

GaAs MMIC FUNDAMENTAL MIXER, 7 - 43 GHz

Typical Applications

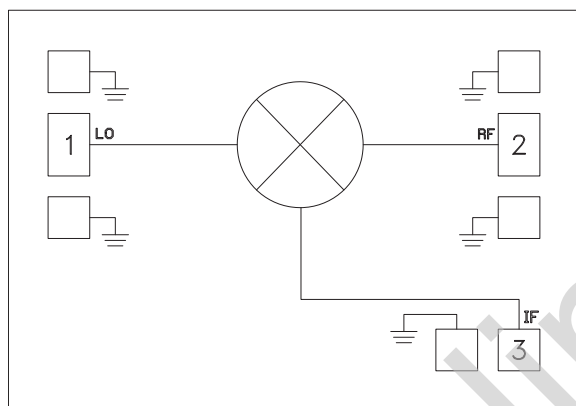
The HMC774A is ideal for:

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

Features

- Passive: No DC Bias Required
- High Input IP3: +22 dBm
- High LO/RF Isolation: 35 dB
- Wide IF Bandwidth: DC - 10 GHz
- Upconversion & Downconversion Applications
- Die Size: 1.36 x 0.96 x 0.1 mm

Functional Diagram



General Description

The HMC774A is a general purpose double balanced mixer chip that can be used as an upconverter or downconverter between 7 and 43 GHz. This mixer requires no external components or matching circuitry. The HMC774A provides excellent LO to RF and LO to IF isolation due to optimized balun structures. The mixer operates with LO drive levels of +13 dBm. The HMC774A wideband mixer exhibits consistent conversion gain and compression across its bandwidth. The HMC774A is also available in SMT format as the HMC774ALC3B.

Electrical Specifications, $T_A = +25^\circ \text{C}$, $IF = 0.5 \text{ GHz}$, $LO = +13 \text{ dBm}^*$

Parameter	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range, RF & LO	7 - 22			22 - 43			GHz
Frequency Range, IF	DC - 10			DC - 10			GHz
Conversion Loss		9	13		10	13	dB
LO to RF Isolation		35			38		dB
LO to IF Isolation	20	30		25	40		dB
RF to IF Isolation	7	10		14	20		dB
IP3 (Input)		20			22		dBm
IP2 (Input)		45			48		dBm
1 dB Gain Compression (Input)		12			13		dBm

* Unless otherwise noted, all measurements performed as downconverter, $IF = 0.5 \text{ GHz}$, $LO = +13 \text{ dBm}$

**GaAs MMIC FUNDAMENTAL
MIXER, 7 - 43 GHz**
MxN Spurious Outputs

mRF	nLO				
	0	1	2	3	4
0	xx	10	39	xx	xx
1	5	0	37	43	xx
2	30	49	47	55	68
3	xx	74	62	45	63
4	xx	xx	xx	77	71

RF = 17.5 GHz @ -10 dBm
 LO = 18.0 GHz @ +15 dBm
 All values in dBc below the IF output power level.

Absolute Maximum Ratings

RF / IF Input	21 dBm
LO Drive	27 dBm
Channel Temperature	150 °C
Continuous Pdiss (Ta = 85 °C) (derate 2.9 mW/°C above 85 °C)	189 mW
Thermal Resistance (junction to die bottom)	343 °C/W
Storage Temperature	-65 to +150 °C
Operating Temperature	-55 to +85 °C



**ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS**

Outline Drawing
