HMC208MS8

GaAs MMIC SMT DOUBLE-BALANCED MIXER 0.7 - 2.0 GHz

FEBRUARY 2001

Features

ULTRA SMALL PACKAGE: MSOP8

CONVERSION LOSS: 8 dB

LO/RF ISOLATION: 42 dB

IP3 (INPUT) : +17 dBm

General Description

The HMC208MS8 is an ultra miniature double-balanced mixer in an 8 lead plastic surface mount package (MSOP). This passive MMIC mixer is constructed of GaAs Schottky diodes and novel planar transformer baluns on the chip. The device can be used as a up, or downconverter, bi-phase (de)modulator or phase comparator for 900, 1500, or 1900 MHz applications. It is especially suited for miniature basestations, PCMCIA transceivers, cable modems, and portable wireless applications because of its high dynamic input signal range, small size, and zero DC bias requirement. The consistent MMIC performance will improve system operation and assure regulatory compliance. The MSOP8 package is the smallest footprint available for a complete double-balanced mixer, 0.118" x 0.190" (3.0mm x 4.9mm). At a height of 0.040" (1.0mm) this is the *thinnest* mixer package available today.

Guaranteed Performance *As a Function of LO Drive , -40 to +85 deg C*

Parameter	LO = +13 dBm IF = 70 MHz			LO = +10 dBm IF = 70 MHz			Units
	Min.	Typ.	Max.	Min.	Typ.	Max.	
Frequency Range, RF & LO		0.7 - 2.0			0.8 - 1.2		GHz
Frequency Range, IF		DC - 0.5			DC -0.5		GHz
Conversion Loss		9	10.5		8.5	10.5	dB
Noise Figure (SSB)		9	10.5		8.5	10.5	dB
LO to RF Isolation	20	24		32	40		dB
LO to IF Isolation	13	17		22	30		dB
RF to IF Isolation	10	14		17	22		dB
IP3 (Input)	13	17		12	16		dBm
1 dB Gain Compression (Input)	7	10		5	8		dBm
Local Oscillator Drive Level	8		17	8		17	dBm

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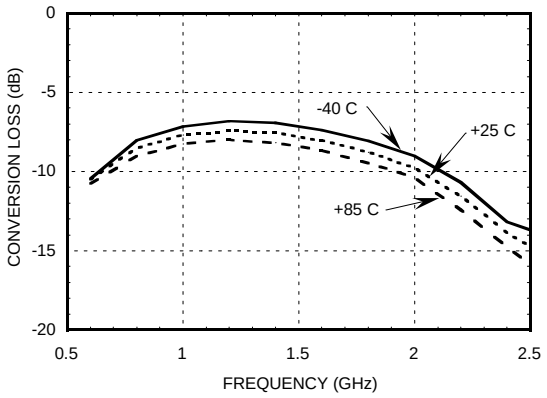
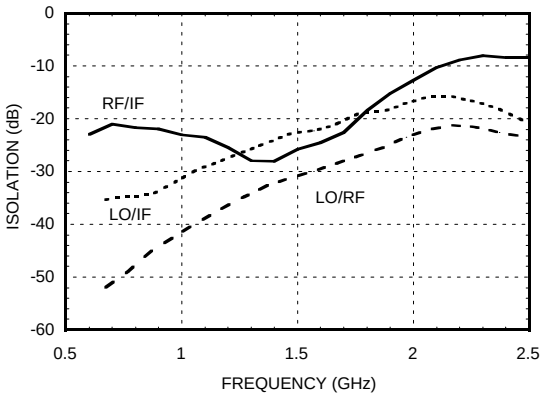
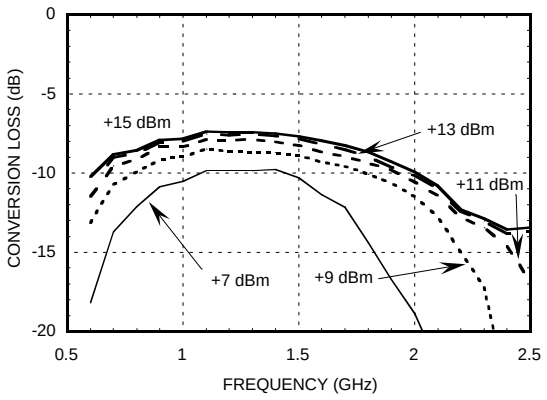
Conversion Loss vs. Temperature @ LO = +13 dBm



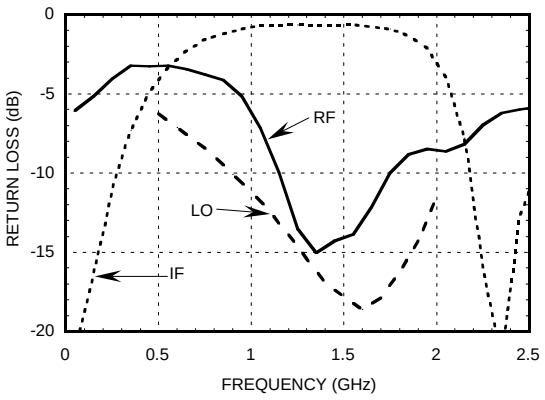
Isolation @ LO = +13 dBm



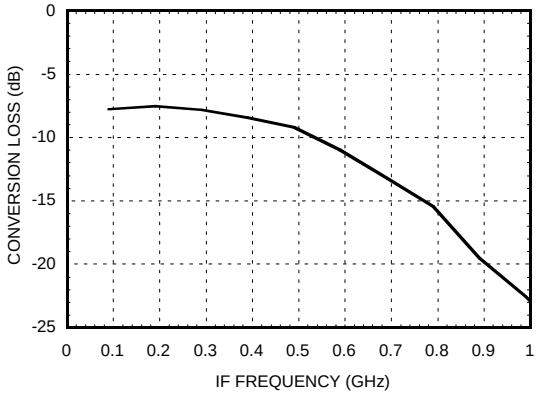
Conversion Loss vs. LO Drive



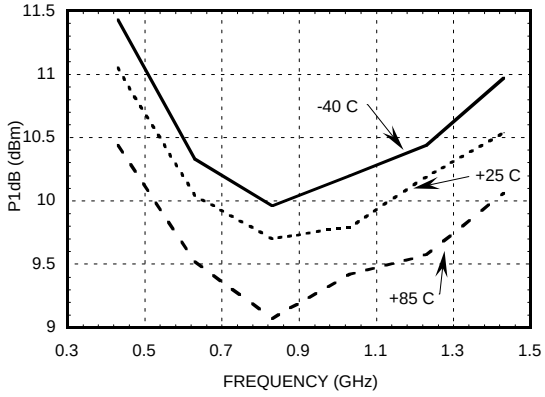
Return Loss @ LO = +13 dBm



IF Bandwidth @ LO = +13 dBm



P1 dB vs. Temperature @ LO = +13 dBm



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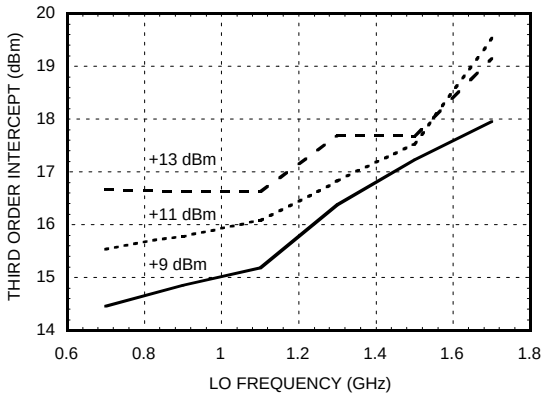
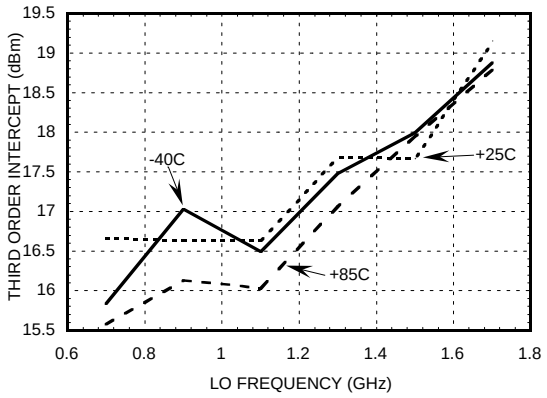
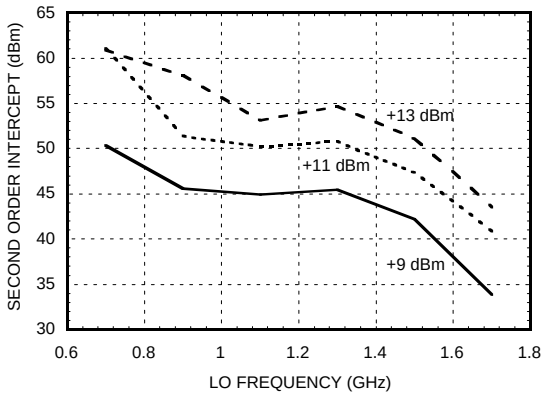
Input IP3 vs. LO Drive



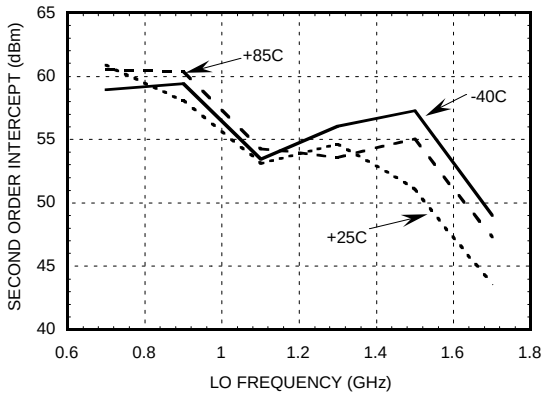
Input IP3 vs. Temperature @ LO = +13 dBm



Input IP2 vs. LO Drive



Input IP2 vs. Temperature @ LO = +13 dBm



MXN Spurious Outputs

	nLO				
mRF	0	1	2	3	4
0	xx	2	25	17	45
1	16	0	52	38	27
2	60	55	72	62	77
3	65	96	88	64	91
4	> 105	> 105	> 105	100	> 105

RF= 0.9 GHz @ -10 dBm
LO= 0.97 GHz @ +13 dBm
All values in dBc relative to the IF

Harmonics of LO

	nLO Spur at RF Port			
LO Frequency (GHz)	1	2	3	4
0.7	50	40	47	61
0.9	46	54	56	71
1.1	39	54	51	72
1.3	34	53	51	90
1.5	31	50	65	87
1.7	28	50	72	82

LO= +13 dBm
Values in dBc below input LO level measured at the RF port

MICROWAVE CORPORATION

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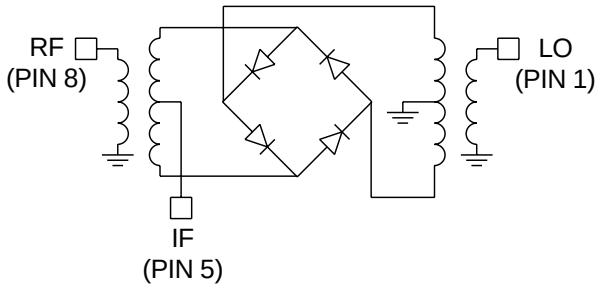
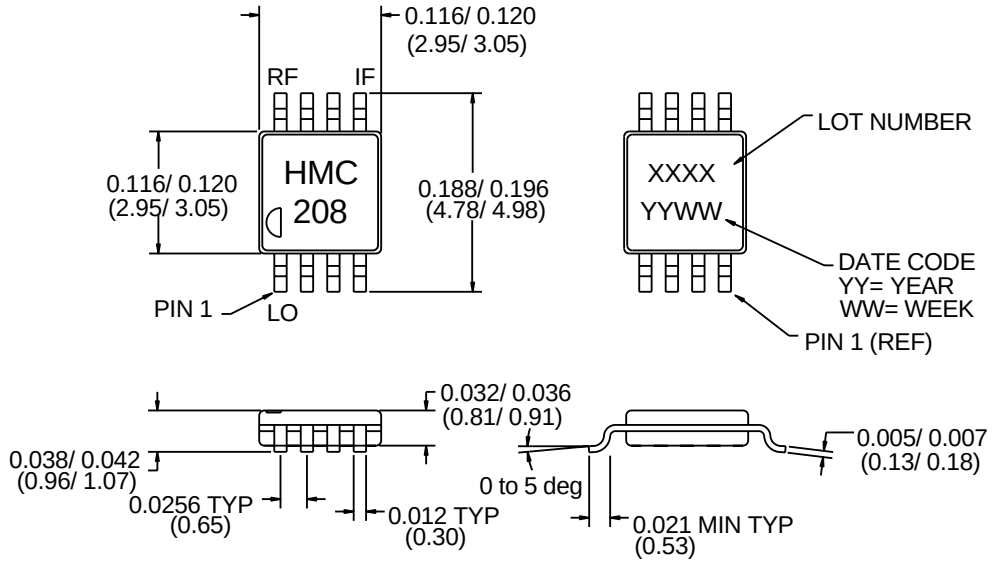
Schematic



Absolute Maximum Ratings

RF / IF Input	+13 dBm
LO Drive	+27 dBm
Storage Temperature	-65 to +150 deg C
Operating Temperature	-55 to +85 deg C

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 TOL. ARE ±0.005 (±0.13)
4. ALL UNLABELED LEADS ARE GROUND