

Performance Features

- Frequency range: 18~26GHz
- Gain: 12.8dB
- P1dB:23dBm
- Saturated output power:24dBm
- Package specification: QFN 3*3 12L

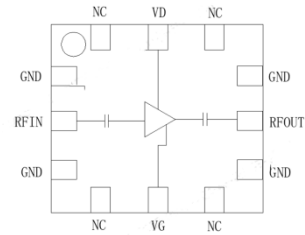
Overview

The CWA129SP3B is a wideband medium power amplifier MMIC designed to support a variety of millimeter wave applications, including point-to-point digital radio and other K-band linear gain applications. The CWA129SP3B has a 1 dB compressed point power of 23 dBm over the 18–26 GHz range.

Typical Applications

- Point-to-Point Communication
- Point-to-Multipoint Communication

Functional Block Diagram



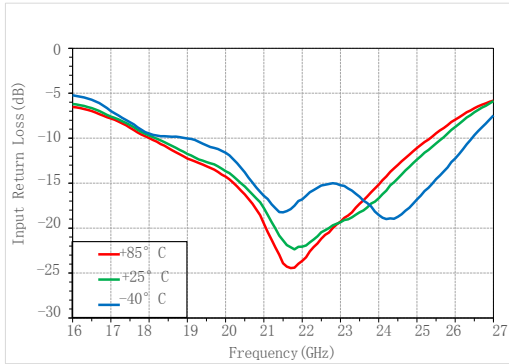
Electrical performance table (T A = + 2 5 °C ,VD=5V,VG=-0.6V)

Parameter Name	Description	Minimum value	Typical values	Maximum value	Unit
Operating frequency	Freq	18~26			GHz
Gain	S21		12.8		dB
Gain Flatness	ΔG		± 1		dB
Input Return Loss	S11		-13		dB
Output Return Loss	S22		-15		dB
Reverse isolation degree	S12		-50		dB
Output 1dB compression point power	P1dB		23		dBm
Saturated output power	P3dB		24		dBm
Output IP3	Pin=0dBm/ tone, $\Delta f=1\text{MHz}$		28		dBm
Noise factor	NF		8		dB
Operating current	(VD=5V, VG=-0.6V/ Typ		240		mA
Bias voltage	VD		5		V
Gate voltage*	VG		-0.6		V

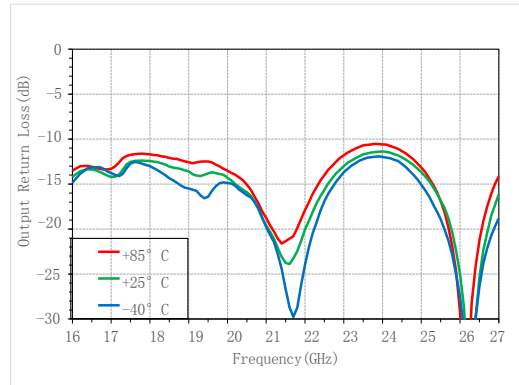
*Note: Adjust VG between -2.0 and 0V to achieve ID = 240 mA (typical)

Test Curve

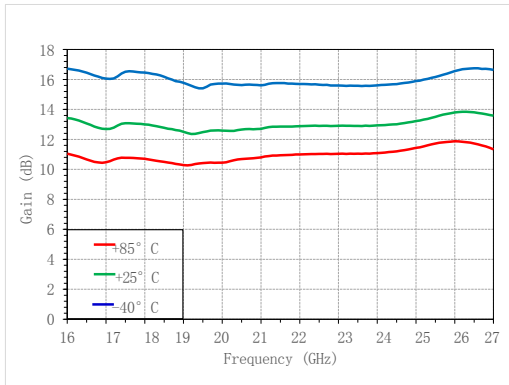
Input Return Loss VS Frequency



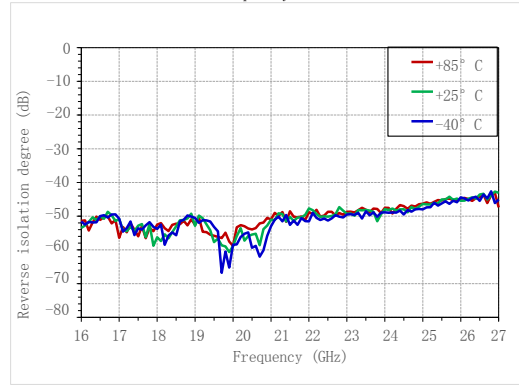
Output Return Loss VS Frequency



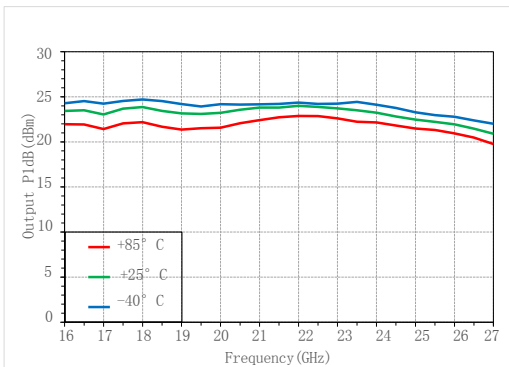
Gain VS Frequency



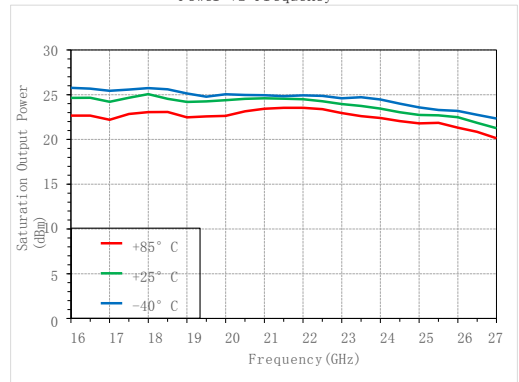
Reverse Isolation VS Frequency



Output P1dB VS Frequency



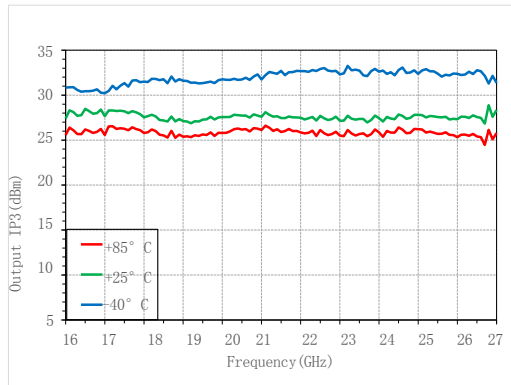
Saturated Output Power VS Frequency



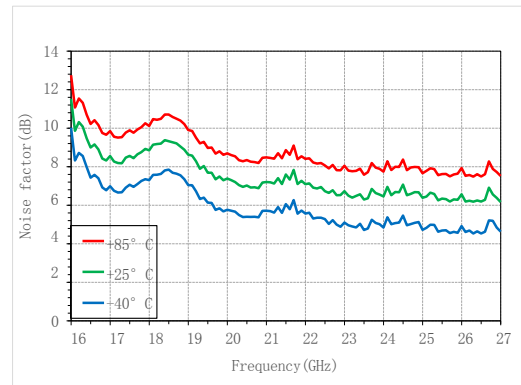
CWA
Amplifier Series

Test Curve

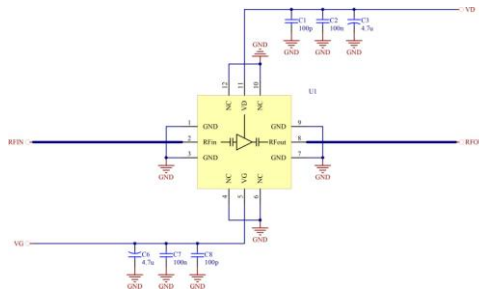
Output IP3 VS Frequency



Noise factor VS frequency



Typical Application Diagram



Working parameters

Operating temperature	-40°C~+85°C
Bias voltage VD	5V
Gate voltage VG	-0.6V
ESD-HBM	TBD

Absolute maximum rating

RF input power	TBD
Operating temperature	-40°C~+85°C
Storage temperature	-65°C~+150°C
Bias voltage VD	8V

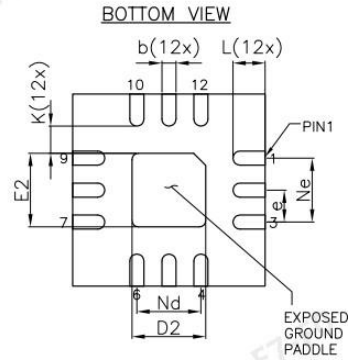
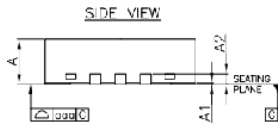
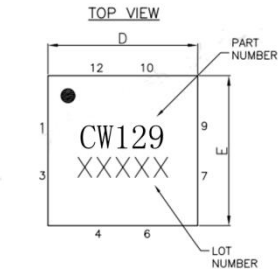
Package Information

Model	Packaging materials	Solder plate plating	MSL level [1]	Package identification [2]	Environmental requirements
CWA129SP3B	Green resin compounds	NiPdAu	MSL 3	CW129 XXXXX	RoHS compliant

[1] Maximum reflow temperature 260° C

[2] XXXXX is the lot number

Dimension

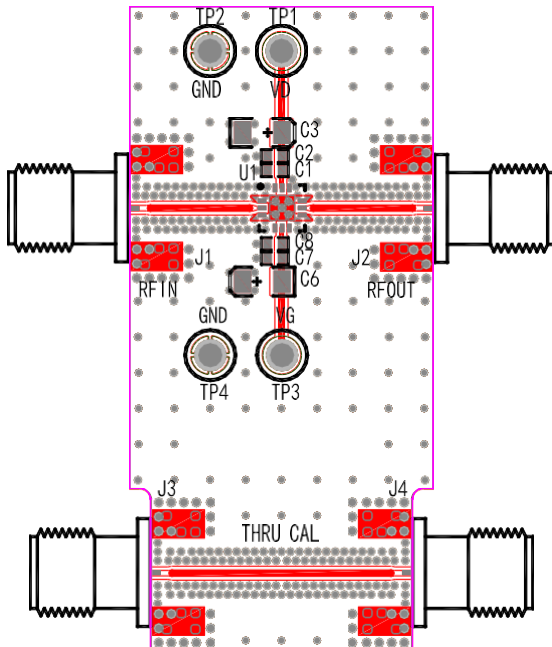
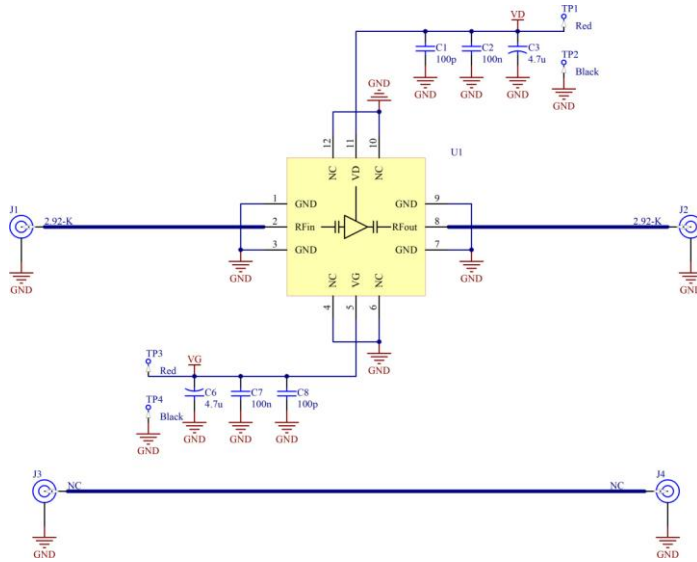


Symbol	MIN	NOM	MAX
A	0.70	0.75	0.80
A1	0.00	0.02	0.05
A2	0.20Ref		
b	0.17	0.22	0.27
D	2.90	3.00	3.10
D2	1.05	1.15	1.25
e	0.50BSC		
Ne	1.00BSC		
Nd	1.00BSC		
E	2.90	3.00	3.10
E2	1.05	1.15	1.25
K	0.20	---	---
L	0.40	0.50	0.60
aaa	0.08		

Pin Definition

Pin Number	Function Symbols	Function Description
1; 3; 7; 9	GND	RF ground, package Exposed Paddle also for RF & DC RF ground
2	RFIN	RF input with isolation capacitor
5	VG	Power port, external 100pF and 0.01uF capacitors
8	RFOUT	RF output with isolation capacitor
11	VD	Power port, external 100pF and 0.01uF capacitors
4;6;10;12	NC	No internal connection

Evaluation Boards



Designator	Description
C1, C8	Multilayer Ceramic Capacitor 0402 100pF
C2, C7	Multilayer Ceramic Capacitor 0402 100nF
C3, C6	Tantalum capacitor 1206 4.7uF
J1, J2	2.92-K PCB Connectors
TP1, TP2, TP3, TP4	DC test terminal
U1	CWA129SP3B
<p>J1, J2 recommended to use Nanjing Aowen D360B12E01-023 type 2.92-K connector</p> <p>NC indicates that the port is not used or the device is not soldered. Chip NC The port is externally connectable to GND.</p>	

CWA Amplifier Series