

GaAs MMIC SMT DOUBLE-BALANCED 4 - 8 GHz MIXER

FEBRUARY 2001

Features

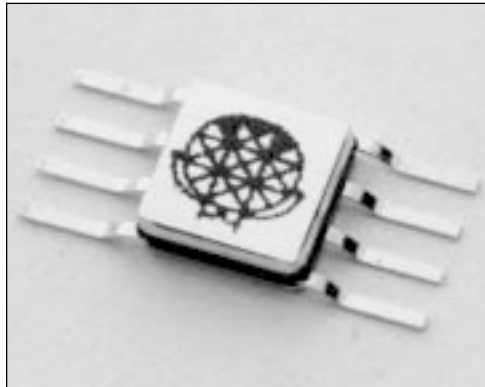
CONVERSION LOSS: 8 dB

LO TO RF AND IF ISOLATION: > 32 dB

SMALL SIZE, NO DC BIAS REQUIRED

General Description

The HMC129G8 is a miniature double-balanced mixer in a hermetic surface mount package that can be used as an upconverter or downconverter. The device is a passive diode/balun type mixer with high dynamic range. Noise figure is essentially equal to the conversion loss. The mixer can handle larger signal levels than most active mixers due to the high third order intercept. MMIC implementation provides exceptional balance in the circuit resulting in high LO/RF and LO/IF isolations.



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MIXERS

SMT



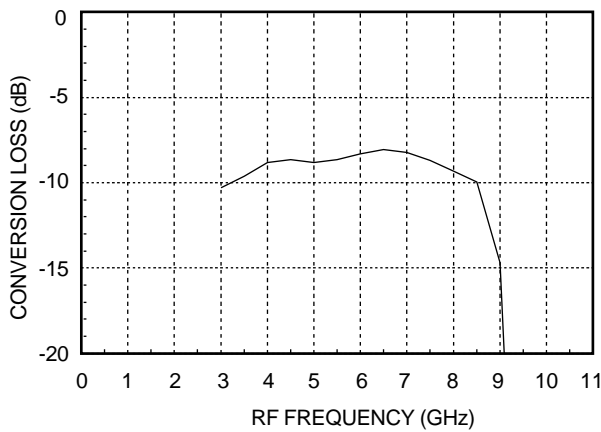
Guaranteed Performance With LO Drive of +15 dBm, -55 to +85 deg C

Parameter	Min.	Typ.	Max.	Units
Frequency Range, RF & LO		4.0 - 8.0		GHz
Frequency Range, IF		DC - 3		GHz
Conversion Loss		8	10	dB
Noise Figure (SSB)		8	10	dB
LO to RF Isolation	20	30		dB
LO to IF Isolation	20	30		dB
IP3 (Input)	13	18		dBm
IP2 (Input)	35	40		dBm
1 dB Gain Compression (Input)	5	10		dBm
Local Oscillator Drive Level	10	15	20	dBm

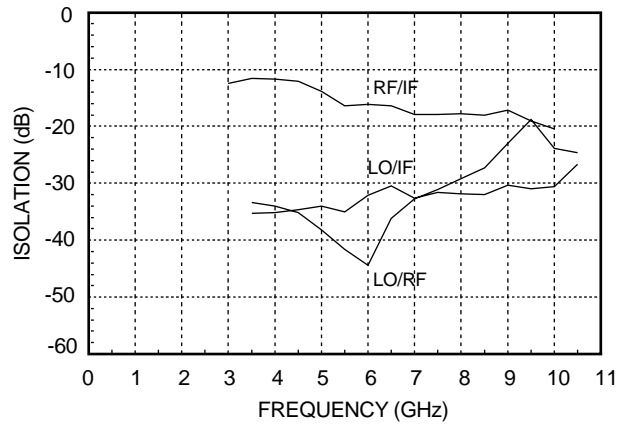
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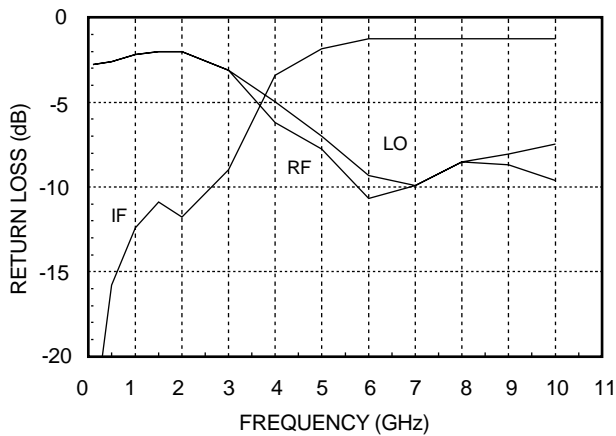
Conversion Loss



Isolation



Return Loss



Distortion and 1dB Compression versus LO Drive Level

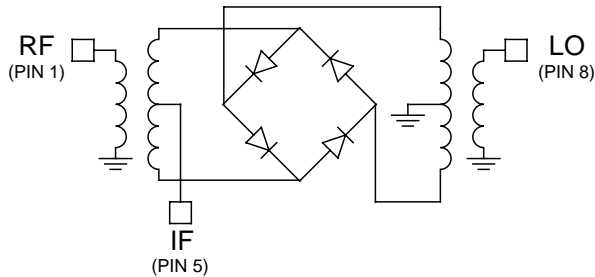
LO Drive (dBm)	Distortion		1 dBm Compression (dBm)
	IP3 (dBm)	IP2 (dBm)	
+7	14	59	8.5
+10	16	62	10
+13	18	65	11
+15	19	65	11

Test Conditions: RF(f1) = 6.01 GHz, RF(f2) = 6.00 GHz, LO = 6.5 GHz, RF Level = 0 dBm

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Schematic



Absolute Maximum Ratings

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

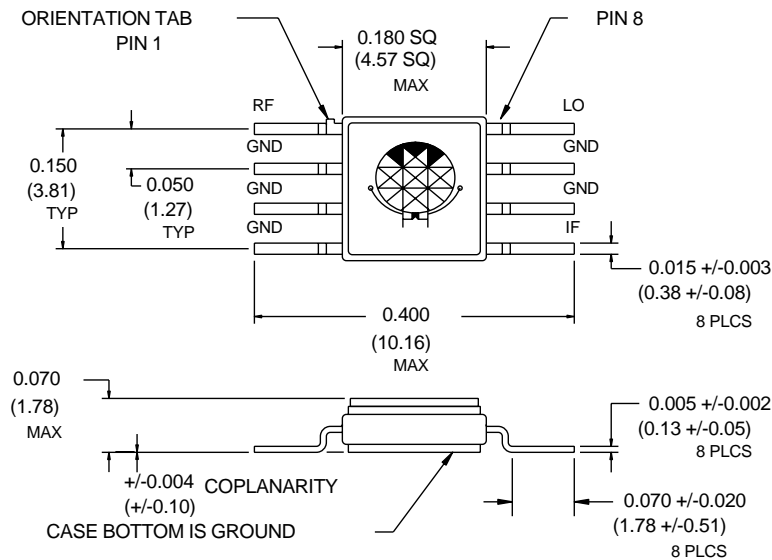
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Outline Drawing



1. MATERIAL:
 - A) PACKAGE BODY - ALUMINA LOADED BOROSILICATE GLASS
 - B) LEADS, BASE, & COVER - ASTM F-15 ALLOY
2. PLATING: ELECTROLYTIC GOLD 50 MICRONICHES MINIMUM, OVER ELECTROLYTIC NICKEL 50 MICROINCHES MINIMUM.
3. DIMENSIONS ARE IN INCHES (MILLIMETERS), UNLESS OTHERWISE SPECIFIED TOL. ARE ± 0.005 (± 0.13)

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NOTES:

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