



Gilbert Cell Mixer

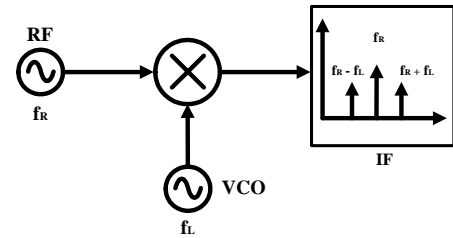
RJM01

Description

The **RJM01** is 1.6 to 3.0 GHz; Low noise, Gilbert Cell down conversion SiGe Mixer designed on 0.35 μm SiGe BiCMOS technology. The device is designed for 802.11 b/g standard and WLAN MIMO system.

The noise figure is 4.43 dB and it has small die area of 0.6 mm x 0.55 mm. The device works with single +3.3 V supply voltage and draws 48 mA of current.

Functional Diagram



Applications

- IEEE 802.11 b/g WLAN
- Cellular System
- WiFi Systems
- ISM Band Systems
- Wireless Infrastructure
- Image Reject Mixer

Key Features

- Good Conversion Gain
- Noise figure 8 dB at 2.5 GHz
- Port Isolation of >50 dB
- Small Size, Low Cost

Electrical Specification

Conditions: $V_{cc} = 3.3 \text{ V}$ & $T_A = 25^\circ\text{C}$

Parameter	Min	Typical	Max	Units
RF Frequency Range	1.6		3	GHz
IF Frequency Range	20		500	MHz
Conversion Gain @ IF of 250 MHz	0		8	dB
IIM3 Intercept Point		-3		dB
DC Power consumption		< 30		mW
Noise Figure SSB @ 2.5 GHz		8		dB
Source impedance		50		Ohms
Supply Current		48		mA
Supply voltage		± 3.3		V

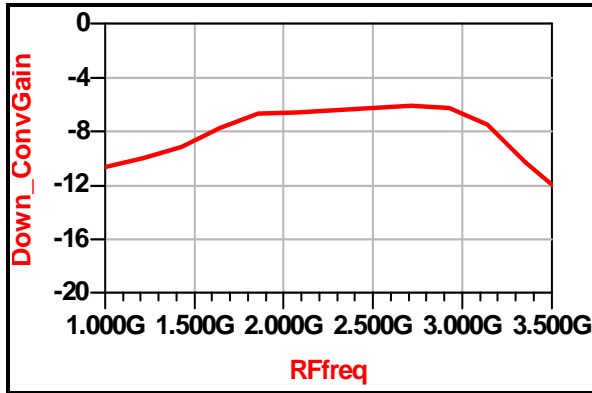


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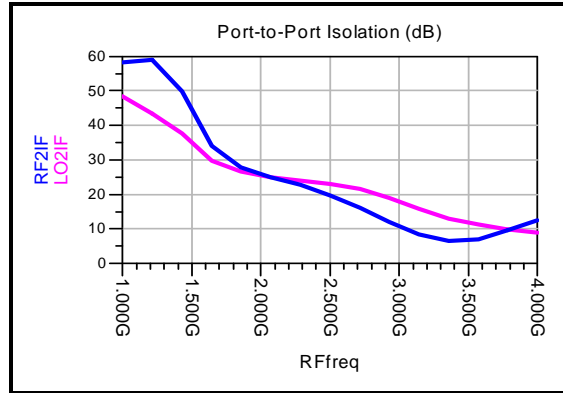
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Simulated Results

Gain Vs Freq with Fixed IF



Port to Port Isolation



Noise Vs Freq

