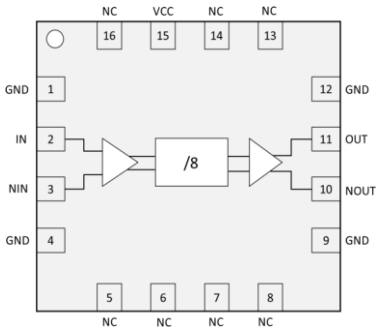
Performance Characteristics

- Operating frequency band: DC ~ 30GHz
- Low power consumption: 40mA
- Output power: -4.3dBm to 1.2dBm
- Low phase noise: -153 dBc/Hz@100kHz
- Package size: 16-pin QFN, 3mmx3mm

typical application

- point-to-point communication
- satellite communications
- test measurement
- Instrumentation

functional block diagram



summarize

Model CWD004SP3 fixed crossover covers 30 GHz input frequency. The CWD004SP3 fixed frequency divider covers 30GHz input frequency and can realize /8 fixed frequency divider ratio. It is characterized by low power consumption and low phase noise.

The CWD004SP3 Fixed Divider is available in a 16-pin, 3mmx3mm surface mount, leadless plastic package. The pin pads are NiPdAu coated.

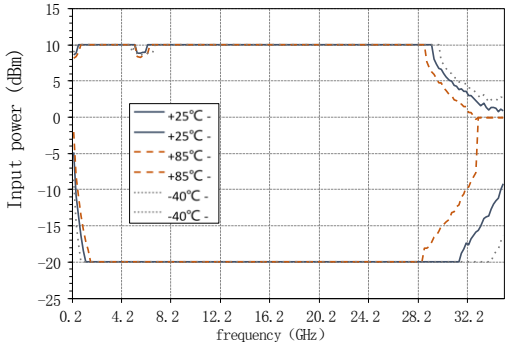
Electrical performance table (TA=+25°C, VCC=3.3V)

Parameter name		working conditions	minimum value	typical value	maximum values	unit (of measure)
input parameter	Maximum RF Input Frequency	Sine wave input	30			GHz
	Minimum RF Input Frequency	Sine wave input			0.5*	GHz
	RF Input Power Range	Input Frequency 0.5GHz~1GHz	-5		7	dBm
		Input Frequency 1GHz~29GHz	-15		7	dBm
		Input Frequency 29GHz~30GHz	-15		3	dBm
output parameter	output power		-4.3		1.2	dBm
	SSB Phase Noise@100kHz Offset	Fin = 12 GHz, Pin = 0 dBm		-153		dBc/Hz
Current (Icc)				40		mA

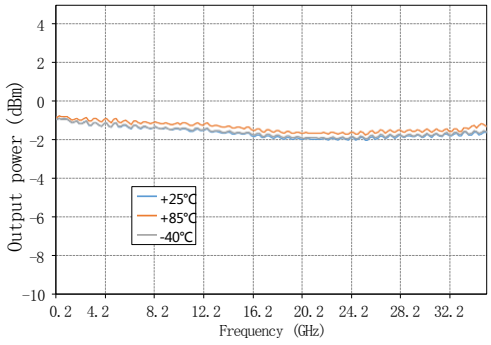
* This indicator is limited by the off-chip input and output capacitance. If the input is a square wave signal, the index can be up to DC

test curve

RFOUT Crossover Sensitivity vs Frequency

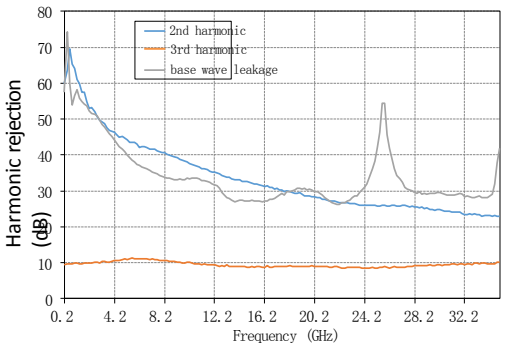


RFOUT Output Power VS Frequency @ Pin=0dBm



test curve

RFOUT harmonic suppression vs. input frequency



Limiting Operating Parameters

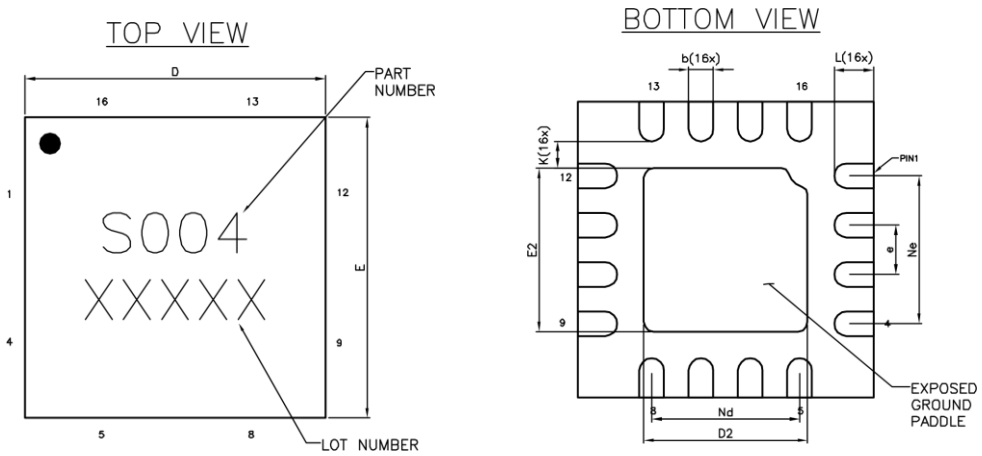
bias voltage (electronics)	3.6V
Storage temperature range	-65℃～+150℃
Operating Temperature Range	-40℃～+85℃
Electrostatic protection class (HBM)	Class 1B

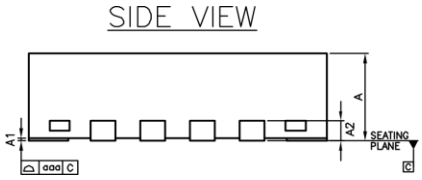
Package Information

model number	package material	Pad plating	MSL rating [1]	Package identification [2]	environmental requirement
CWD004SP3	Green resin compounds	NiPdAu	MSL 3	S004 XXXXX	RoHS compliant

[1] Maximum reflow temperature 260° C
[2] XXXXX is the lot number

Overall dimensions





Dimension Table (unit:mm)			
Symbol	MIN	NOM	MAX
A	0.80	0.90	1.00
A1	0.00	0.02	0.05
A2		0.203Ref	
b	0.18	0.25	0.30
D	2.90	3.00	3.10
D2	1.51	1.66	1.76
e		0.50BSC	
Ne		1.50BSC	
Nd		1.50BSC	
E	2.90	3.00	3.10
E2	1.51	1.66	1.76
K	0.20	---	---
L	0.30	0.40	0.50
aaa		0.08	

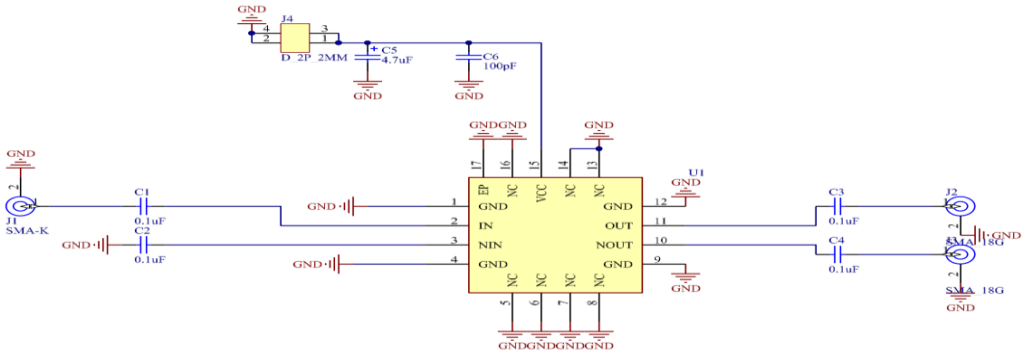
Description:

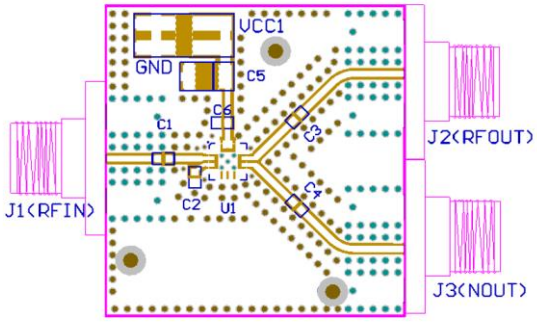
1. Unit: mm
2. Lead frame material: copper alloy
3. Lead spacing tolerances are non-cumulative
4. Shell surface warpage: not more than 0.05mm
5. All ground pins should be

Pin Definitions

Pin Number	functional symbol	Functional Description	Pin Number	functional symbol	Functional Description
1	GND	radio-frequency zone	9	GND	radio-frequency zone
2	IN	RF input	10	NOUT	RF output
3	NIN	RF input	11	OUT	RF output
4	GND	radio-frequency zone	12	GND	radio-frequency zone
5	NC	let sth. lie idle	13	NC	let sth. lie idle
6	NC	let sth. lie idle	14	NC	let sth. lie idle
7	NC	let sth. lie idle	15	VCC	DC Bias
8	NC	let sth. lie idle	16	NC	let sth. lie idle

evaluation board





Designator	Description
C1, C2, C3, C4	Multilayer Ceramic Capacitor 0402 0.1uF
C5	Tantalum Capacitor 1206 4.7uF
C6	Multilayer Ceramic Capacitor 0402 100pF
J1	2.92mm PCB connector
J2, J3	SMA PCB connectors
VCC1	2 mm DC Pin
U1	CWD004SP3
J1 Recommended to use NJ Aowen D360B12E01-023 type 2.92mm connector. 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, at the same time, the grounding pin of the package shell is close to the ground (similar to the figure), and there should be enough ground holes for connecting the top layer and the bottom layer grounding ground.