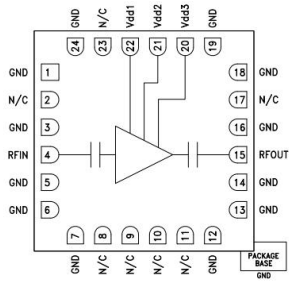
Performance Characteristics

- Wide bandwidth: 16GHz~28GHz
- Low noise: 2.1dB typical
- Small signal gain: 26dB
- Output P1dB: 14dBm
- Output IP3: 25.5dBm
- Package size:4×4mm

typical application

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

functional block diagram



summarize

The CW751SP4 is a 16 GHz to 28 GHz low noise broadband amplifier fabricated on 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 (TA=+25°C, VD=3V, ID=80mA)

Parameter name	descriptive	minimum value	typical value	maximum values	minimum value	typical value	maximum values	unit (of measure)
operating frequency	Ferq	16~22			22~28			GHz
gain (electronics)	S21		25.5			26.5		dB
Input Return Loss	S11		11			13		dB
Output Return Loss	S22		15			15		dB
inverse squareness	S12		40			40		dB
Output power 1dB compression point	P1dB		13.5			14.5		dBm
Output IP3	Pout=3dBm/tone, Δf=1 MHz		24.5			25		dBm
saturation power	P3dB		15			16.5		dBm
coefficient of noise	NF		2.2			1.7		dB
Operating Current	ID	80						mA
operating voltage	VD	3						V

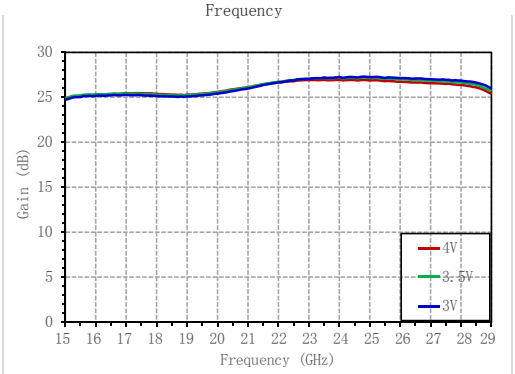
Electrical performance table (TA=+25°C, VD=4V, ID=87mA)

Parameter name	descriptive				minimum value	typical value	maximum values	unit (of measure)
operating frequency	Ferq	16~22			22~28			GHz
gain (electronics)	S21		25.5			26.5		dB
Input Return Loss	S11		11			13		dB
Output Return Loss	S22		15			15		dB
inverse squareness	S12		40			40		dB
Output power 1dB compression point	P1dB		14			15.5		dBm
Output IP3	Pout=3dBm/tone, Δf=1 MHz		25.5			26		dBm
saturation power	P3dB		16.5			17.5		dBm
coefficient of noise	NF		2.3			1.8		dB
Operating Current	ID	87						mA
operating voltage	VD	4						V

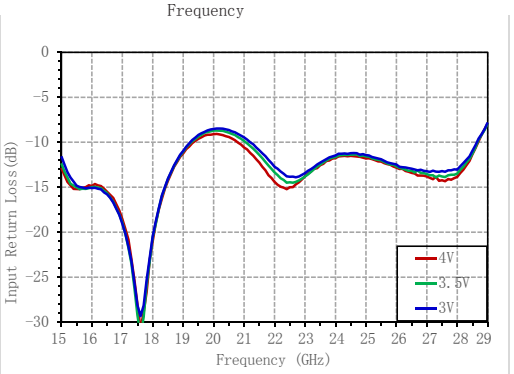
Chengdu Cuiwei Electronic Co.,LTD
Address: No. 5, Gaopeng East Road, Gaoxin District, Chengdu, China
E-mail:sales@cdcwtec.com
Website: www.cdcwtec.com

test curve

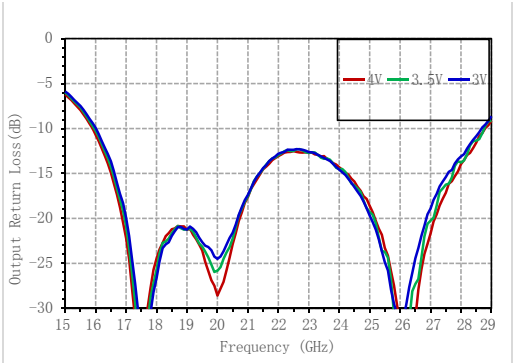
Gain VS Frequency



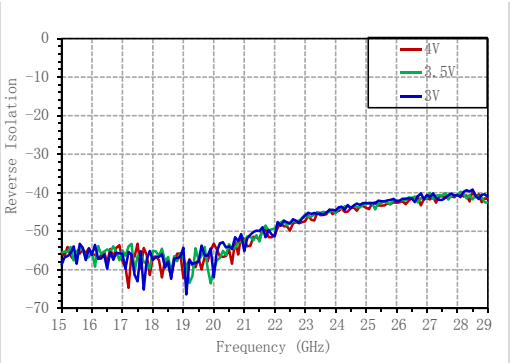
Input Return Loss VS Frequency



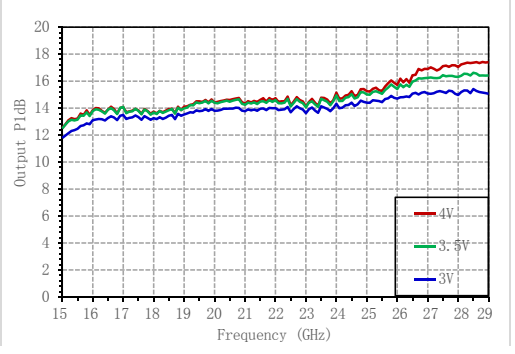
Output Return Loss VS Frequency



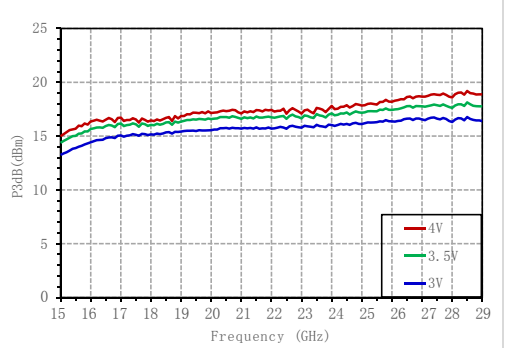
Reverse Isolation VS Frequency



P1dB VS Frequency



P3dB VS Frequency



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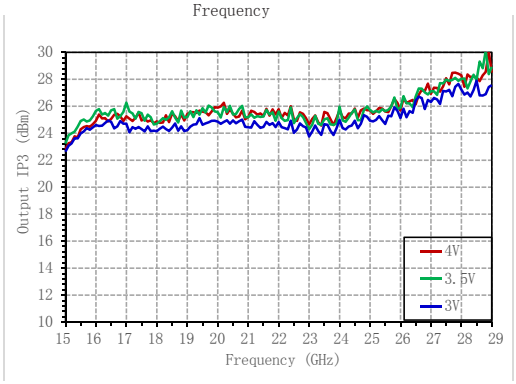
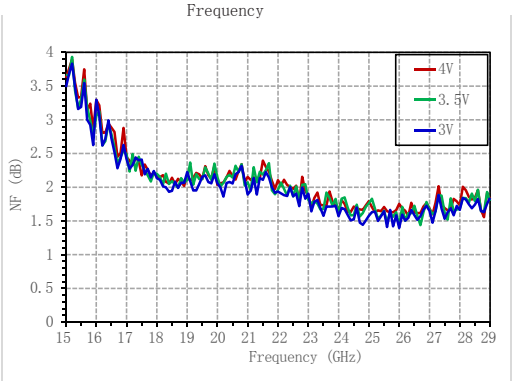
test curve

Output IP3 VS Frequency



Noise Figure VS Frequency



Operating parameters

operating temperature	-40℃～+85℃
Bias Voltage VD	3V/4V

Absolute maximum rating

input power	TBD
Storage temperature	-65℃～+150℃
Bias Voltage VD	4.5V
ESD-HBM	500V

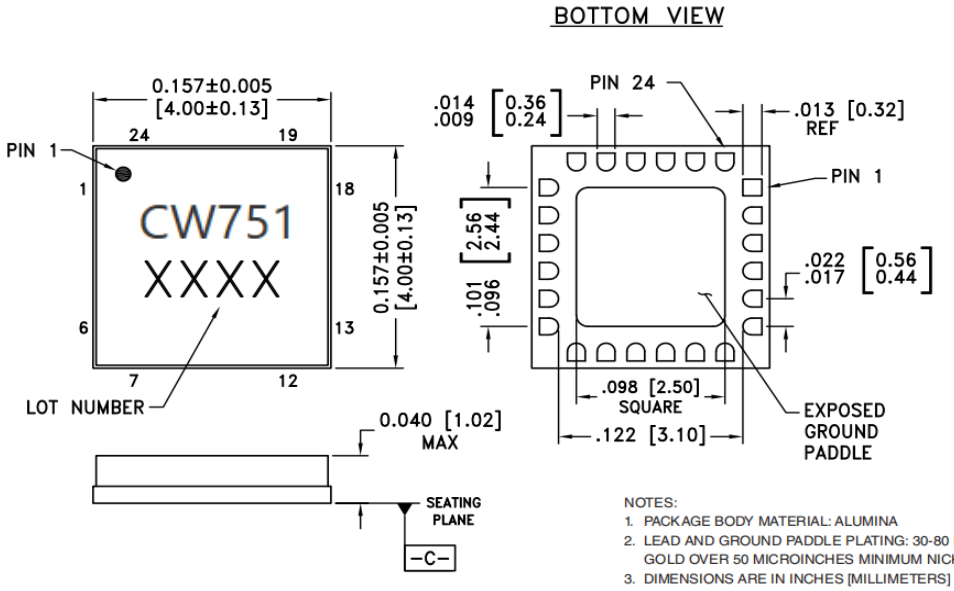
caveat

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 anti-static.
3. Dry environment storage.

PinDefinition

Pin Number	Function	Description	Interface Schematic
1, 3, 5 - 7, 12 - 14, 16, 18, 19, 24	GND	These pins and package bottom must be connected to RF/DC ground.	GND
2, 8 - 11, 17, 23	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
15	RFOUT	This pin is AC coupled and matched to 50 Ohms.	RFOUT
22, 21, 20	Vdd1, 2, 3	Power Supply Voltage for the amplifier. External bypass capacitors of 100 pF, 1,000 pF and 2.2 µF are required.	Vdd1,2,3

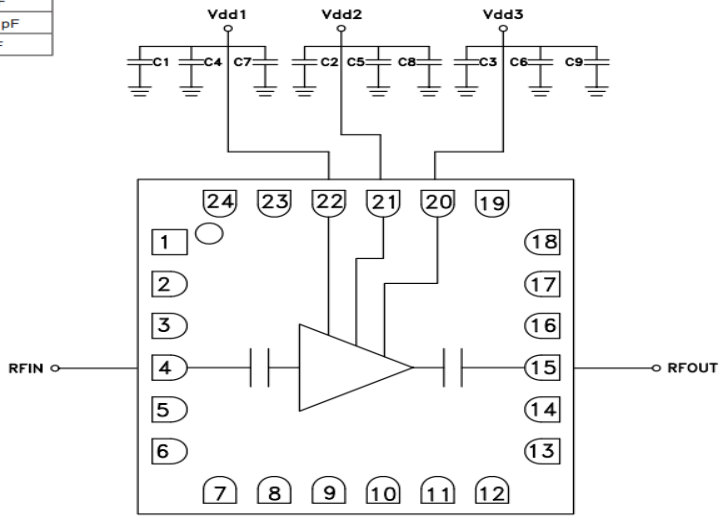
Outline Drawing



NOTES:
1. PACKAGE BODY MATERIAL: ALUMINA
2. LEAD AND GROUND PADDLE PLATING: 30-80 MICROINCHES GOLD OVER 50 MICROINCHES MINIMUM NICKEL
3. DIMENSIONS ARE IN INCHES [MILLIMETERS]
4. LEAD SPACING TOLERANCE IS NON-CUMULATIVE
5. PACKAGE WARP SHALL NOT EXCEED 0.05mm DATUM
6. ALL GROUND LEADS AND GROUND PADDLE MUST BE SOLDERED TO PCB RF GROUND

Application Circuit

Component	Value
C1, C2, C3	100 pF
C4, C5, C6	1,000 pF
C7, C8, C9	2.2 µF



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