

Typical Applications

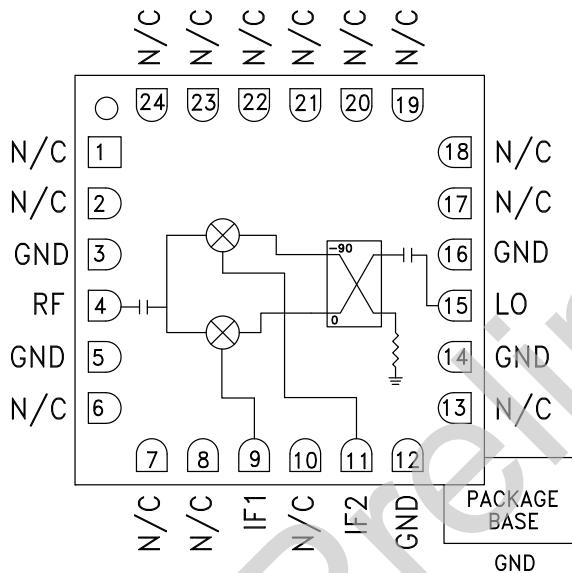
The HMC521ALC4 is ideal for:

- Point-to-Point and Point-to-Multi-Point Radio
- Military Radar

Features

- Wide IF Bandwidth: DC - 3.5 GHz
- Image Rejection: 38 dB
- LO to RF Isolation: 50 dB
- High Input IP3: +23 dBm
- 24 Lead 4x4mm SMT Package: 16mm²

Functional Diagram



General Description

The HMC521ALC4 is a compact I/Q MMIC mixer in a leadless "Pb free" RoHS compliant SMT package, which can be used as either an Image Reject Mixer or a Single Sideband Upconverter. The mixer utilizes two standard Hittite double balanced mixer cells and a 90 degree hybrid fabricated in a GaAs MESFET process. A low frequency quadrature hybrid was used to produce a 100 MHz USB IF output. This product is a much smaller alternative to hybrid style Image Reject Mixers and Single Sideband Upconverter assemblies. The HMC521ALC4 eliminates the need for wire bonding allowing use of surface mount manufacturing techniques.

Electrical Specifications, $T_A = +25^\circ\text{C}$, IF = 100 MHz, LO = +15 dBm*

Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range, RF/LO		8.5 - 13.5			10.5 - 11.7		GHz
Frequency Range, IF		DC - 3.5			DC - 3.5		GHz
Conversion Loss (As IRM)		8	10		7.5	9.5	dB
Image Rejection	20	30		30	38		dB
1 dB Compression (Input)		+14			+15		dBm
LO to RF Isolation	35	45		45	55		dB
LO to IF Isolation	18	22		20	24		dB
IP3 (Input)		+23			+24		dBm
Amplitude Balance		0.3			0.1		dB
Phase Balance		4			4		Deg

* Unless otherwise noted, all measurements performed as downconverter.

HMC521A* PRODUCT PAGE QUICK LINKS

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COMPARABLE PARTS

View a parametric search of comparable parts.

DOCUMENTATION

Data Sheet

- HMC521A: GaAs MMIC I/Q MIXER 8.5 - 13.5 GHz Data Sheet

DESIGN RESOURCES

- HMC521A Material Declaration
- PCN-PDN Information
- Quality And Reliability
- Symbols and Footprints

DISCUSSIONS

View all HMC521A EngineerZone Discussions.

SAMPLE AND BUY

Visit the product page to see pricing options.

TECHNICAL SUPPORT

Submit a technical question or find your regional support number.

DOCUMENT FEEDBACK

Submit feedback for this data sheet.

Harmonics of LO

LO Freq. (GHz)	nLO Spur at RF Port			
	1	2	3	4
8.5	42	44	44	70
9.5	50	53	59	77
10.5	51	54	63	xx
11.5	47	58	66	xx
12.5	45	59	70	xx
13.5	45	57	xx	xx

LO = + 15 dBm

Values in dBc below input LO level measured at RF Port.

MxN Spurious Outputs

mRF	nLO				
	0	1	2	3	4
0	xx	-5	29	23	52
1	27	0	51	59	81
2	92	85	76	82	92
3	92	92	92	92	92
4	92	92	92	92	92

RF = 10.6 GHz @ -10 dBm
 LO = 10.5 GHz @ +15 dBm
 Data taken without IF hybrid
 All values in dBc below IF power level

Absolute Maximum Ratings

RF / IF Input	+20 dBm
LO Drive	+ 27 dBm
Channel Temperature	150°C
Continuous Pdiss (T=85°C) (derate 6.9 mW/°C above 85°C)	460 mW
Thermal Resistance (R_{TH}) (junction to package bottom)	141.4 °C/W
Storage Temperature	-65 to +150 °C
Operating Temperature	-55 to +85 °C


**ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS**

Outline Drawing
