

Performance characteristics

- RF/LO band: 18GHz ~ 32GHz
- IF band: DC-8GHz
- Frequency conversion loss: 8dB
- RF-IF Isolation: 17dB
- LO-IF isolation: 48dB
- LO-RF isolation: 45dB
- Local oscillator power: 13dBm
- Package size: 3 × 3mm, 12L

Typical application

- Base station communi
- Wireless infrastruct
- Automotive electroni
- Instruments and mete

FUNCTIONAL BLOCK DIAGRAM

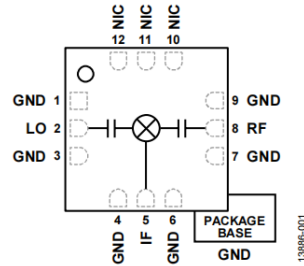


Figure 1.

Overview

CW292SP3 is a GaAs MMIC passive double balanced mixer, with RF/LO f covering 18-32GHz and IF frequency covering DC-8GHz respectively, conversion loss less than 8.5 dB, RF-IF isolation greater than 13dB, LO-IF isolation greater than 40dB, LO-RF isolation greater than 43dB, and typical LO input power of 13dBm.

Electrical performance table (TA=+25 °C, IF=0.1GHz, LO=13dBm)

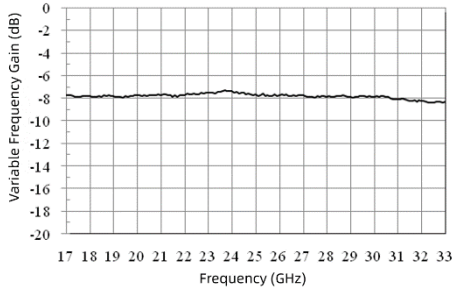
Indicators	Minimum value	Typical value	Maximum value	Unit
Radio frequency	18-32			GHz
Local oscillator frequency	18-32			GHz
Intermediate frequency	DC-8			GHz
Frequency conversion loss	7.5	8	8.5	dB
RF-IF isolation	13	17	24	dB
LO-IF isolation	40	48	55	dB
LO-RF isolation	43	45	48	dB
P1dB (input)	11	12	13	dBm

Use parameters (exceeding any of the above maximum limits may cause permanent damage)

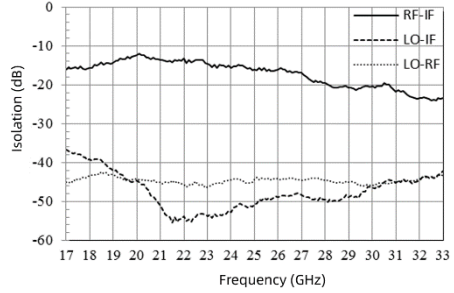
RF/IF power	24dBm
Local oscillator power	24dBm
Storage temperature	-65 °C-150 °C
Operating temperature	-55 °C-125 °C

Test curve

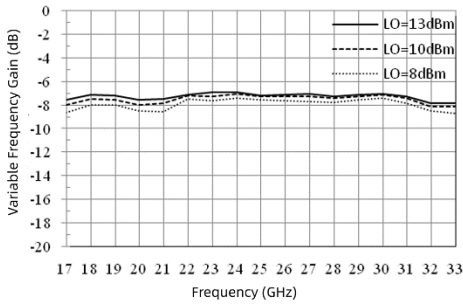
Frequency conversion loss curve @ LO=13dBm, IF frequency 0.1 GHz



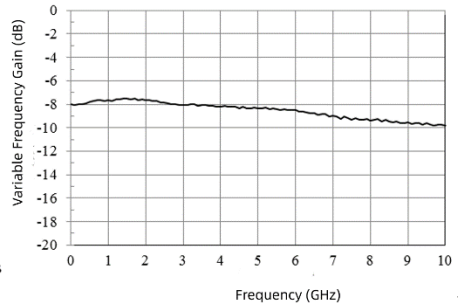
Isolation @ LO=13dBm, IF 0.1 GHz



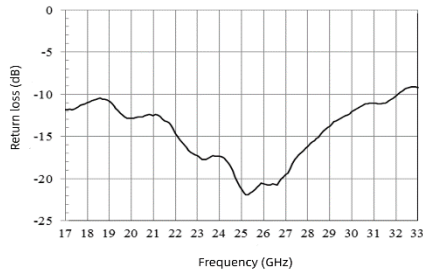
Frequency conversion loss curve @ IF frequency 0.1 GHz



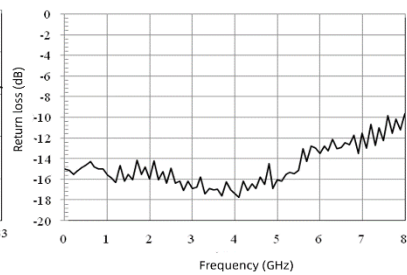
IF bandwidth @ LO=26GHz, LO=13dBm



RF return loss

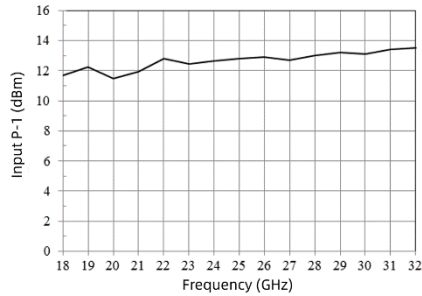


IF return loss

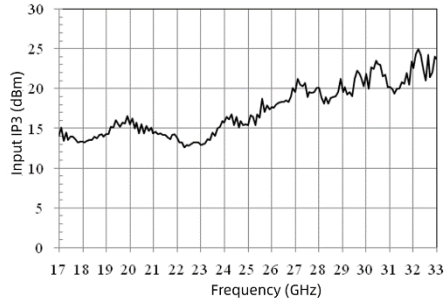


Test curve

Enter P-1 @ LO=13dBm



Enter IP3 @ LO=13dBm



Absolute maximum rating

RF input power	25dBm
LO input power	25dBm
Storage temperature	-65°C~+150°C
ESD (HBM)	TBD

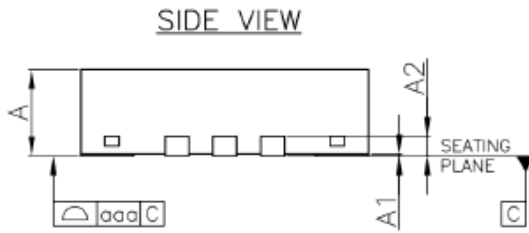
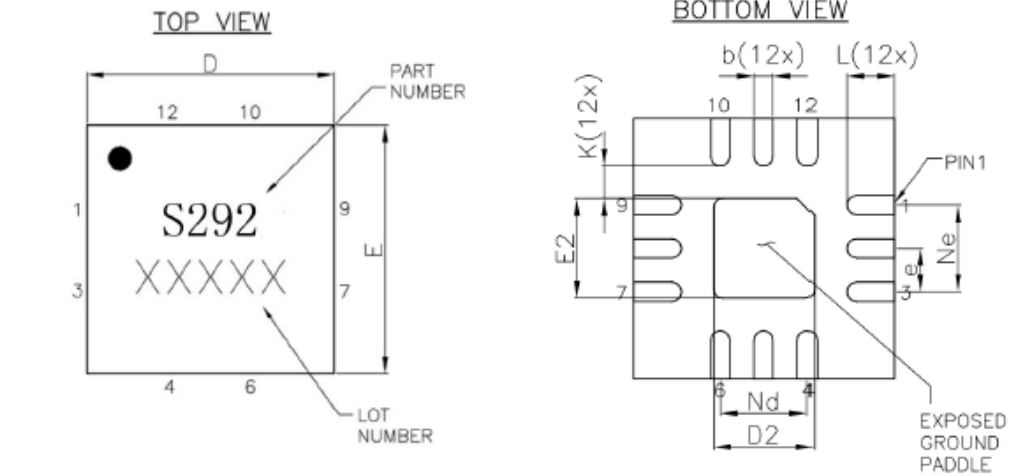
Encapsulation information

Model	Sealing material	Pad coating	MSL Rank [1]	Package ID [2]	Environmental protection requirements
CW292SP3	Green resin compound	Sn	MSL 3	S292 XXXXX	RoHS compliant

[1] Maximum reflow soldering temperature 260 °C

[2] XXXXX is the batch number

Overall dimensions



Description:

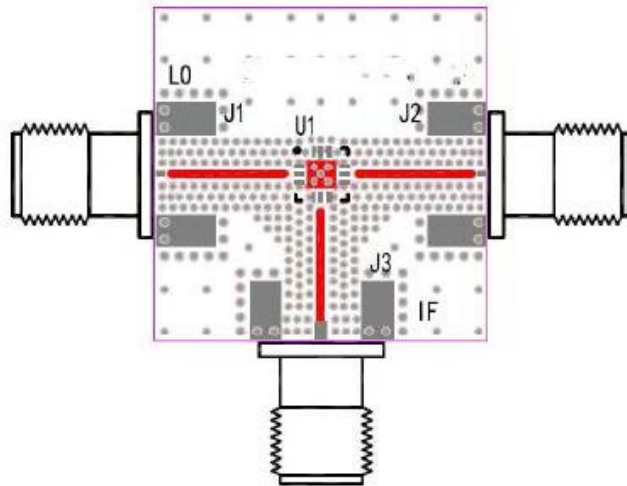
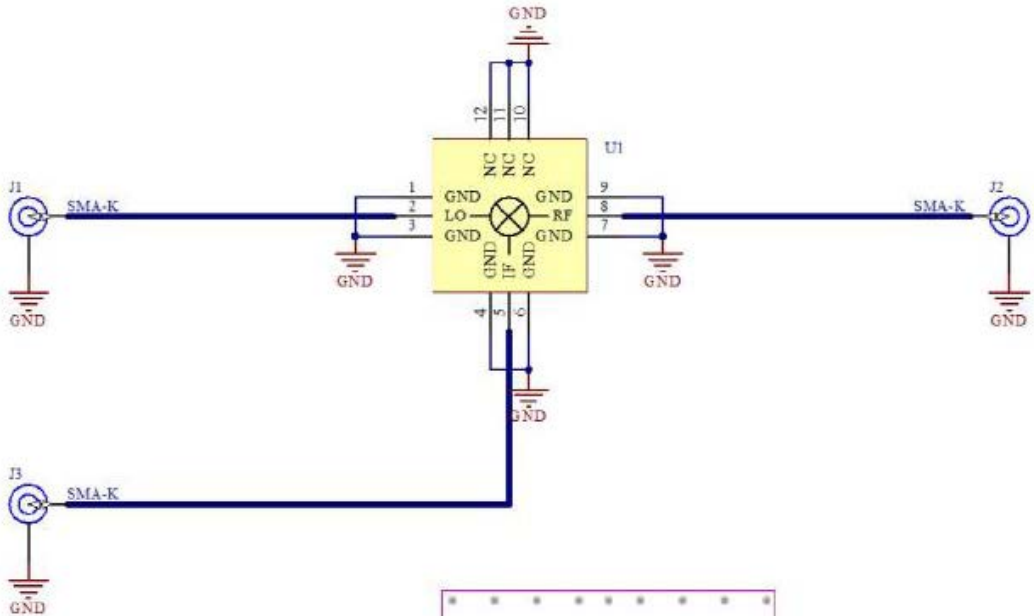
1. Unit: mm
2. Lead frame material: Copper alloy
3. Package surface warpage: ≤ 0.05 mm
4. Connect all ground pins to PCB RF ground

Dimension Table (unit:mm)			
Symbol	MIN	NOM	MAX
A	0.80	0.85	0.90
A1	0.00	0.02	0.05
A2	0.20Ref		
b	0.18	0.25	0.30
D	2.90	3.00	3.10
D2	1.00	1.10	1.20
e	0.50BSC		
Ne	1.00BSC		
Nd	1.00BSC		
E	2.90	3.00	3.10
E2	1.00	1.10	1.20
K	0.20	---	---
L	0.45	0.55	0.65
aaa	0.08		

Pin definition

Pin number	Functional symbol	Functional description	Pin number	Functional symbol	Functional description
1	GND	RF	7	GND	RF
2	LO	Local oscillator input	8	RF	RF Input
3	GND	RF	9	GND	RF
4	GND	RF	10	NC	Vacancy
5	IF	IF output	11	NC	Vacancy
6	GND	RF	12	NC	Vacancy

Evaluation board



Circuit board material: Rogers 4350B

The circuit board used in the device shall be designed according to the design method of RF circuit, the signal line shall be designed according to the impedance of 50 ohm, and the grounding pin of the package housing shall be grounded nearby (similar to the figure), and there shall be enough grounding holes connecting the top layer and the bottom layer.

Designator	Description
J1, J2, J3	SMA-K Joint Nanjing AowenD550B12E01-048
U1	CW292SP3
Nanjing Aowen D550B12E01-048 SMA joint is recommended for J1, J2 and J3	