查询"HMC352MS8"供应商

HMC352MS8

GaAs MMIC MIXER w/ INTEGRATED LO AMPLIFIER, 1.7 - 2.5 GHz

Typical Applications

The HMC352MS8 is ideal for:

- MMDS
- PCMCIA
- WirelessLAN
- WCDMA

Features

Integrated LO Amplifier w/ Pdiss < 20 mW

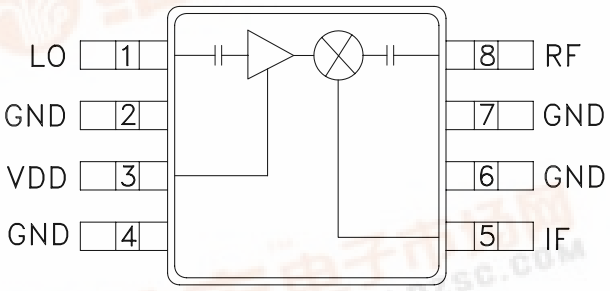
Conversion Loss / Noise Figure: 7.0 dB

Low LO Drive: 0 dBm

Input IP3: >+13 dBm

Single Positive Supply: 3V to 5V

Functional Diagram



General Description

The HMC352MS8 is a single balanced GaAs MMIC mixer with an integrated LO amplifier. This converter can operate as an upconverter and downconverter between 1.7 GHz and 2.5 GHz. With the integrated LO amplifier, the mixer requires an LO drive level of only 0 dBm, and requires only 6 mA from a single positive +3V rail. The mixer has 7 dB of conversion loss, an input P1dB of +5 dBm and an input third order intercept point of >+13 dBm at 2 GHz.

Electrical Specifications, T_A = +25° C

Parameter	IF= 100 MHz LO= 0 dBm & Vdd= 3V			Units
	Min.	Typ.	Max.	
Frequency Range, RF & LO	1.7 - 2.5			GHz
Frequency Range, IF	DC - 1.0			GHz
Conversion Loss		7	9.5	dB
Noise Figure (SSB)		7	9.5	dB
LO to RF Isolation	9	20 - 25		dB
LO to IF Isolation	7	15 - 20		dB
RF to IF Isolation	10	15 - 20		dB
IP3 (Input)	10	13		dBm
1 dB Compression (Input)	-2	4		dBm
Supply Current (Idd)		6		mA

** Unless otherwise noted, all measurements performed as downconverter, IF= 100 MHz.*

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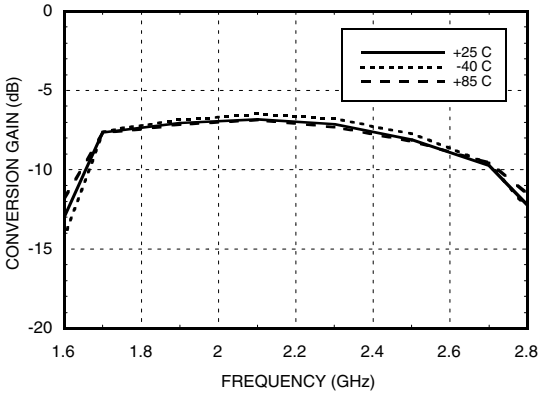
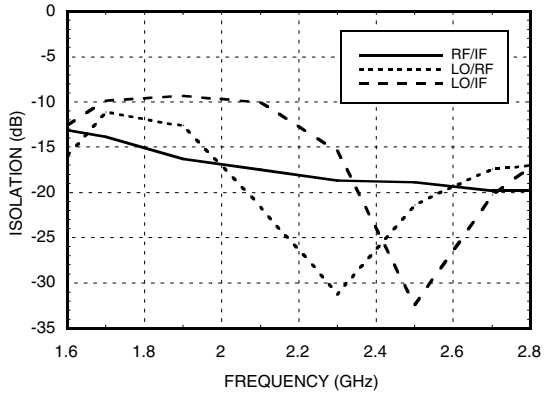
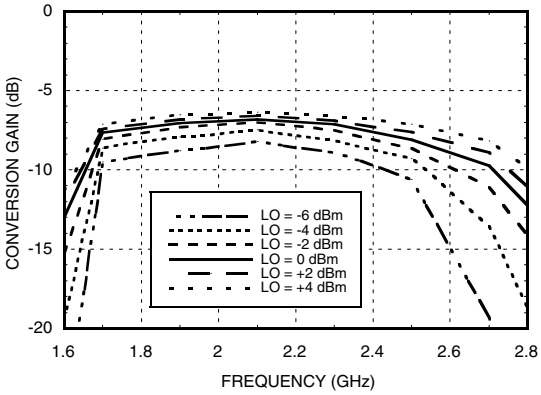
Conversion Gain vs. Temperature @ LO = 0 dBm



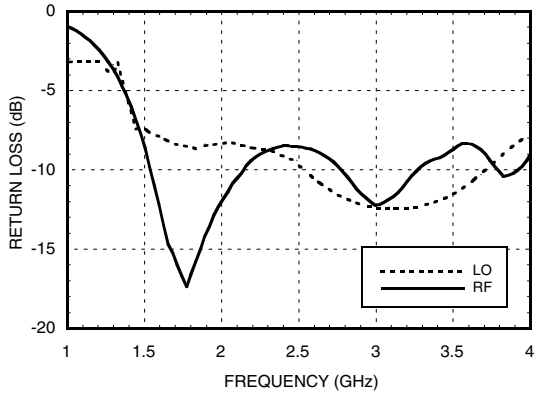
Isolation @ LO = 0 dBm



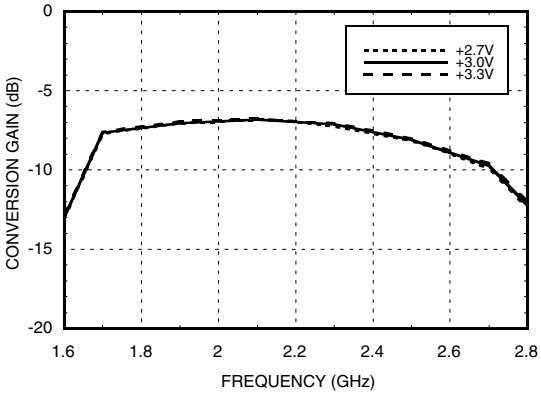
Conversion Gain vs. LO Drive



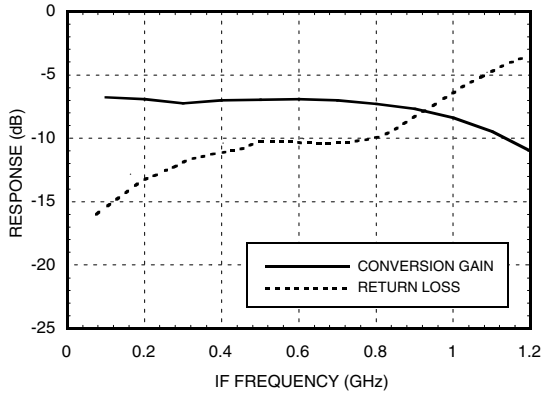
Return Loss @ LO = 0 dBm



Conversion Gain vs. Vdd @ LO = 0 dBm



IF Bandwidth @ LO = 0 dBm



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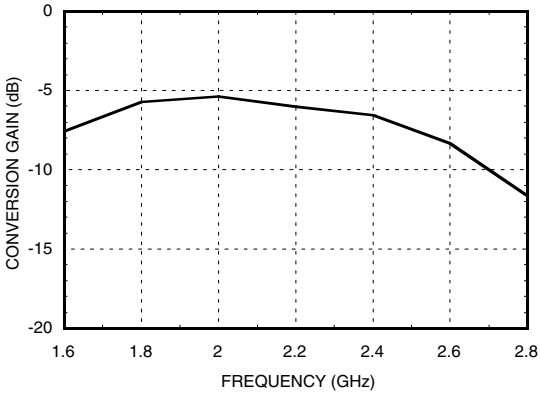
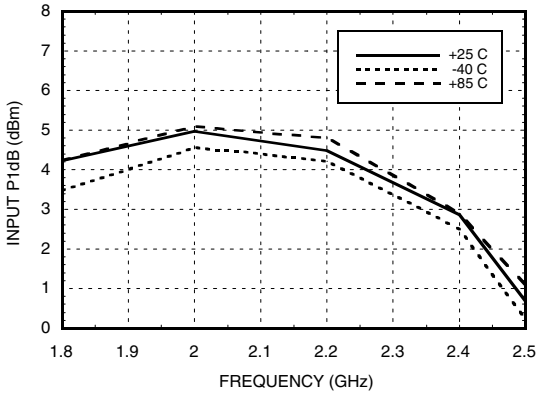
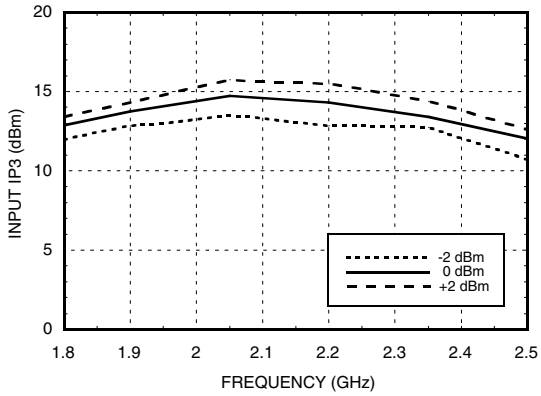
Upconverter Performance Conversion Gain @ LO = 0 dBm



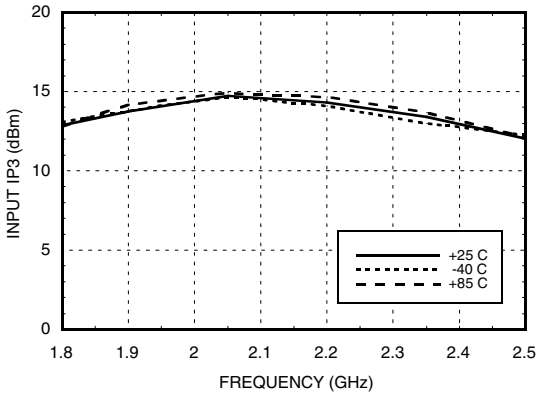
Input P1dB vs. Temperature @ LO = 0 dBm



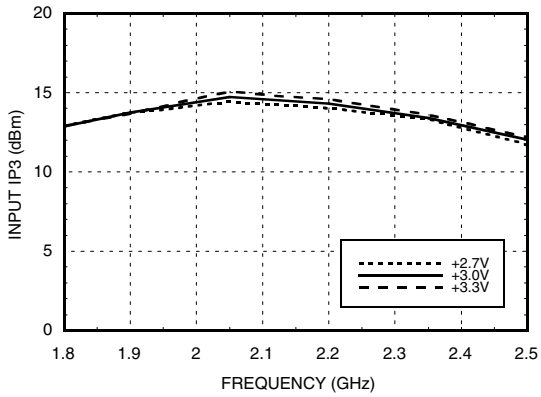
Input IP3 vs. LO Drive*



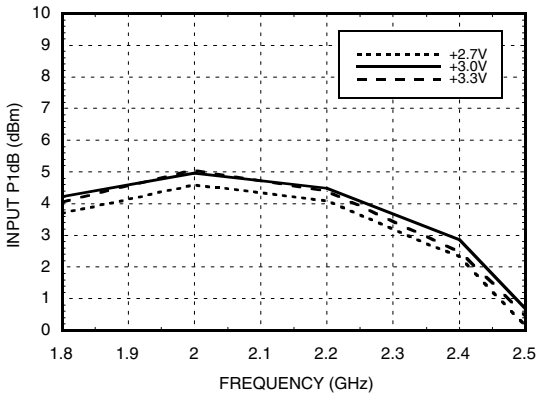
Input IP3 vs. Temperature @ LO = 0 dBm*



Input IP3 vs. Vdd @ LO = 0 dBm*



Input P1dB vs. Vdd @ LO = 0 dBm



** Two-tone input power= -10 dBm each tone, 1 MHz spacing.*

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MxN Spurious @ IF Port

	nLO				
mRF	0	1	2	3	4
0	XX	-8	-2	22	23
1	10	0	25	26	36
2	35	47	53	41	45
3	69	68	70	51	62
4	>72	>72	>72	>72	>72

RF = 2.0 GHz @ -10 dBm
LO = 1.9 GHz @ 0 dBm
All values in dBc relative to the IF power level.

Harmonics of LO

	nLO Spur @ RF Port			
LO Freq. (GHz)	1	2	3	4
1.75	10	3	16	23
1.9	12	4	19	27
2.05	18	8	20	41
2.2	34	18	19	32
2.35	26	30	23	31
2.5	21	20	25	32

LO = 0 dBm
All values in dBc below input LO level @ RF port.

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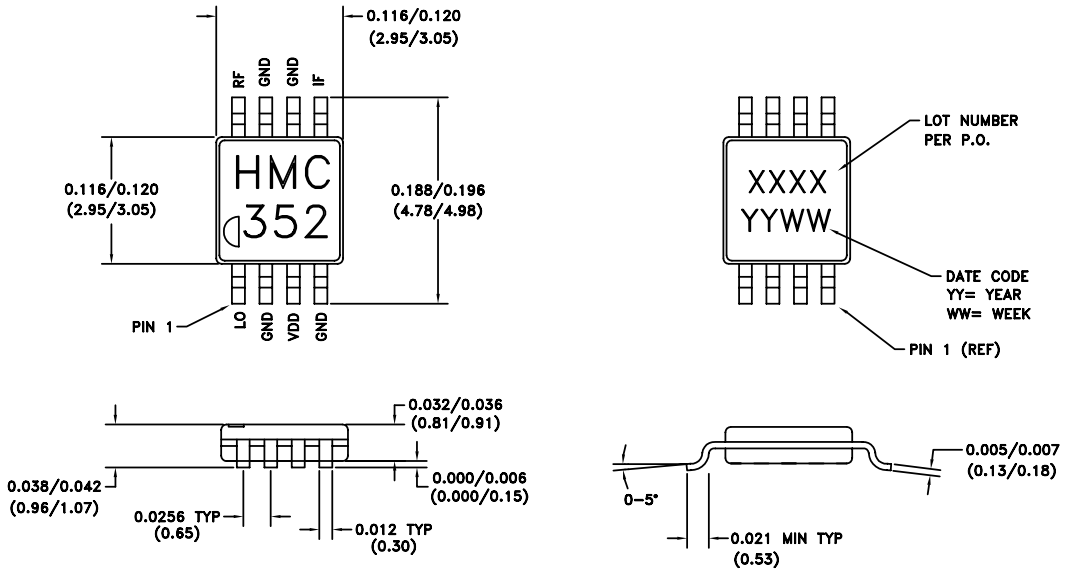
Absolute Maximum Ratings

RF / IF Input (Vdd = +3V)	+13 dBm
LO Drive (Vdd = +3V)	+13 dBm
Vdd	5.5V
IF DC Current	± 3 mA
Storage Temperature	-65 to +150 deg C
Operating Temperature	-40 to +85 deg C

Pin Locations & Outline Drawing



1. MATERIAL:
   A. PACKAGE BODY - LOW STRESS INJECTION-MOLDED PLASTIC, SILICA & SILICONE IMPREGNATED.
   B. LEADFRAME MATERIAL: COPPER ALLOY
2. PLATING: LEAD-TIN SOLDER PLATE
3. DIMENSIONS ARE IN INCHES (MILLIMETERS). UNLESS OTHERWISE SPECIFIED ALL TOL. ARE ±0.005 (±0.13).
4. CHARACTERS TO BE HELVETICA MEDIUM, APPROX. 030 HIGH, WHITE INK, LOCATED APPROXIMATELY AS SHOWN.
5. DIMENSION DOES NOT INCLUDE MOLDFLASH OF 0.15 mm PER SIDE.
6. DIMENSION DOES NOT INCLUDE MOLDFLASH OF 0.25 mm PER SIDE.

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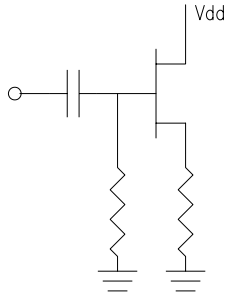
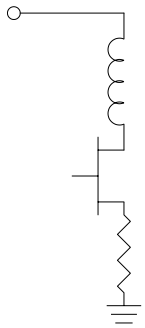
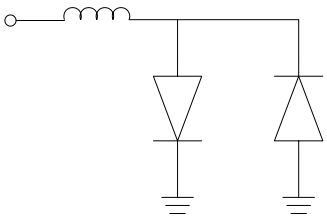
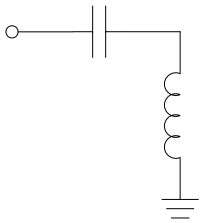
Pin Descriptions

Pin Number	Function	Description	Interface Schematic
1	LO Port	LO Port: This pin is AC coupled and matched to 50 ohm from 1.7 - 2.5 GHz	
2, 4, 6, 7	GND	Ground: Pin must connect to RF ground.	
3	Vdd	Power supply for the LO Amplifier. Two external RF bypass capacitor (10 pF & 10,000 pF) are required.	
5	IF Port	IF Port: This pin is DC coupled. For applications not requiring operation to DC, this port should be DC blocked externally using a series capacitor whose values has been chosen to pass the necessary IF frequency range. For operation to DC, this pin must not source/sink more than 3mA of current or die non-function and possible die failure will result.	
8	RF Port	RF Port: This pin is AC coupled and matched to 50 ohm from 1.7 - 2.5 GHz.	

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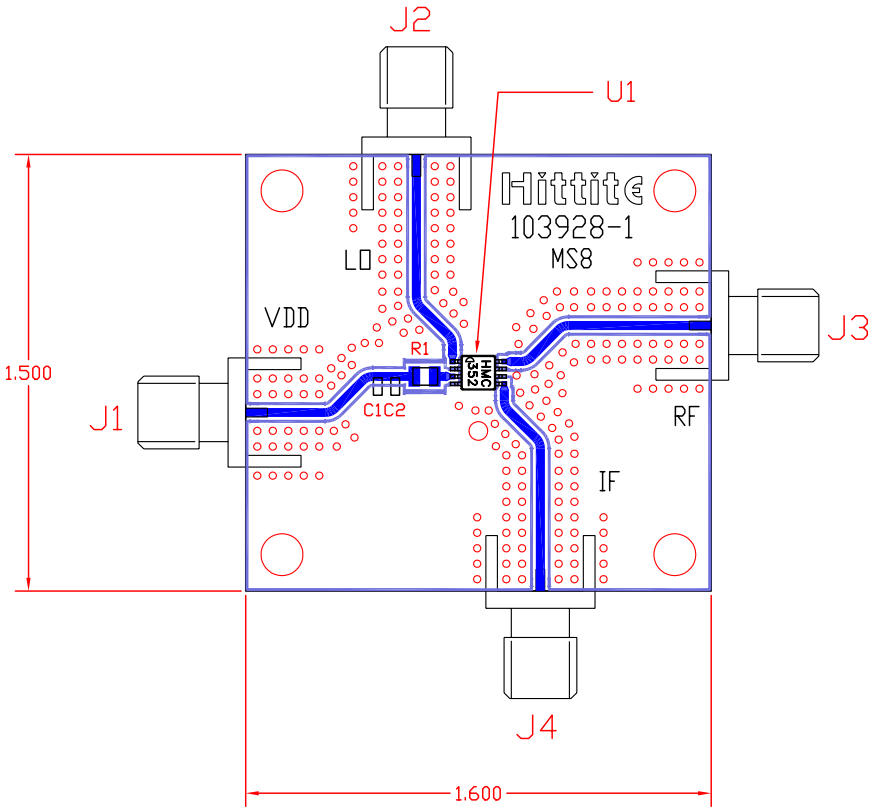
Evaluation PCB for HMC352MS8



The circuit board used in the final application should use RF circuit design techniques. Signal lines should have 50 ohm impedance while the package ground leads should be connected directly to the ground plane similar to that shown. A sufficient number of VIA holes should be used to connect the top and bottom ground planes. The evaluation circuit board shown is available from Hittite upon request.

Evaluation Circuit Board Layout Design Details

Item	Description
J1 - J4	PC Mount SMA RF Connector
C1	10 pF Chip Capacitor, 0603 Pkg.
C2	.01 µF Chip Capacitor, 0603 Pkg.
R1	0 Ohm Resistor, 0805 Pkg.
U1	HMC352MS8 Mixer
PCB*	103928 Evaluation Board
* Circuit Board Material: Rogers 4350	

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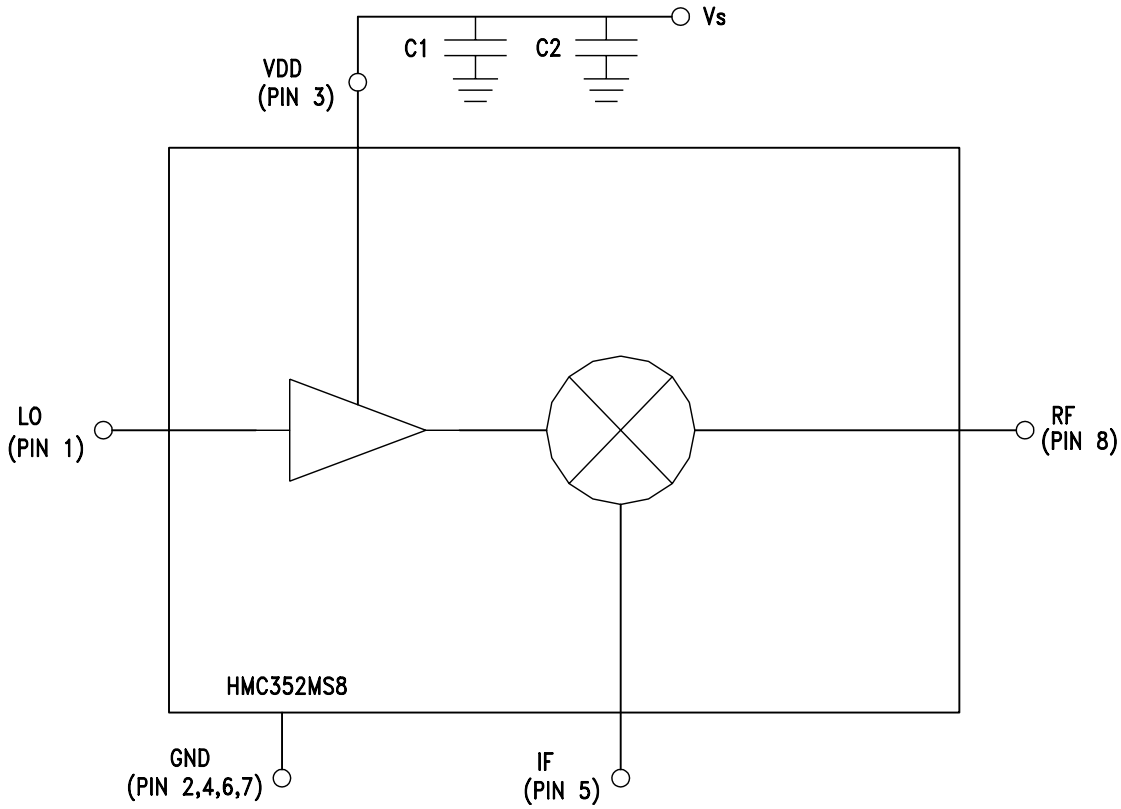
HMC352MS8 Application Circuit



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