Performance Characteristics

- RF/LO band: 6GHz-18GHz
- IF band: DC-6GHz
- Frequency conversion loss: 7dB
- RF-IF isolation: 15dB
- LO-IF isolation: 45dB
- LO-RF isolation: 48dB
- Power: 20dBm
- Package size: 3×3mm, QFN, 12L

typical application

- base station communication
- wireless infrastructure
- automotive electronics
- Instrumentation

FUNCTIONAL BLOCK DIAGRAM

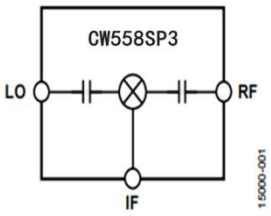


Figure 1.

summarize

The CW558SP3 is a GaAs MMIC passive double-balanced mixer with RF/IF frequency coverage of 6-18GHz and IF frequency coverage of DC-6GHz respectively, with frequency conversion loss less than 8dB, RF to IF isolation greater than 11dB, IF to IF isolation greater than 41dB, IF to RF isolation greater than 45dB, and typical IF input power of Typical input power is 20dBm.

Electrical Performance Table (TA=+25℃ , IF=0.1GHz, LO=20dBm)

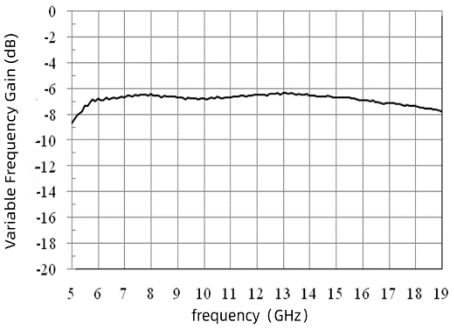
norm	minimum value	typical value	maximum values	unit (of measure)
RF frequency	6-18			GHz
fundamental frequency	6-18			GHz
midrange frequency	DC-6			GHz
Frequency conversion loss	6.5	7	8	dB
RF-IF Isolation	11	15	22	dB
LO-IF Isolation	41	45	51	dB
LO-RF Isolation	45	48	50	dB
P1dB(input)	11	12	13	dBm

Usage parameters (Exceeding any of these maximum limits may result in permanent damage.)

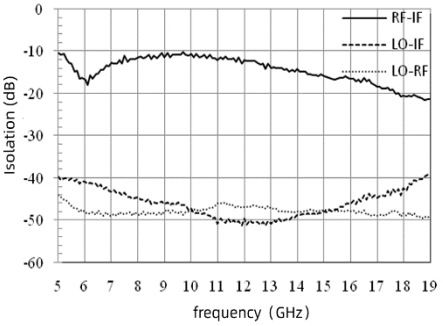
RF/IF Power	20 dBm
fundamental oscillation power (of a machine)	27 dBm
Storage temperature	-65℃~150℃
operating temperature	-55℃~125℃

test curve

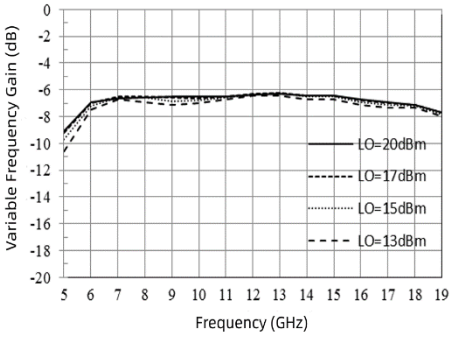
Frequency conversion loss curve @LO=20dBm, IF frequency 0.1GHz



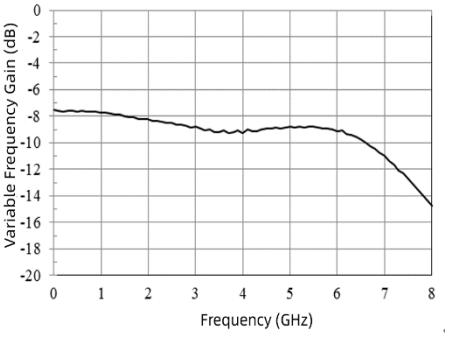
Isolation @LO=20dBm, IF frequency 0.1GHz



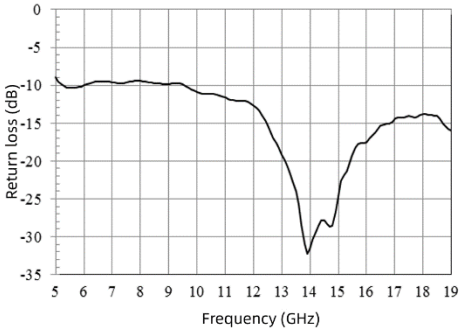
Frequency conversion loss @ IF frequency 0.1GHz



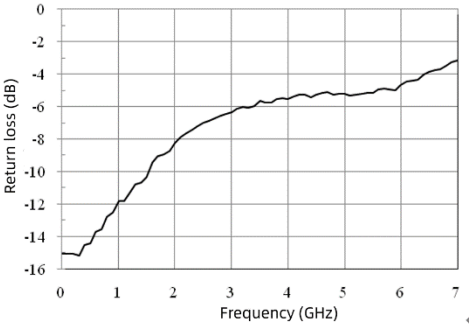
IF bandwidth @LO=18GHz,LO=20dBm



RF return loss

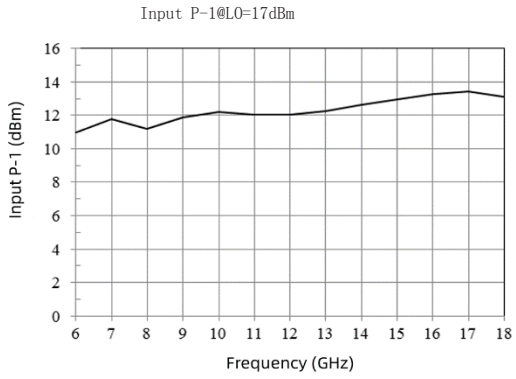


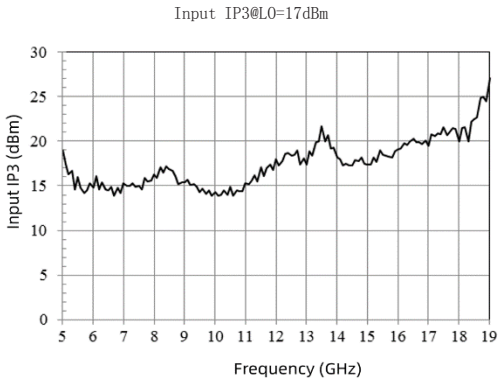
IF return loss



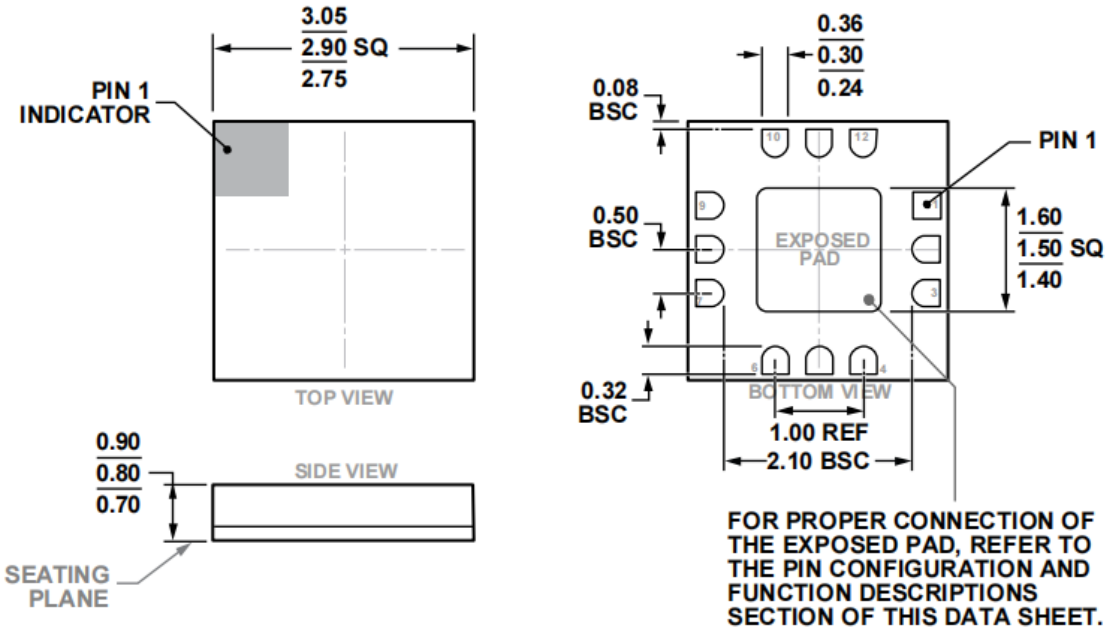
Chengdu CuiWei Electronic Technology Co. E-mail:sales@cdcwtec.com
Address: No. 5, Gaopeng East Road, Gaoxin District, Chengdu, China Website: www.cdcwtec.com

test curve





Outline dimension: (in mm)



Pin Configuration and function Descritions

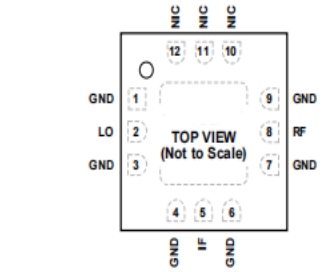


Figure 2. Pin Configuration

Table 4. Pin Function Descriptions

Pin No.	Mnemonic	Description
1, 3, 4, 6, 7, 9	GND	Ground. See Figure 6 for the ground interface schematic.
2	LO	Local Oscillator Port. This pin is ac-coupled and matched to 50 Ω. See Figure 4 for the LO interface schematic.
5	IF	DC-Coupled IF. For applications not requiring operation to dc, dc block this port externally using a series capacitor whose value is chosen to pass the necessary IF frequency range. For operation to dc, this pin must not source or sink more than 3 mA of current, or device nonfunction and possible device failure may result. See Figure 5 for the IF interface schematic.
8	RF	RF Port. This pin is ac-coupled internally and matched to 50 Ω. See Figure 3 for the RF interface schematic.
10, 11, 12	NIC	No Internal Connection. These pins can be grounded.
	EPAD	Exposed Pad. Connect the exposed pad to a low impedance thermal and electrical ground plane.

INTERFACE SCHEMATICS

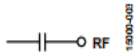


Figure 3. RF Interface

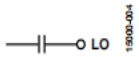


Figure 4. LO Interface

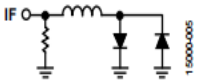


Figure 5. IF Interface

Figure 6. Ground Interface