

GaAs MMIC SMT FREQUENCY DOUBLER 1.25 - 3.0 GHz INPUT

FEBRUARY 1998

Features

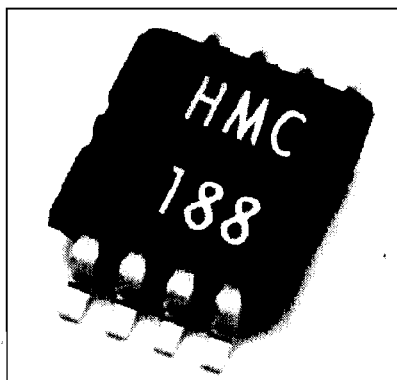
CONVERSION LOSS: 15 dB

Fo, 3Fo, 4Fo ISOLATION: 40 dB

INPUT DRIVE LEVEL: 10 to 20 dBm

General Description

The HMC188MS8 is a miniature frequency doubler in a plastic 8-lead MSOP package. The suppression of the undesired fundamental and higher order harmonics is typically 45 to 50 dB with respect to input signal levels. The doubler uses same diode/balun structures used in Hittite MMIC mixers. The doubler is ideal for high volume applications where frequency doubling of a lower frequency is more economical than directly generating a higher frequency. The passive Schottky diode doubler technology contributes no measurable additive phase noise onto the multiplied signal.



Electrical Performance, 50 Ohm system -40 to +85 deg C

Typical Electrical Performance vs. Drive Level

	10 dBm	15 dBm	20 dBm	Units
Input Frequency Range	1.75-2.75	1.5-2.5	1.25-3.0	GHz
Output Frequency Range	3.5-5.5	3.0-5.0	2.5-6.0	GHz
Conversion Loss	20	15	18	dB

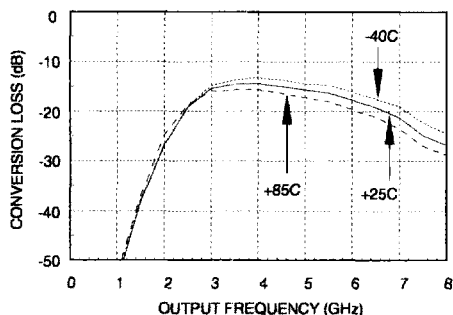
Performance for Input Signals in the 1.5 - 2.5 GHz Band (+15dBm Drive)

	Min	Typ	Max	Units
Fo Isolation (with respect to input level)	35	45		dB
3Fo Isolation (with respect to input level)	43	50		dB
4Fo Isolation (with respect to input level)	38	45		dB

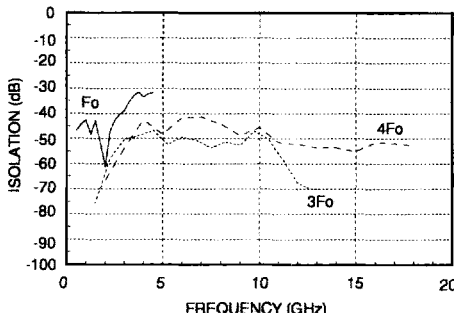
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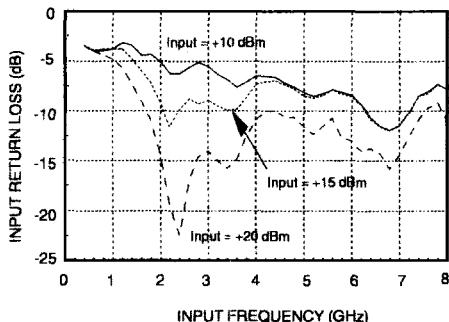
Conversion Loss @ +15 dBm Drive Level



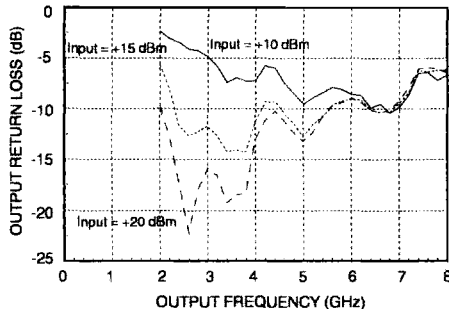
Isolation @ +15 dBm Drive Level



Input Return Loss vs. Drive Level

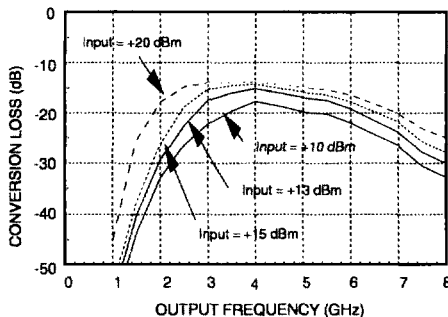


Output Return Loss vs. Drive Level



Note: Output return loss measured at 2fo, with +10 dBm, +15 dBm, and +20 dBm drive levels on input of doubler.

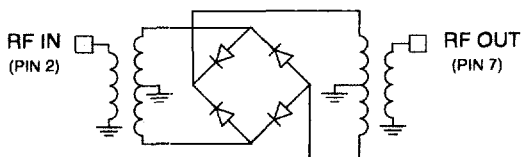
Conversion Loss vs. Drive Level



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Schematic



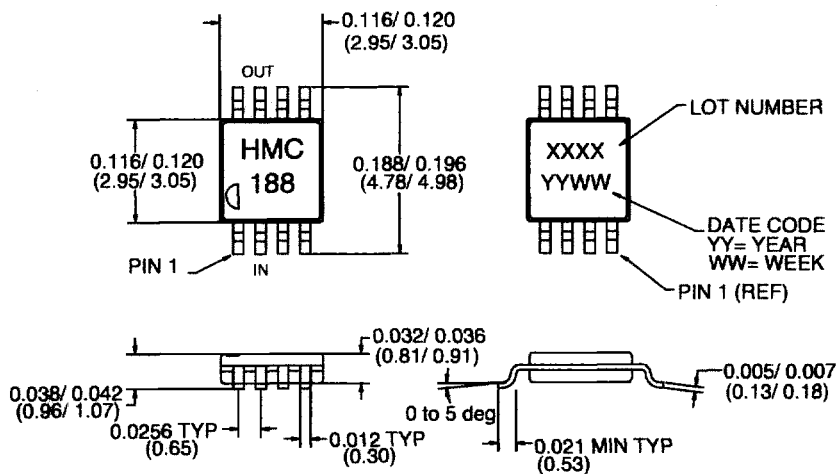
Absolute Maximum Ratings

Input Drive	+27 dBm
Storage Temperature	-65 to +150 deg. C
Operating Temperature	-40c to +85 deg. C

3

 Frequency
Doublers

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