

## GaAs MMIC SMT FREQUENCY DOUBLER 1.25 - 3.0 GHz INPUT

FEBRUARY 2001

### Features

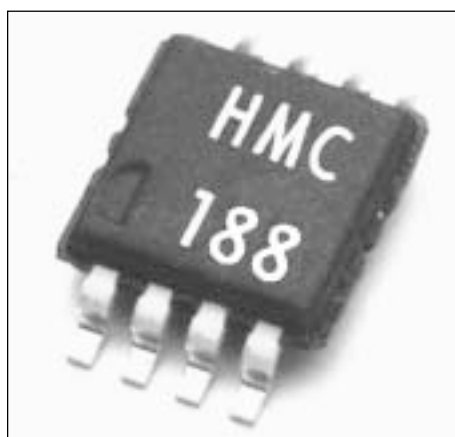
CONVERSION LOSS: 15 dB

F<sub>0</sub>, 3F<sub>0</sub>, 4F<sub>0</sub> 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.



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

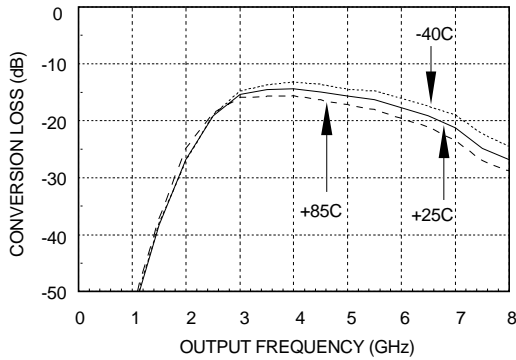
Typical Electrical Performance vs. Drive Level				
	10 dBm	15 dBm	20 dBm	Units
Input Frequency Range	1.75-2.75	1.5-2.5	1.25-3.0	GHz
Output Frequency Range	3.5-5.5	3.0-5.0	2.5-6.0	GHz
Conversion Loss	20	15	18	dB

Performance for Input Signals in the 1.5 - 2.5 GHz Band (+15dBm Drive)				
	Min.	Typ.	Max.	Units
F <sub>0</sub> Isolation (with respect to input level)	35	45		dB
3F <sub>0</sub> Isolation (with respect to input level)	43	50		dB
4F <sub>0</sub> Isolation (with respect to input level)	38	45		dB

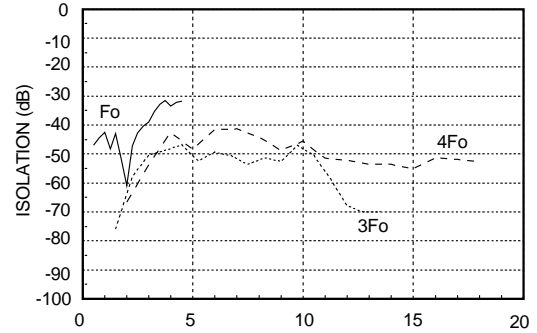
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**Conversion Loss @ +15 dBm Drive Level**

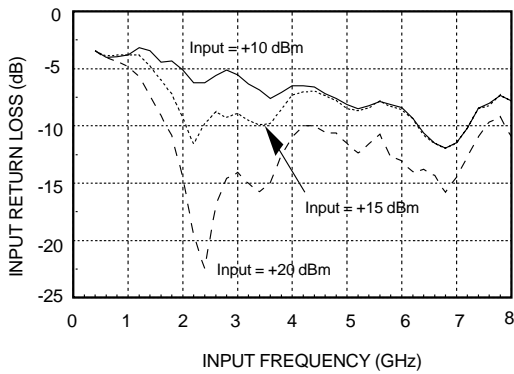


**Isolation @ +15 dBm Drive Level**

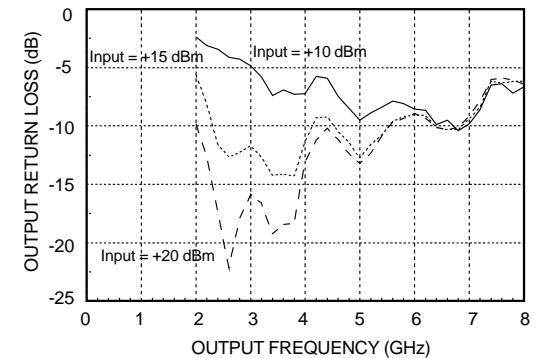


\* With respect to input level

**Input Return Loss vs. Drive Level**

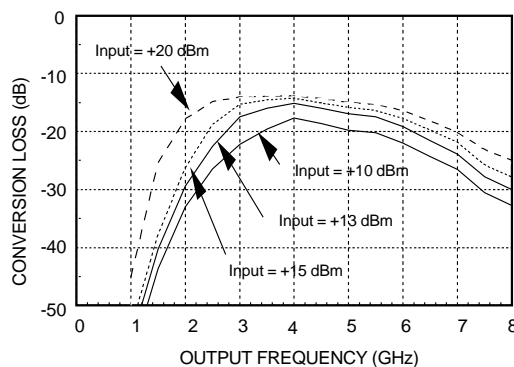


**Output Return Loss vs. Drive Level**



**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**

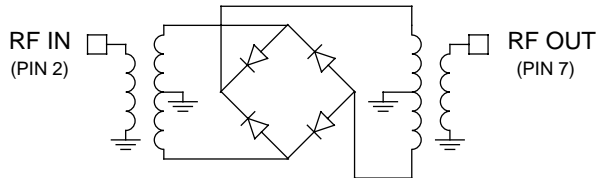


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### Schematic

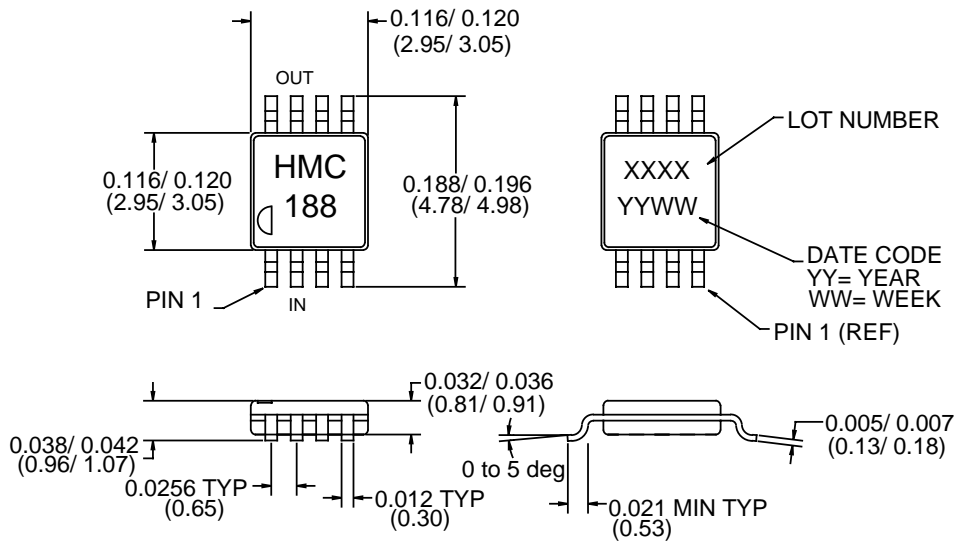


### Absolute Maximum Ratings

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

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### 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  $\pm 0.005 (\pm 0.13)$ .
4. ALL UNLABELED LEADS ARE GROUND.

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**NOTES:**

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