

GAAS MMIC FUNDAMENTAL MIXER, 16 - 30 GHz

Typical Applications

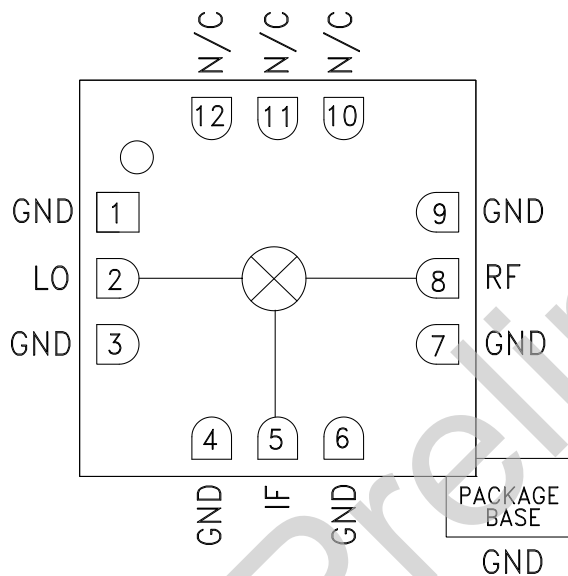
The HMC292ALC3B is ideal for:

- Point-to-Point Radios
- Point-to-Multi-Point Radios & VSAT
- Test Equipment & Sensors
- Military End-Use

Features

- Passive: No DC Bias Required
- Input IP3: +20 dBm
- LO/RF Isolation: 40 dB
- Wide IF Bandwidth: DC - 8 GHz
- Robust 1000V ESD, Class 1C
- 12 Lead Ceramic 3x3 mm SMT Package: 9mm²

Functional Diagram



General Description

The HMC292ALC3B is a general purpose passive double balanced mixer in a leadless RoHS-Compliant SMT package that can be used as an upconverter or downconverter between 16 and 30 GHz. This mixer requires no external components or matching circuitry. The HMC292ALC3B provides excellent LO to RF and LO to IF suppression due to optimized balun structures. The mixer operates with LO drive levels above +9 dBm. The HMC292ALC3B eliminates the need for wire bonding, allowing use of surface mount manufacturing techniques.

Electrical Specifications, $T_A = +25^\circ\text{C}$, $IF = 1\text{ GHz}$, $LO = +13\text{ dBm}$ *

Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range, RF & LO		16 - 26		26 - 30			GHz
Frequency Range, IF		DC - 8		DC - 8			GHz
Conversion Loss		8	11		9.5	12.5	dB
Noise Figure (SSB)		8	11		9.5	12.5	dB
LO to RF Isolation	34	40		32	40		dB
LO to IF Isolation	24	32		28	34		dB
RF to IF Isolation	14	25		24	30		dB
IP3 (Input)	15	18		17	21		dBm
IP2 (Input)		48			50		dBm
1 dB Gain Compression (Input)	8	13		8	14		dBm

*Unless otherwise noted, all measurements performed as downconverter, $IF = 1\text{ GHz}$.

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Absolute Maximum Ratings

RF / IF Input	+13 dBm
LO Drive	+27 dBm
Channel Temperature	150 °C
Continuous P _{diss} (T _a = 85 °C) (derate 4.0 mW/°C above 85 °C)	260 mW
Thermal Resistance (junction to ground paddle)	250 °C/W
Storage Temperature	-65 to +150 °C
Operating Temperature	-40 to +85 °C
ESD Sensitivity (HBM)	Class 1C

MxN Spurious Outputs

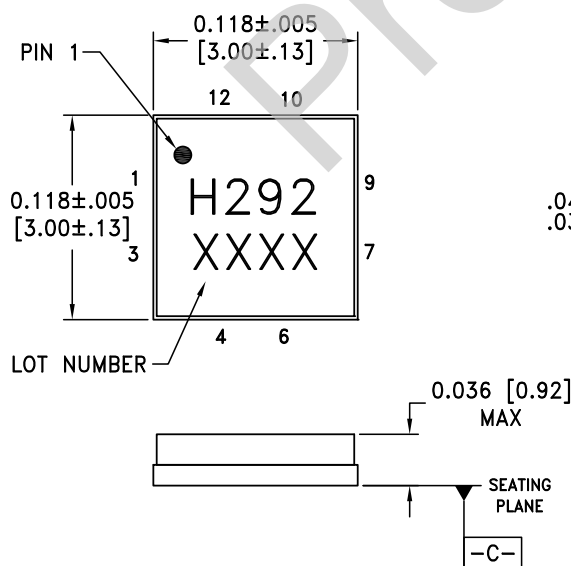
mRF	nLO				
	0	1	2	3	4
0	xx	13	47	xx	xx
1	23	0	50	51	xx
2	87	72	64	72	89
3	xx	89	88	73	92
4	xx	xx	86	95	104

RF = 22 GHz @ -10 dBm
LO = 21 GHz @ +13 dBm
All values in dBc below the IF output power level.

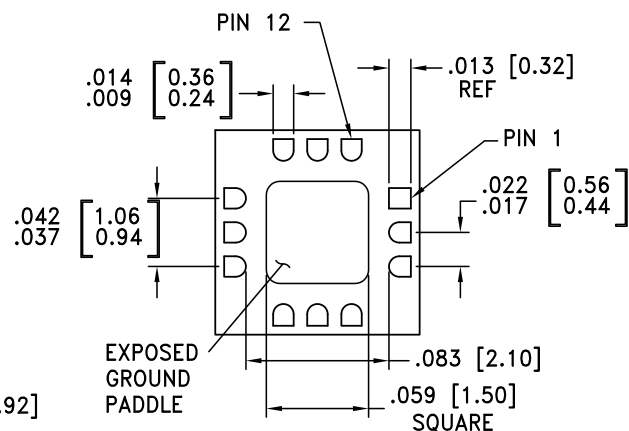


ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS

Outline Drawing



BOTTOM VIEW



NOTES:

1. PACKAGE BODY MATERIAL: ALUMINA.
2. LEAD AND GROUND PADDLE PLATING: GOLD FLASH OVER NICKEL.
3. DIMENSIONS ARE IN INCHES (MILLIMETERS).
4. LEAD SPACING TOLERANCE IS NON-CUMULATIVE.
5. CHARACTERS TO BE HELVETICA MEDIUM, .025 HIGH, BLACK INK, OR LASER MARK LOCATED APPROX. AS SHOWN.
6. PACKAGE WARP SHALL NOT EXCEED 0.05MM DATUM - C -
7. ALL GROUND LEADS AND GROUND PADDLE MUST BE SOLDERED TO PCB RF GROUND.