V0.2
2206

Performance characteristics

- RF/LO band: 4GHz ~ 8.5 GHz
- IF band: DC-1GHz
- Frequency conversion loss: 10.5 dB
- RF-IF Isolation: 30dB
- LO-IF isolation: 20dB
- LO-RF Isolation: 40dB
- Mirror frequency rejection: 28dB
- Local oscillator power: 15dBm
- Package size: 2.9 × 2.9 mm

Typical application

- Base station communication
- Wireless infrastructu
- Automotive electronics
- Instruments and meters

FUNCTIONAL BLOCK DIAGRAM

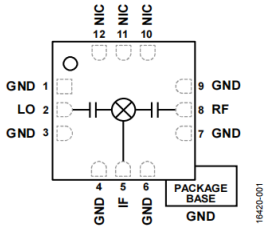


Figure 1.

Overview

CW553SP3 is a GaAs MMIC I/Q mixer, with RF/LO frequency covering 4-8.5 GHz and IF frequency covering DC-3. 5GHz respectively, conversion loss less than 11dB, mirror frequency rejection greater than 25dB, RF-IF isolation greater than 24dB, LO-IF isolation greater than 14dB, LO-RF isolation greater than 35dB, and typical LO input power of 15dBm.

Electrical performance table (TA=+25 ℃, IF=0. 1GHz, LO=15dBm)

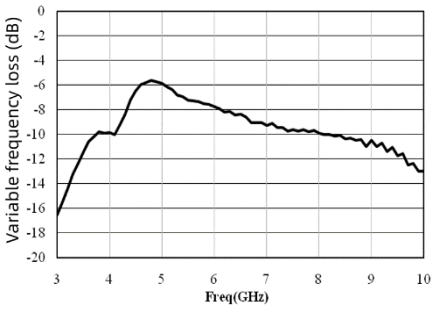
Indicators	Minimum value	Typical value	Maximum value	Unit
Radio frequency	4-8.5			GHz
Local oscillator frequency	4-8.5			GHz
Intermediate frequency	DC-3. 5			GHz
Frequency conversion loss	6	8	10.5	dB
RF-IF isolation	-	30	-	dB
LO-IF isolation	-	20	-	dB
LO-RF isolation	-	40	-	dB
P1dB (input)	-	12	-	dBm

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

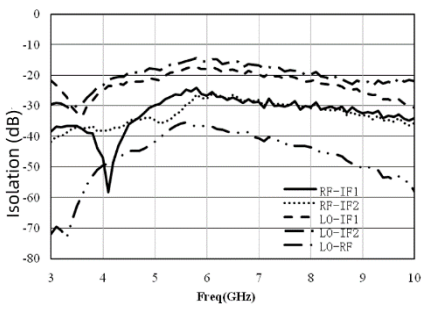
RF/IF power	20dBm
Local oscillator power	27dBm
Storage temperature	-65 ℃-150 ℃
Operating temperature	-55 ℃-85 ℃

Test curve

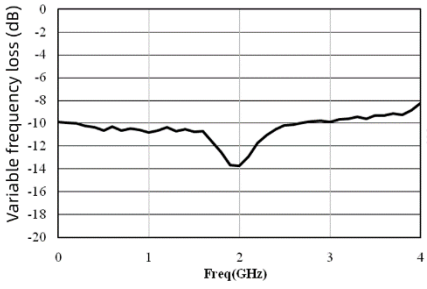
Frequency conversion loss curve @ LO=15dBm, IF frequency 0.1 GHz



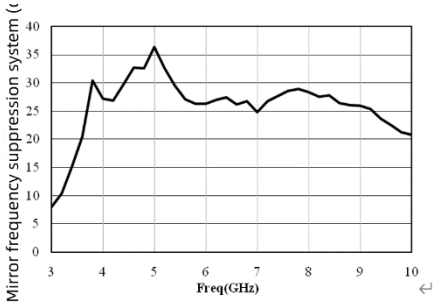
Isolation @ LO=15dBm, IF 0.1 GHz



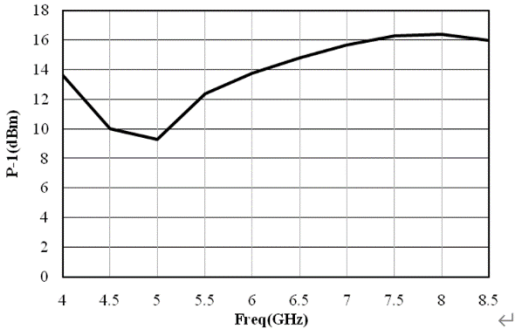
IF bandwidth @ LO=8GHz, LO=15dBm



Mirror frequency rejection



Enter P-1



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Pin Configuration and Function Descriptions

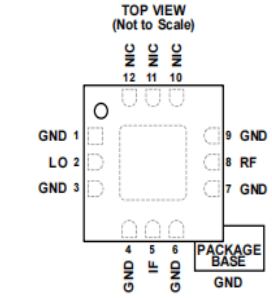

Figure 2. Pin Configuration

Table 4. Pin Function Descriptions

Pin No.	Mnemonic	Description
1, 3, 4, 6, 7, 9	GND	Ground. These pins and package bottom must be connected to RF/dc ground.
2	LO	Local Oscillator Port. This pin is ac-coupled and matched to 50 Ω.
5	IF	Intermediate Frequency Port. This pin is dc-coupled. For applications not requiring operation to dc, dc block this port externally using a series capacitor of a value 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 die malfunction and possible die failure may result.
8	RF	Radio Frequency Port. This pin is ac-coupled and matched to 50 Ω.
10, 11, 12	NIC	Not Internally Connected. These pins can be connected to RF/dc ground. Performance is not affected.
	EPAD	Exposed Pad. The exposed pad must be connected to RF/dc ground.

INTERFACE SCHEMATICS

Figure 3. GND Interface Schematic

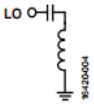

Figure 4. LO Interface Schematic

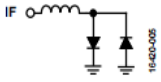

Figure 5. IF Interface Schematic

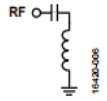

Figure 6. RF Interface Schematic

OUTLINE DIMENSIONS