GaAs MMIC FREQUENCY DOUBLER 4 - 8 GHz INPUT

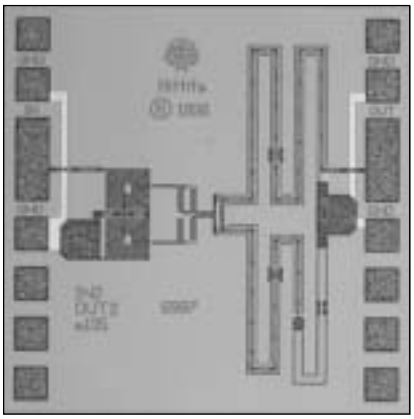
FEBRUARY 2001

Features

CONVERSION LOSS: 15 to to 20 dB

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

PASSIVE: NO BIAS REQ'D



General Description

The HMC204 is a passive miniature frequency doubler in a MMIC die. 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. It features small size no DC bias, and 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	<17	<20	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)	41	45		dB
3Fo Isolation (with respect to input level)	42	46		dB
4Fo Isolation (with respect to input level)	35	38		dB

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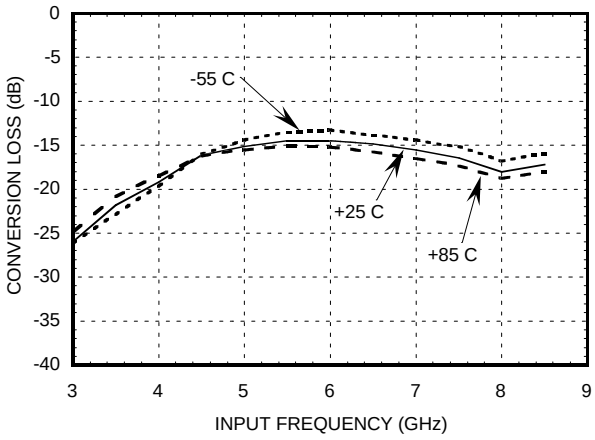
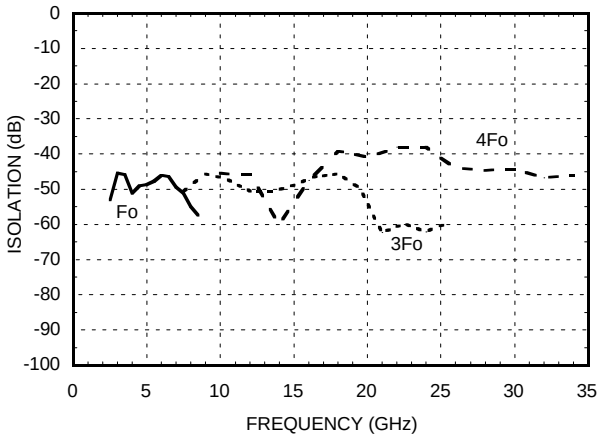
Conversion Loss vs. Temperature @ +15 dBm Drive Level

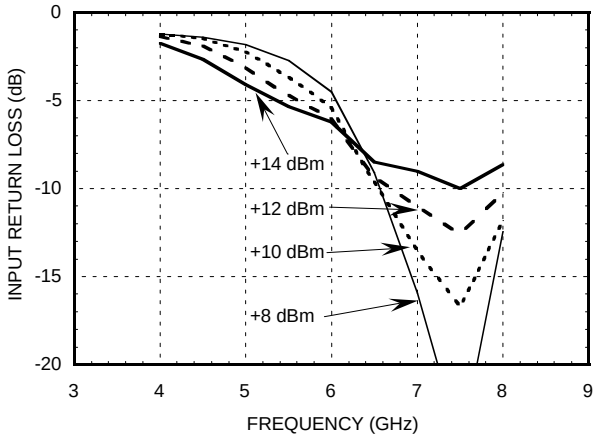


*Isolation @ +15 dBm Drive Level **

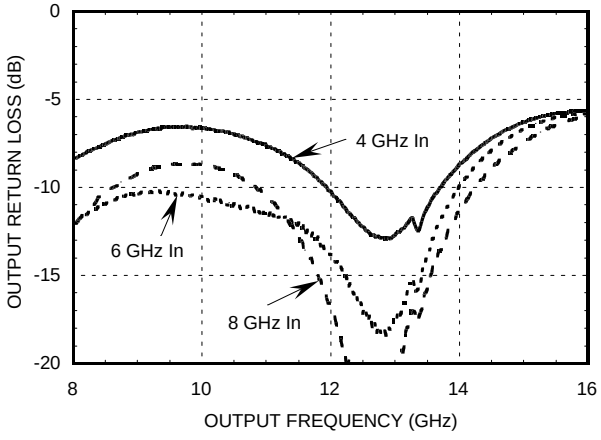


** With respect to input level*

Input Return Loss vs. Drive level



Output Return Loss for Several Input Frequencies



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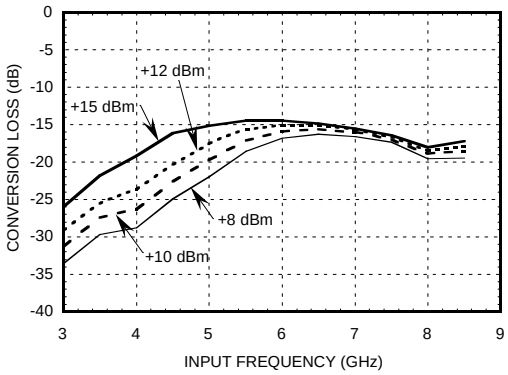
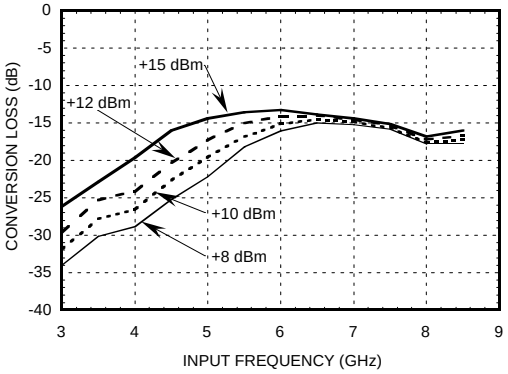
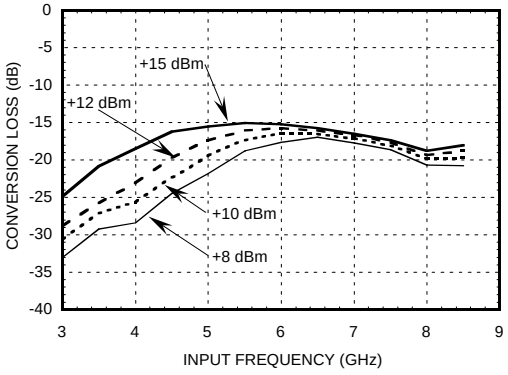
Conversion Loss@ 25 Deg C vs. Drive Level



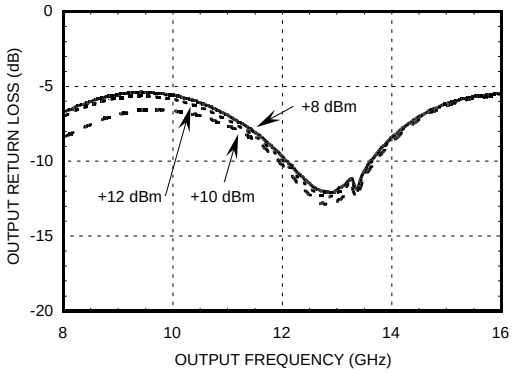
Conversion Loss @ -55 Deg C vs. Drive Level



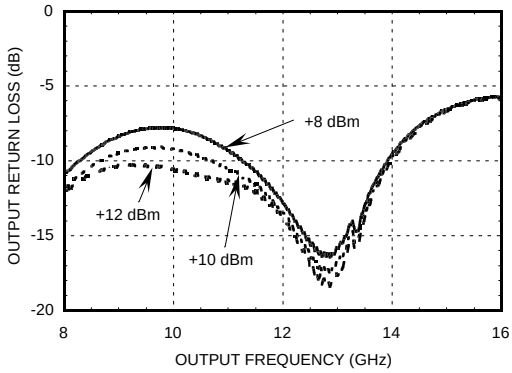
Conversion Loss @ +85 Deg C vs. Drive Level



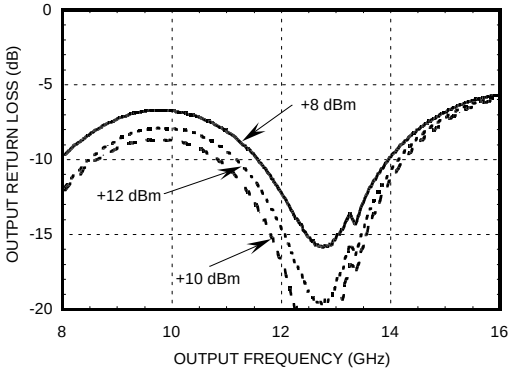
Output Return Loss with 4 GHz Input



Output Return Loss with 6 GHz Input



Output Return Loss with 8 GHz Input



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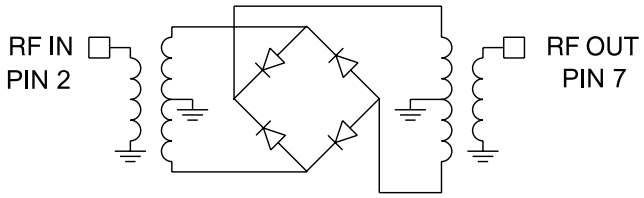
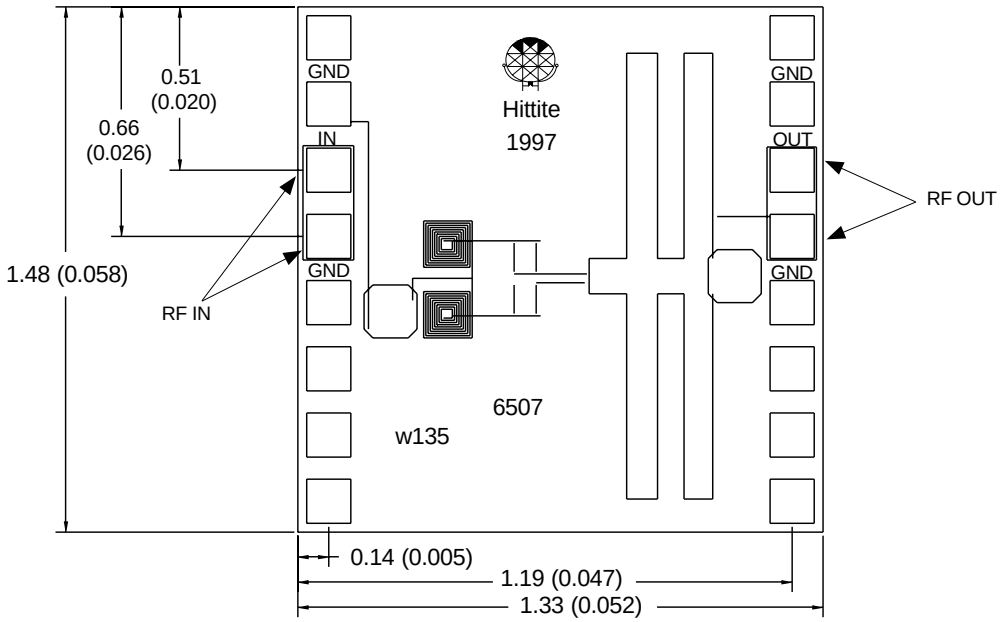
Schematic



Absolute Maximum Ratings

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

Outline Drawing *(See Pages 8 - 2 and 8 -3 for Handling Procedures)*



DIE THICKNESS IS 0.100 (0.004), BACKSIDE IS GROUND
BOND PADS ARE 0.100 (0.004) SQUARE
BOND PAD SPACING, CTR-CTR: 0.150 (0.006)
ALL DIMENSION IN MILLIMETERS (INCHES)
ALL TOLERANCES ARE ± 0.025 (±0.001)
BOND PAD METALLIZATION : GOLD
BACKSIDE METALLIZATION : GOLD