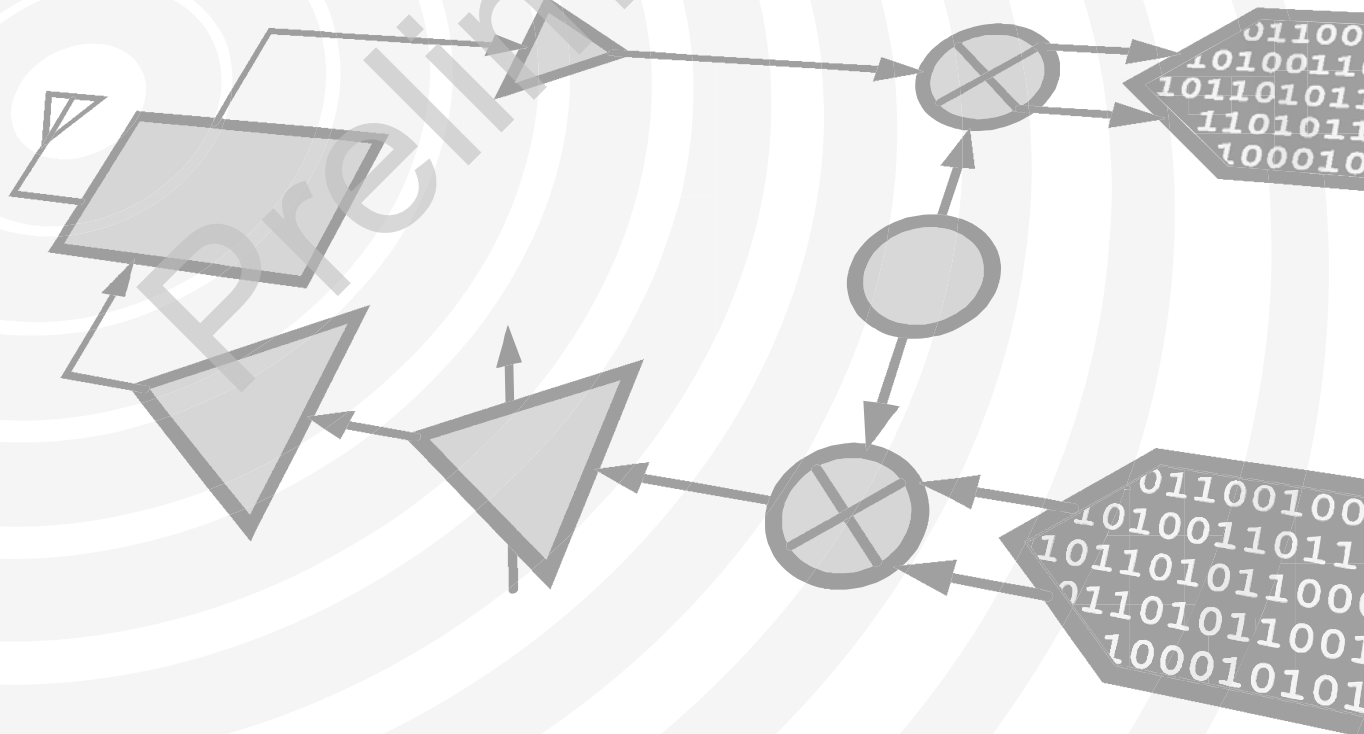


Analog Devices Welcomes Hittite Microwave Corporation



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Preliminary

GaAs MMIC DOUBLE-BALANCED MIXER, 4 - 8 GHz

Typical Applications

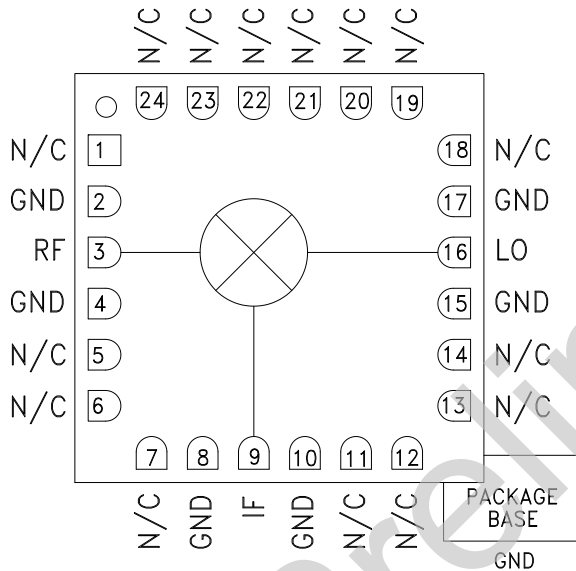
The HMC129ALC4 is ideal for:

- Microwave & VSAT Radios
- Test Equipment
- Military EW, ECM, C³I

Features

- Conversion Loss: 7 dB
- LO to RF and IF Isolation: 40 dB
- Input IP3: +17 dBm
- RoHS Compliant 4x4 mm SMT Package

Functional Diagram



General Description

The HMC129ALC4 is a general purpose double-balanced MMIC mixer housed in a leadless "PB Free" RoHS-Compliant SMT package which can be used as an upconverter or downconverter in the 4 to 8 GHz band. The HMC129ALC4 is ideally suited for applications where small size, no DC bias, and consistent IC performance are required. This mixer can operate over a wide LO drive input of +9 to +15 dBm. It performs equally well as a Bi-Phase modulator or demodulator. The HMC129ALC4 eliminates the need for wire bonding, allowing use of surface mount manufacturing techniques.

Electrical Specifications, $T_A = +25^\circ\text{C}$, LO Drive = +15 dBm*

Parameter	Min.	Typ.	Max.	Units
Frequency Range, RF & LO	4.0 - 8.0			GHz
Frequency Range, IF	DC - 3.0			GHz
Conversion Loss		7	9	dB
Noise Figure (SSB)		7	9	dB
LO to RF Isolation	30	40		dB
LO to IF Isolation	32	40		dB
IP3 (Input)		17		dBm
IP2 (Input)		50		dBm
1 dB Gain Compression (Input)		10		dBm

* Unless otherwise noted, all measurements performed as downconverter, IF = 100 MHz

GaAs MMIC DOUBLE-BALANCED MIXER, 4 - 8 GHz

MxN Spurious @ IF Port

mRF	nLO				
	0	1	2	3	4
0	xx	10	25	13	41
1	9	0	33	44	46
2	78	76	70	78	86
3	88	91	87	64	81
4	97	102	104	109	110

RF Freq. = 6.1 GHz @ -10 dBm
 LO Freq. = 6.0 GHz @ +15 dBm
 Measured as downconverter

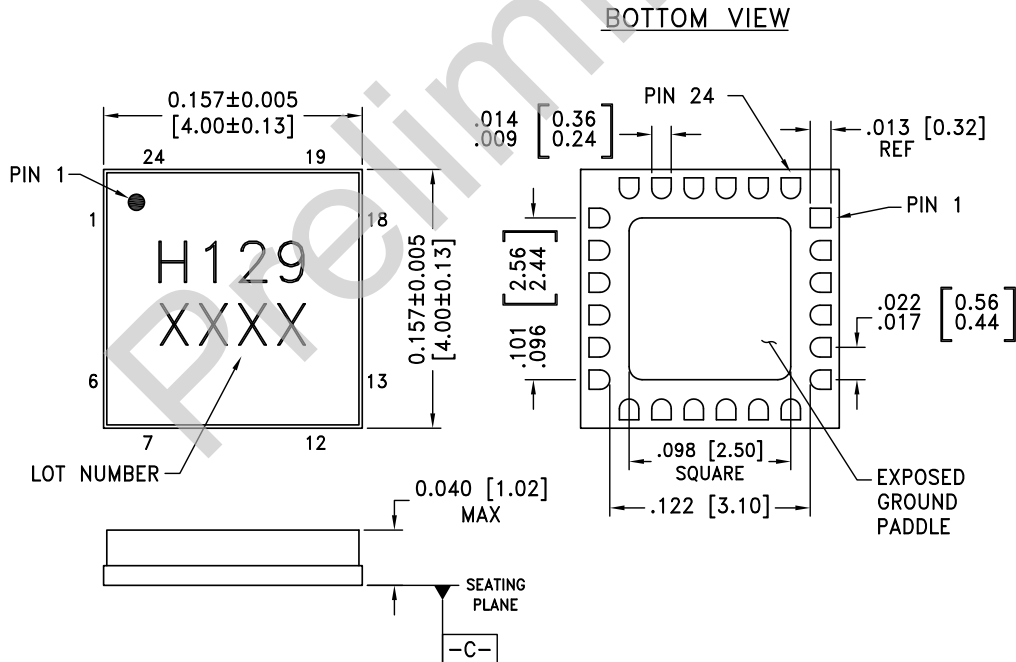
Absolute Maximum Ratings

RF/IF Input	+15 dBm
LO Drive	+27 dBm
IF DC Current	4 mA
Channel Temperature	150 °C
Continuous Pdiss (T = 85 °C) (derate 4.957 mW/ °C above 85 °C)	124 mW
Thermal Resistance (channel to ground paddle)	131.4 °C/W
Storage Temperature	-65 to +150 °C
Operating Temperature	-40 to +85 °C
ESD Sensitivity (HBM)	Class 1A



**ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS**

Outline Drawing



NOTES:

1. PACKAGE BODY MATERIAL: ALUMINA
2. LEAD AND GROUND PADDLE PLATING: GOLD FLASH OVER Ni
3. DIMENSIONS ARE IN INCHES [MILLIMETERS]
4. LEAD SPACING TOLERANCE IS NON-CUMULATIVE
5. PACKAGE WARP SHALL NOT EXCEED 0.05mm DATUM -C-
6. ALL GROUND LEADS AND GROUND PADDLE MUST BE SOLDERED TO PCB RF GROUND