CWA2232

22-32 GHz Low Noise Amplifier

data sheet

Products

The CWA2232 is a K- and Ka-band low-noise amplifier with a frequency range of 22 GHz to 32 GHz, a small-signal gain of 25 dB typical and a noise figure of 1.5 dB typical. +5V single supply.

Key technical indicators

- Frequency range: 22GHz~32GHz
- Small signal gain: 25dB
- Noise factor: 1.5dB
- P1dB: 3dBm
- DC power supply: Vd=5V@Id=15mA
- Chip size: 1.50 mm×0.65 mm×0.07 mm

Application Areas

- correspond (by letter etc)

RoHS Compliant

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

Use of limiting parameters

Positive drain voltage	8V
input power	15dBm
Storage temperature	-65℃~150℃
operating temperature	-55℃~85℃

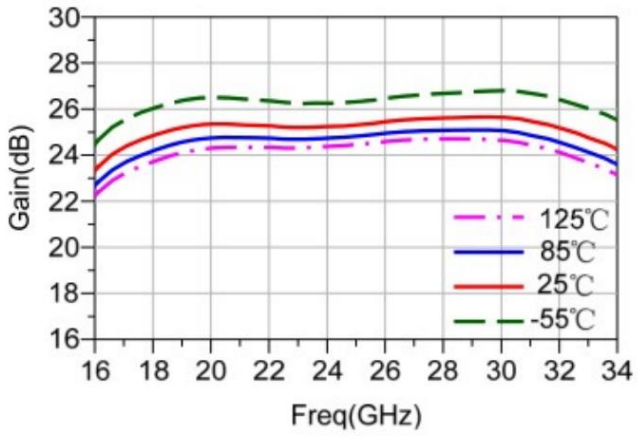
Electrical performance table (Vd=5V, TA=+25° C)

Parameter name	minimum value	typical value	maximum values	unit (of measure)
frequency range	22		32	GHz
Small Signal Gain		25		dB
Gain Flatness		±0.3		dB
coefficient of noise		1.5		dB
P1dB		3		dBm
Input VSW		2.0		-
output standing wave		2.0		-
quiescent current		15		mA

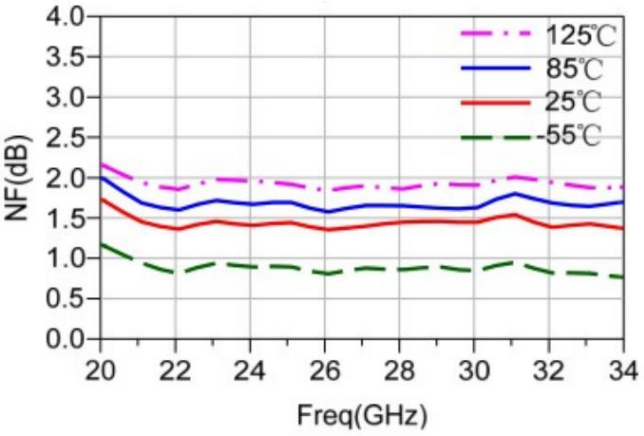
Chengdu Cuiwei Electronic Co.,LTD
Address: No. 5, Gaopeng East Road, Gaoxin District, Chengdu, China
E-mail:sales@cdcwtec.com
Website: www.cdcwtec.com

Test curve (T_A = +25° C) Vd=5V, Id=15mA

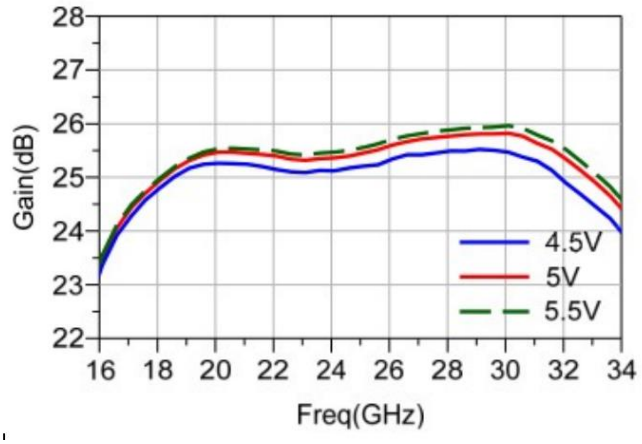
Small Signal Gain VS Frequency



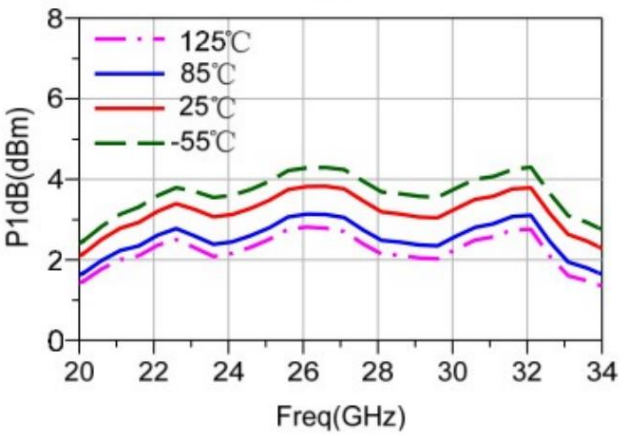
Noise Figure VS Frequency



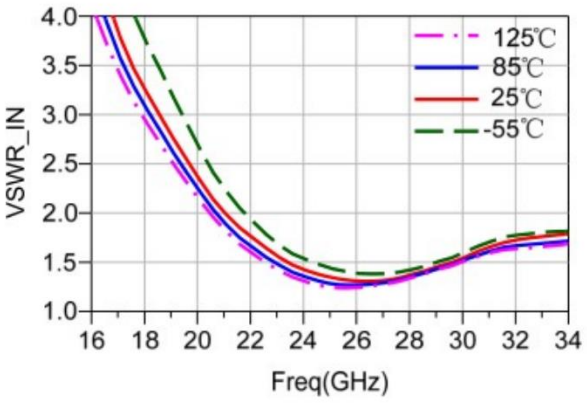
Small Signal Gain VS Voltage



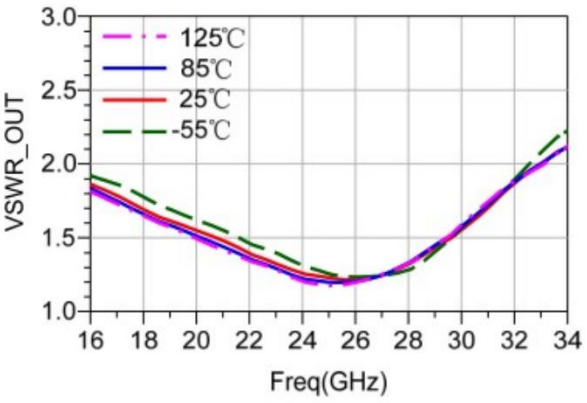
P1dB VS Frequency



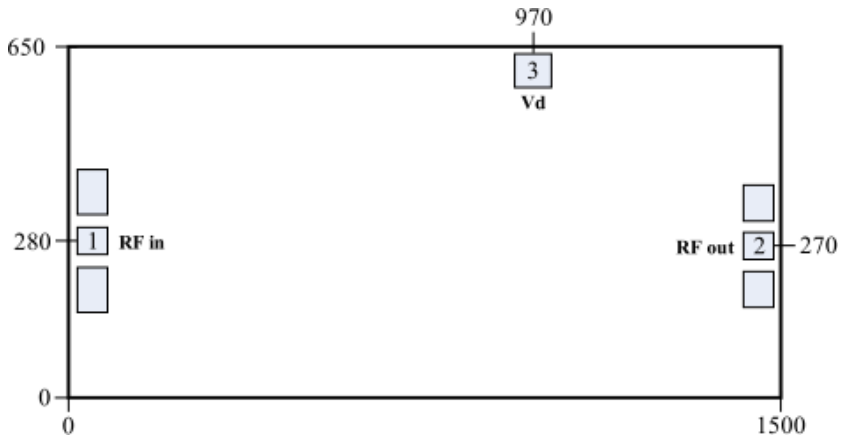
Input VSWD VS Frequency



Output VSWD VS Frequency



Overall dimensions



Note: 1) All labeled dimensions are in microns (μm);

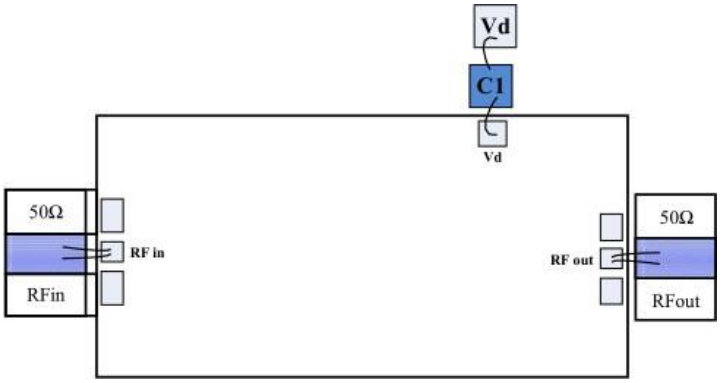
2) Tolerance of profile length and width dimensions: ±50μm;

3) Chip thickness 70μm.

Bonding Pressure Point Definition

serial number	notation	Functional Description	Size $(\mu m)^2$
1	RFin	RF Signal Input, External 50 Ohm System, No Isolation Capacitors Required	80 x 80
2	RFout	RF Signal Output, External 50 Ohm System, No Isolation Capacitors Required	80 x 80
3	Vd	Drain voltage feedthrough, external 100pF bypass capacitor required	100 x 100

Suggested assembly drawings



Note: The peripheral capacitor C1 has a capacitance of 100 pF. It is recommended to use a single layer capacitor and to be as close as possible to the chip bonding voltage point.

caveat

1) Storage: The chip must be placed in a static-proof container and stored under nitrogen.

2) Cleaning treatment: Bare chips must be operated and used in a purified environment, and it is prohibited to use liquid cleaners to clean the chips.

3) Static electricity protection: Please strictly observe the ESD protection requirements to avoid static electricity damage.

4) Routine operation: Use a vacuum chuck or precision pointed tweezers to pick up the chip. Avoid touching the chip surface with tools or fingers during operation.

5) Charging order: when charging, first add the gate voltage, then add the leakage voltage; when de-charging, first remove the leakage voltage, then remove the gate voltage.

6) Racking operation: chip mounting can use AuSn solder eutectic sintering or conductive adhesive bonding process, the mounting surface must be clean and flat, the chip and the input/output RF connecting line substrate gap as small as possible.

- Sintering process: 80/20 AuSn sintering, the sintering temperature should not exceed 300℃, the sintering time should be as short as possible, not more than 20 seconds, and the friction time should not exceed 3 seconds.

- Bonding process: conductive adhesive bonding as little as possible, curing conditions refer to the information provided by the conductive adhesive manufacturers.

7) Keying operation:

- Unless otherwise specified, use 2 bonding wires (25μm diameter gold wire) for the RF input and output, keeping the bonding wires as short as possible.
- Thermosonic bonding at 150° C, using the lowest possible ultrasonic energy.

  Spherical bonding cleaver pressure 40-50 gf, wedge bonding cleaver

  pressure 18-22 gf.

8) Please contact the supplier with questions.

define

Limit value definition

Limit values are given according to the Absolute Maximum Rating System (IEC 60134). Pressure above one or more of the limit values can cause permanent damage to the product. These are pressure ratings and there is no warranty for operating the device at these ratings or any other conditions above the specified ratings. Prolonged operation at the limit values may affect the reliability of the product.

Usage

The methods of use of the products described herein are for illustrative purposes only. CuiWei makes no representation or warranty that these methods of use will be suitable for a particular purpose without further testing or modification.

statement denying or limiting responsibility

Life support applications

These products are not designed for life-support applications, devices, or systems; therefore, failure of these products could result in personal injury.

If CuiWei's customers use or sell these products in life support applications, they do so at their own risk and agree to fully indemnify CuiWei for any damages caused by such applications.

Modify permissions

CuiWei Corporation reserves the right to make modifications to the products without notice, including design or performance modifications to the circuitry, standard units, or software. Unless otherwise indicated, CuiWei assumes no responsibility or liability for the use of these products, does not assign any license or right under any patent, copyright, or infringement, and makes no representation or warranty that these products are free from patent, copyright, or infringement.

Procurement information

serial number	seal inside	releases	categorization	descriptive
CWA2232	bare chip	C1	MMIC	22 - 32 GHz Low Noise Amplifiers