

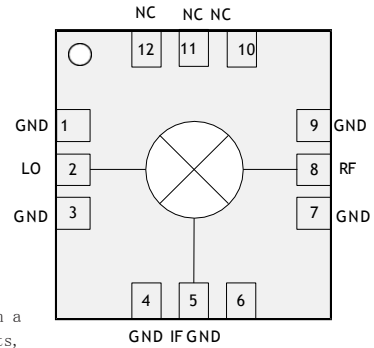
Performance Characteristics

- Conversion loss: 9dB
- LO to RF isolation: 40dB
- LO to IF isolation: 26dB
- Passive, no DC bias required
- Wide IF bandwidth: DC~6GHz
- Package size: 3mm*3mm*0.85mm

typical application

- point-to-point communication
- Instrumentation
- transducers

functional block diagram



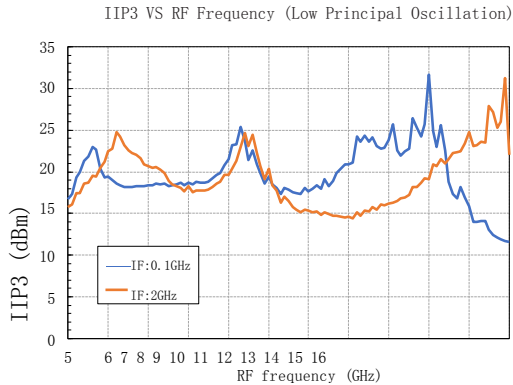
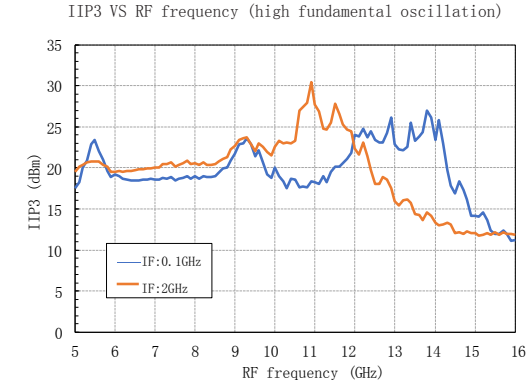
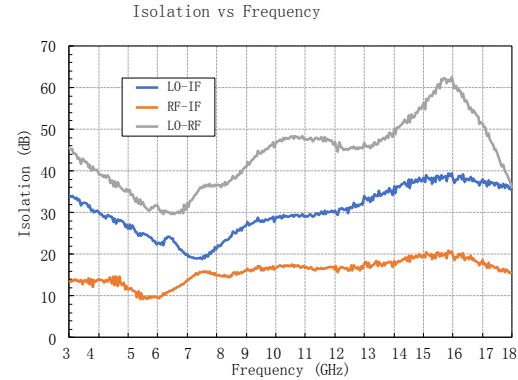
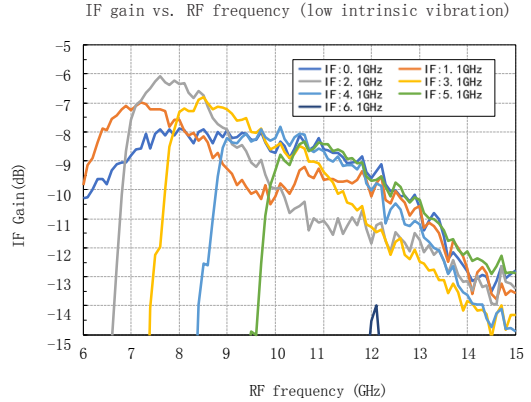
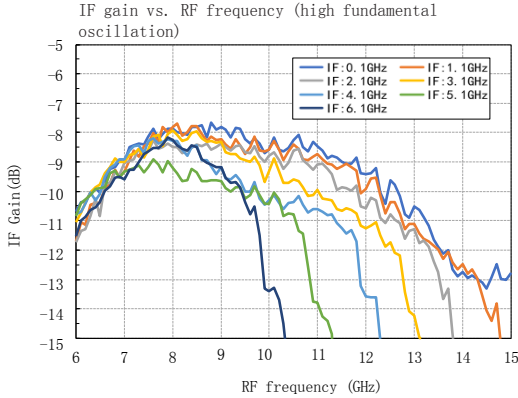
summarize

The CWM088SP3B is a general-purpose, double-balanced mixer fabricated on a GaAs process. The device is passive and requires no bias, external components, or matching circuitry. It can be used as an upconverter or downconverter from 6 GHz to 15 GHz.

Electrical Performance Table (TA= +25°C, IF=400MHz, LO=+16dBm)

Parameter name	descriptive	minimum value	typical value	maximum values	minimum value	typical value	maximum values	unit (of measure)
RF frequency	RF, LO Port	6~12			12~15			GHz
midrange frequency	IF port	DC~6			DC~5			GHz
Conversion loss			9	11		11.5	13	dB
coefficient of noise	SSB		9	11		11.5	13	dB
degree of isolation	LO to RF port	30	40		45	50		dB
	LO to IF port	18	26		28	32		dB
	RF to IF port	10	16		17	19		dB
Input 1dB compression point			12			15		dB
Input IP2			42			50		dBm
Input IP3			22			26		dBm

Test curve (LO=+16dBm)



MxN Spurious Output

MxRF	NxLO					
	0	1	2	3	4	5
0	N/A	-6.5	16.5	8.7	12.7	25.5
1	7.9	0	21.6	45.1	34.1	38.1
2	67.4	43.8	53.8	42	64	56.4
3	85.2	82.2	62.1	58.2	66.3	83.3
4	74.3	83.4	90.7	80	85.2	80.7

RF=8.1GHz@-10dBm
LO=8GHz@+15dBm

CWM

Mixer Series

Operating parameters

operating temperature	-40°C~+85°C
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Absolute maximum rating

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

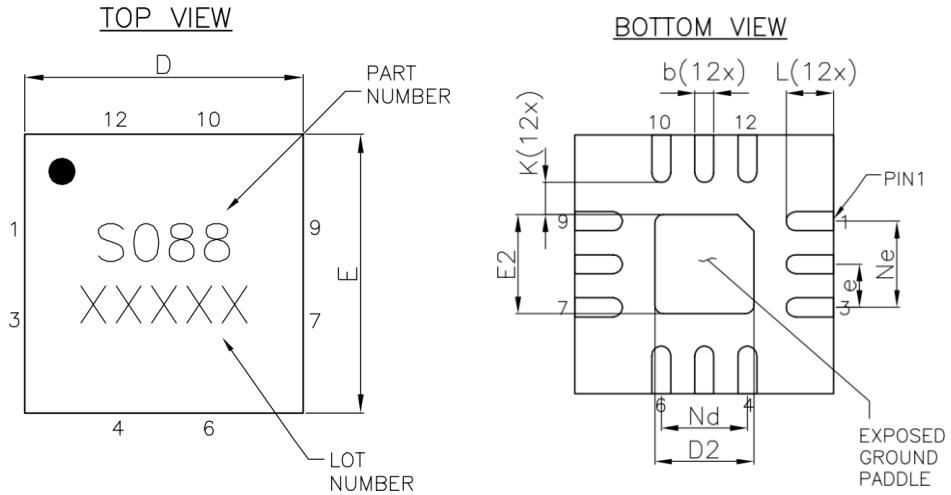
Package Information

model number	package material	Pad plating	MSL rating ⁽¹⁾	Package identification ⁽²⁾	environmental requirement
CWM088SP3B	Green resin compounds	Sn	MSL 3	S088 XXXXX	RoHS compliant

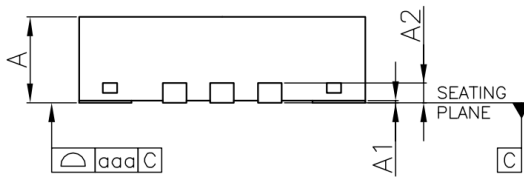
⁽¹⁾ Maximum reflow temperature 260° C

⁽²⁾ XXXXX is the lot number

Overall dimensions



SIDE VIEW



Description:

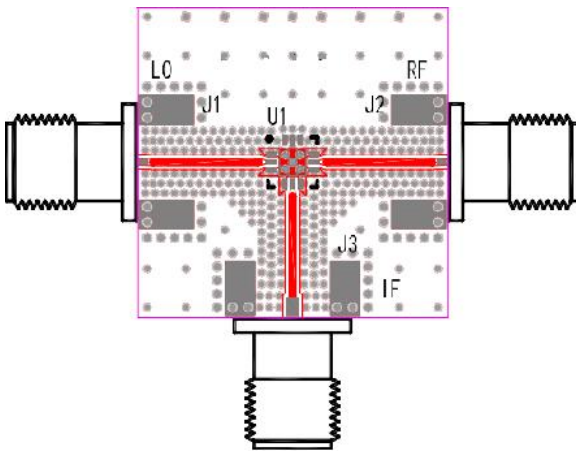
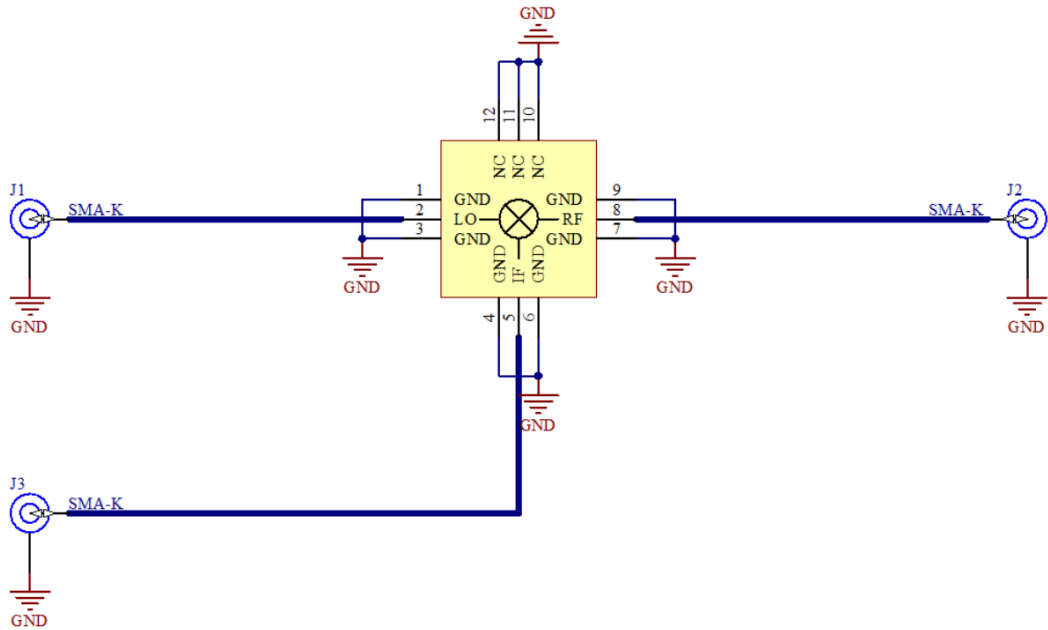
1. Unit: mm
2. Lead frame material: copper alloy
3. Package surface warpage: $\leq 0.05\text{mm}$
4. All ground pins should be connected to PCB RF ground.

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 Definitions

Pin Number	functional symbol	Functional Description	Pin Number	functional symbol	Functional Description
1	GND	radio-frequency zone	7	GND	radio-frequency zone
2	LO	Local Oscillator Input	8	RF	RF input
3	GND	radio-frequency zone	9	GND	radio-frequency zone
4	GND	radio-frequency zone	10	NC	let sth. lie idle
5	IF	IF output	11	NC	let sth. lie idle
6	GND	radio-frequency zone	12	NC	let sth. lie idle

evaluation board



Designator	Description
J1, J2, J3	SMA-K connector Nanjing Aowen D550B12E01-048
U1	CWM088SP3B
J1, J2, J3 recommended SMA connector NJOYMAN D550B12E01-048	

Circuit Board:Rogers4350B

The circuit board of the device application should be designed according to the design method of RF circuit, the signal line is designed according to 50 ohm impedance, and the ground pin of the package shell should be grounded nearby (similar to that in the figure), and there should be enough ground holes for connecting the top layer to the bottom layer grounding ground.