H103JA88D
C5, C6	0402	100PF 50V ±5%	GRM1555C1H101JA01D
R2	0402	±5% 2.2KΩ 1/16W	RC0402JR-072K2L
L1, L2	0603	39nH ±2% 680mA	0603HP-39NXGEW
R3	0402	±1% 0Ω 1/16W	RC0402FR-070RL
R1	0402	12 Ω	CRCW040212R0FKEDC

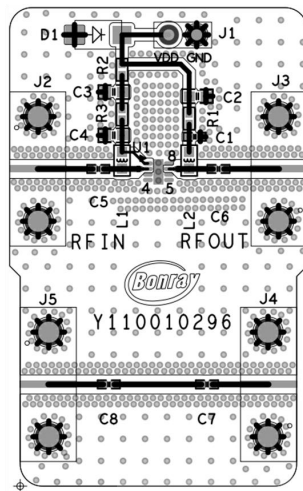
Pin Configuration and Description



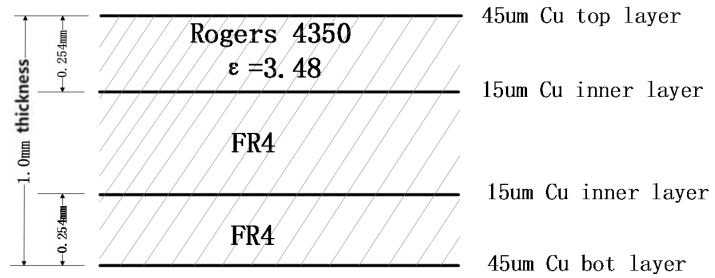
Pin Number	Pin Name	Description
2	RFin	Rf input pins; The pin is DC coupled and has been internally matched to 50 ohms, and only needs to be added with a spacer capacitor.
7	RFout/Bias	Rf output pin; The pin is DC coupled and has been internally matched to 50 ohms, only need to add a isolating capacitor.
3~6, 8	N/C	No electrical connection; This pin and package substrate must be connected to RF/DC ground.
1	Vbias	Bias voltage.
-	EP	Grounded.

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PCB Evaluation Board



PCB



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

Package Dimensions (mm)

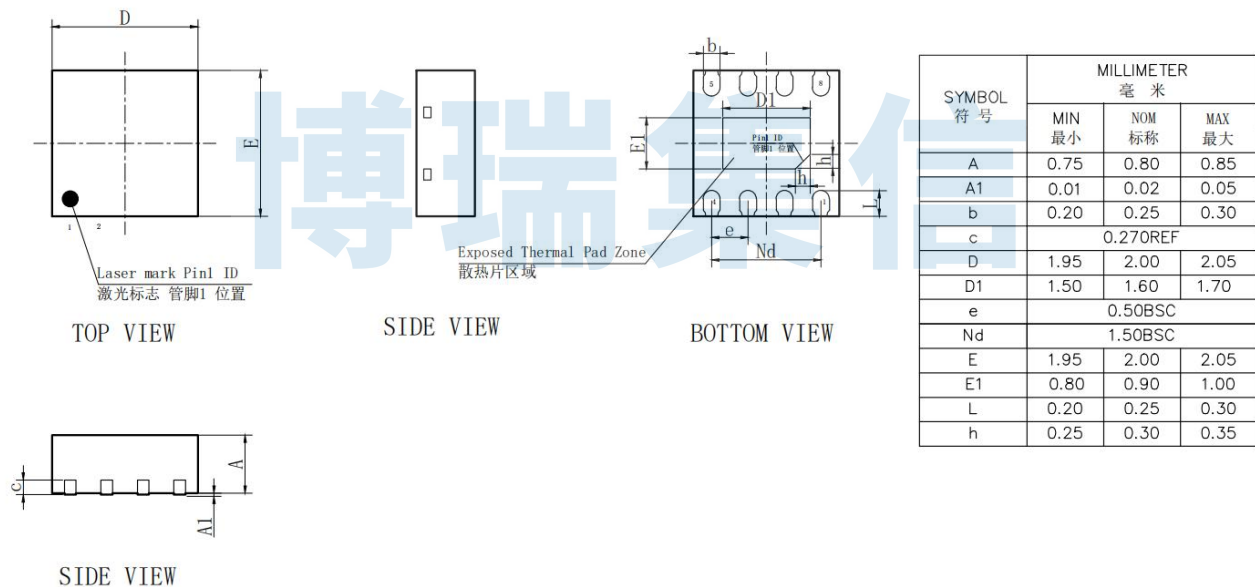


Figure 12 Package information diagram