

GaAs MMIC SMT FREQUENCY DOUBLER 4 - 8 GHz INPUT

FEBRUARY 2001

V00.0900

Features

CONVERSION LOSS: 16 to to 20 dB

Fo, 3Fo, 4Fo ISOLATION: > 38 to 50 dB

PASSIVE: NO BIAS REQ'D

ULTRA SMALL PACKAGE: MSOP8



General Description

The HMC204MS8G is a passive miniature frequency doubler in an 8 lead MSOP surface mount package. Suppression of undesired fundamental and higher order harmonics is 40 to 60 dB with respect to input signal level and 24 to 42 dB with respect to the output level. The doubler utilizes the same GaAs Schottky diode/balun technology found in Hittite MMIC mixers. Its features includes a small size, requires no DC bias, and has no measurable additive phase noise onto the multiplied signal. Applications include commercial microwave radios and VSAT, as well as military ECM and communication systems.

Guaranteed Performance, 50 Ohm system -55 to +85 deg C

Typical Performance vs. Drive Level				
	10	12	15	dBm
Input Frequency Range	5.5 - 7.5	5.0 - 8.0	4.0 - 8.0	GHz
Output Frequency Range	11.0 - 15.0	10.0 - 16.0	8.0 - 16.0	GHz
Conversion Loss	<17	<18	<17	dB

Performance for Input Signals in the 4.0 - 8.0 GHz Band (+15dBm Drive)				
	Min.	Typ.	Max.	
Fo Isolation (with respect to input level)	40	45		dB
3Fo Isolation (with respect to input level)	37	45		dB
4Fo Isolation (with respect to input level)	35	43		dB

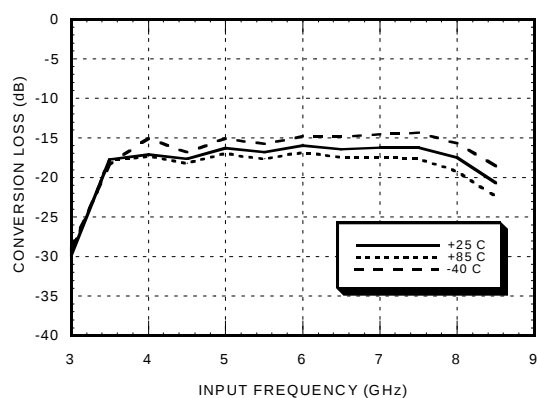


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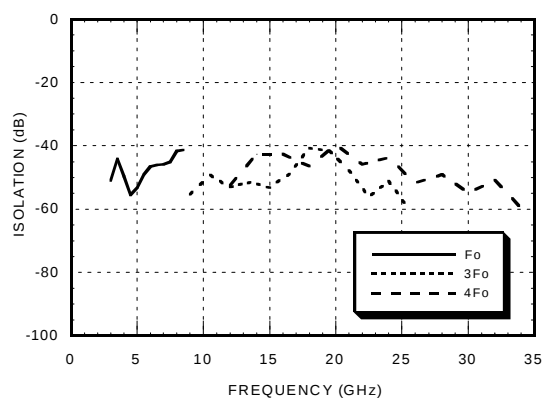
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**Conversion Loss vs.
Temperature @ +15 dBm Drive Level**

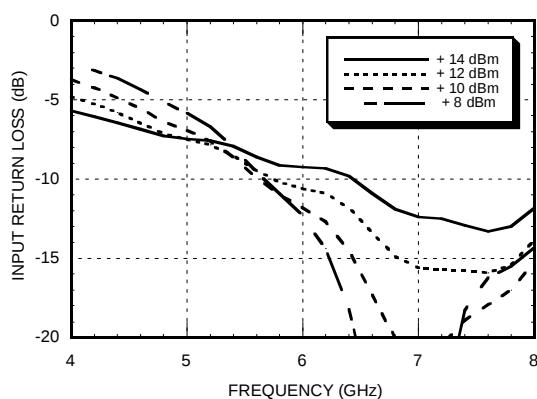


**Isolation @ +15 dBm
Drive Level ***

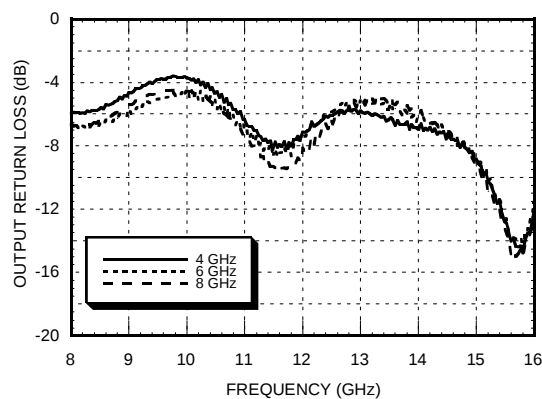


* With respect to input level

**Input Return Loss
vs. Drive level**



**Output Return Loss for
Several Input Frequencies**



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MULTIPLIERS

SMT



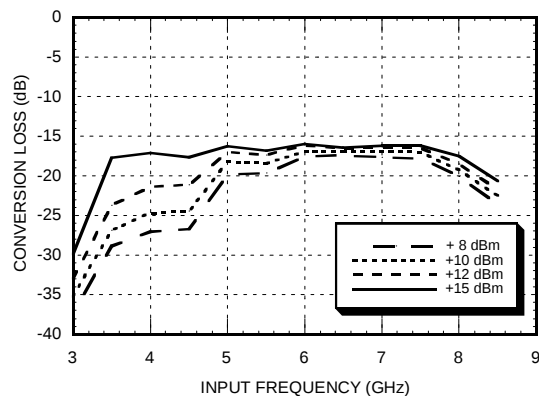
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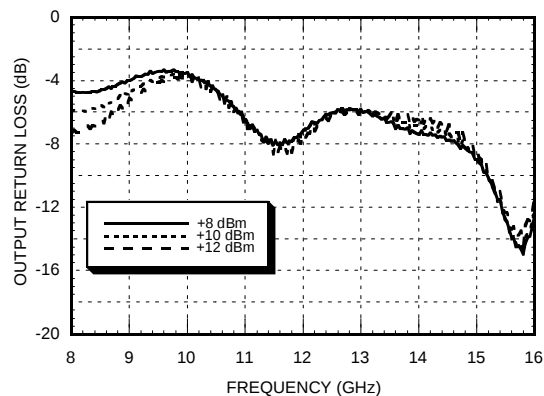
Conversion Loss

@ 25 Deg C vs. Drive Level



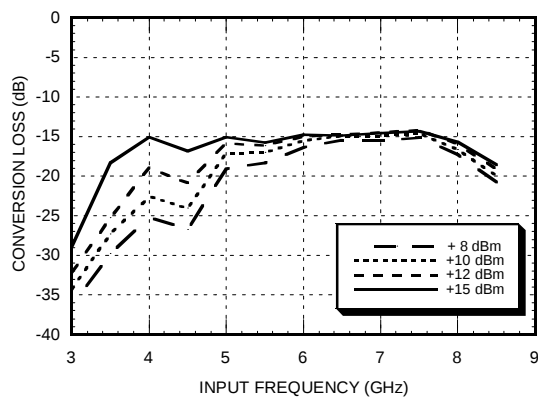
Output Return Loss

with 4 GHz Input



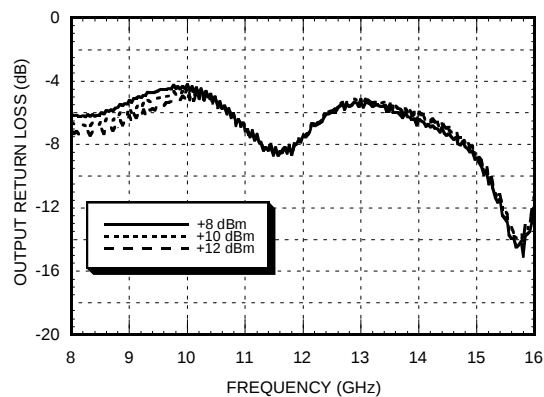
Conversion Loss

@ -40 Deg C vs. Drive Level



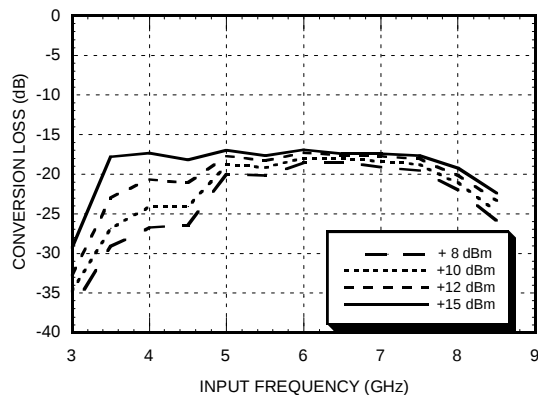
Output Return Loss

with 6 GHz Input



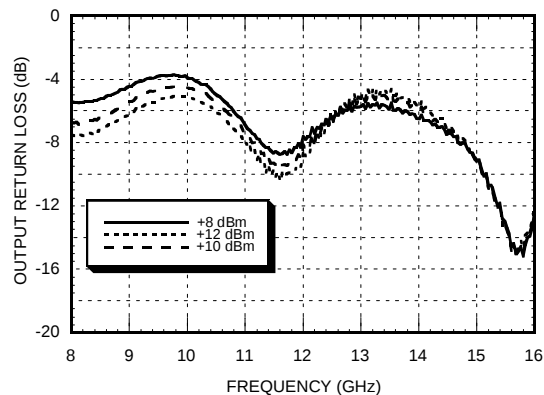
Conversion Loss

@ +85 Deg C vs. Drive Level



Output Return Loss

with 8 GHz Input

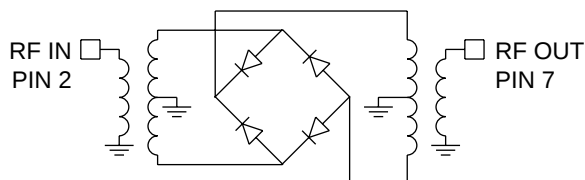


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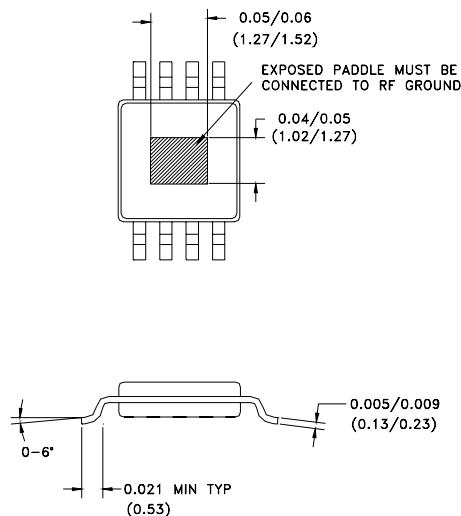
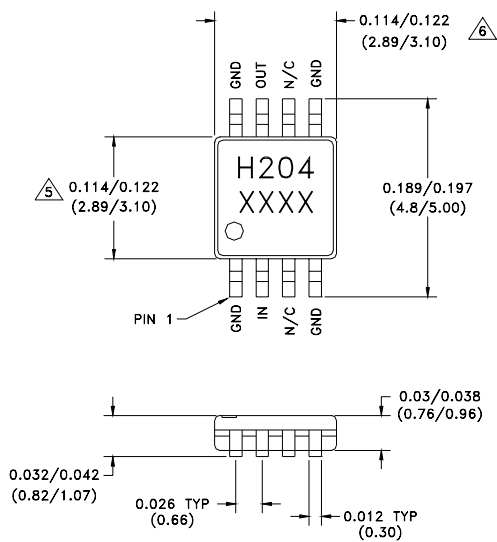
Schematic



Absolute Maximum Ratings

Input Drive	+27 dBm
Storage Temperature	-65 to +150 deg C
Operating Temperature	-55 to +125 deg C

Outline Drawing



- MATERIAL:
A) PACKAGE BODY - LOW STRESS INJECTION-MOLDED PLASTIC, SILICA & SILICONE IMPREGNATED.
B) LEADFRAME MATERIAL: COPPER ALLOY
- PLATING: LEAD - TIN SOLDER PLATE
- DIMENSIONS ARE IN INCHES (MILLIMETERS).

- UNLESS OTHERWISE SPECIFIED ALL TOL. ARE ± 0.005 (± 0.13).
CHARACTERS TO BE HELVETICA MEDIUM, APPROX .020 HIGH WHITE INK, LOCATED APPROXIMATELY AS SHOWN.
- DIMENSION DOES NOT INCLUDE MOLDFLASH OF 0.15 MM PER SIDE
- DIMENSION DOES NOT INCLUDE MOLDFLASH OF 0.25 MM PER SIDE

