

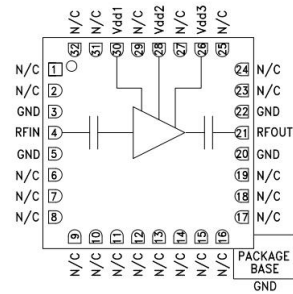
Performance Characteristics

- Wide bandwidth: 6GHz~18GHz
- Low noise: 1.5dB typical
- Small signal gain: 18.8dB
- Output P1dB: 15dBm
- Output IP3: 28dBm
- Package size: 5×5mm

typical application

- point-to-point communication
- point-to-multipoint communication
- Instrumentation

Functional Diagram



summarize

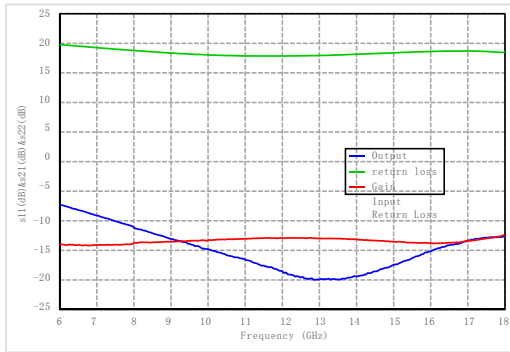
The CW516SP5 is a 6GHz to 18GHz low noise broadband amplifier fabricated in GaAs process. The amplifier is self-biased with 50Ω matched loads at the input and output. The device can be used as a mixer's local oscillator driver.

Electrical performance table (T_A = +25°C)

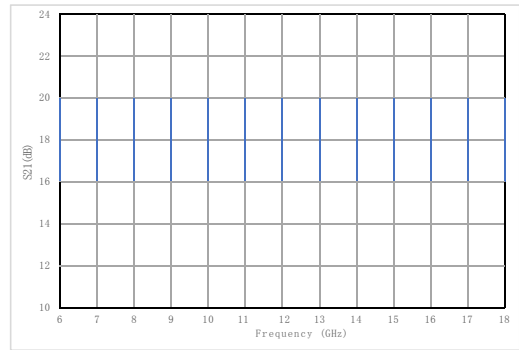
Parameter name	description	minimum value	typical value	maximum values	unit (of measure)
operating frequency		6~18			GHz
gain (electronics)			18.8		dB
Gain Flatness			±1		dB
Input Return Loss			<-12		dB
Output Return Loss			<-8		dB
Output power 1dB compression point			15		dBm
saturation power			17		dBm
Output IP3			28		dBm
coefficient of noise			1.5		dB
Operating Current			70		mA
operating voltage	VDD1, VDD2		3.5		V

test curve

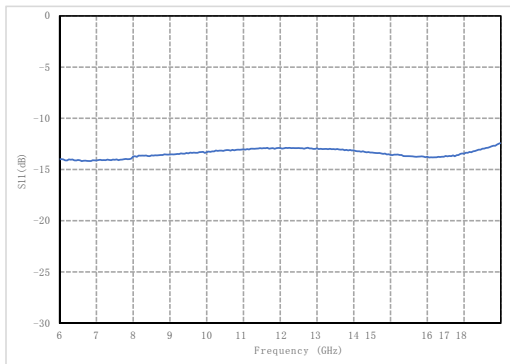
Gain and return loss



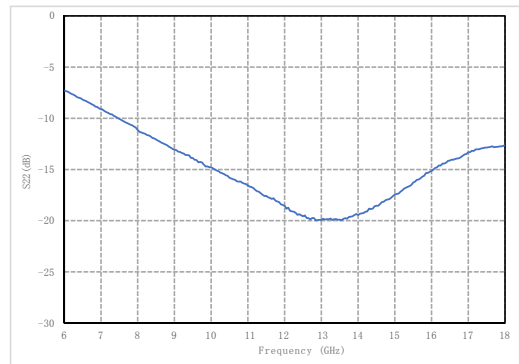
gain (electronics)



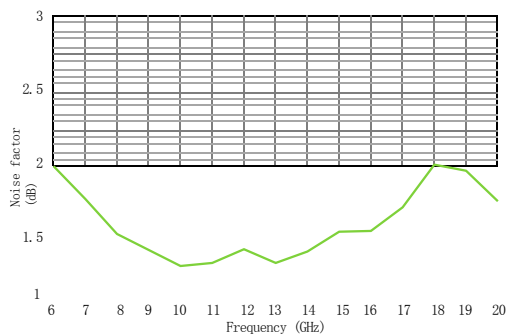
Input Return Loss



Output Return Loss



Noise figure vs. frequency



Operating parameters

operating temperature	-55°C~+85°C
Bias Voltage VDD1, VDD2	3.5V

Absolute maximum rating

Storage temperature	-65°C~+150°C
Bias Voltage VDD1, VDD2	4.5V
ESD-HBM	TBD

caveat

1. Attempts to clean the chip surface with wet chemical methods are prohibited.
2. This product is a static sensitive device, storage and use of attention to anti-static.
3. Store in a dry, nitrogen atmosphere.

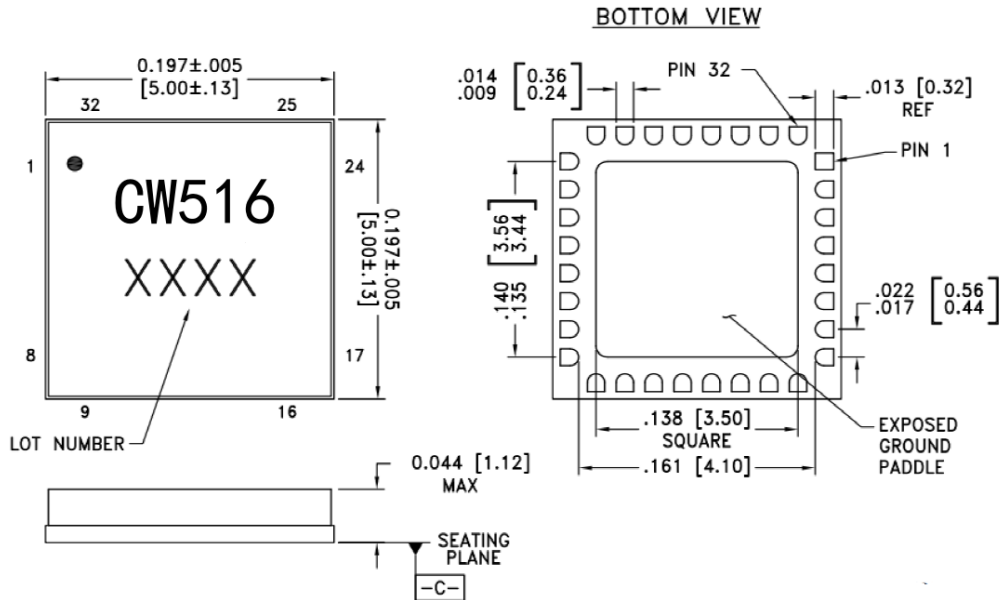


Pin Definitions

Bonding Pressure Point Definition

NO.	Functional Symbol	Functional Description	SIZE
1	RFIN	RF Input Port with Isolation Capacitors	100um X 150um
2	RFOUT	RF Output Port with Isolation Capacitor	100um x 150um
3	VD2	Power Port 2, External 100pF & 0.1uF Capacitors	100um X 100um
4	VD1	Power port 1, external 100pF & 0.01uF capacitors	100um X 100um

Outline Drawing



PIN Description

Pin Number	Function	Description	Interface Schematic
1, 2, 6 - 19, 23 - 25, 27, 29, 31, 32	N/C	This pin may be connected to RF/DC ground. Performance will not be affected.	
4	RFIN	This pin is AC coupled and matched to 50 Ohms.	RFIN
30, 28, 26	Vdd1, 2, 3	Power Supply Voltage for the amplifier. External bypass capacitors of 100 pF and 2.2 μF are required.	
21	RFOUT	This pin is AC coupled and matched to 50 Ohms.	
3, 5, 20, 22	GND	These pins and package bottom must be connected to RF/DC ground.	