

Silicon Double Balanced HMIC Mixer 850 - 1050 MHz

Rev. V2

Features

- +21 dBm Typical Input IP3
- 8.3 dB Typical Conversion Loss
- +5 to +10 dBm LO Drive
- Fully Balanced Passive Mixer
- Low Cost Miniature Plastic MLP Package
- Lead Free (RoHS* Compliant) with 260°C Re-flow Capability
- 100% Matte Tin Plating

Description

M/A-COM's MAMX-090950-1277LT is a 850 - 1050 MHz silicon monolithic double balanced mixer in a low cost miniature surface mount MLP 3 mm, 16 lead plastic package. The die uses M/A-COM's unique HMIC silicon/glass process to realize low loss passive elements while retaining the advantages of medium barrier silicon Schottky barrier diodes.

Applications

These mixers are well suited for GSM and CDMA Cellular basestation applications where small size and high performance are required. Typical Applications include frequency conversion, modulation, and demodulation in wireless receivers and transmitters.

Ordering Information

Model No.	Package
MAMX-090950-1277LT	Tape and Reel

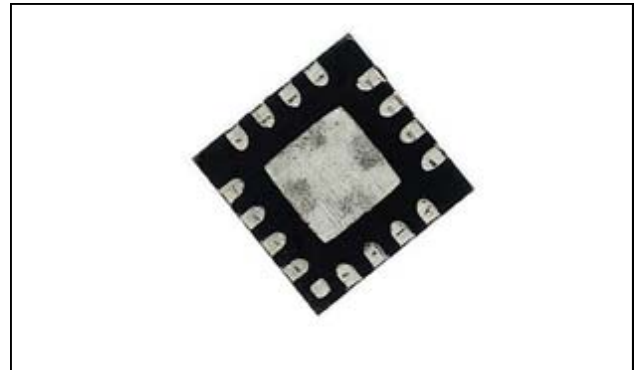
Absolute Maximum Ratings ^{1,2}

Parameter	Maximum Rating
Operating Temperature	-65°C to +125°C
Storage Temperature	-65°C to 150°C
Incident LO Power	+20 dBm
Incident RF Power	+20 dBm
Soldering Temperature	+260°C max.

1. Exceeding these limits may cause permanent damage.
2. Please refer to application note M538 for surface mounting instructions

* Restrictions on Hazardous Substances, European Union Directive 2002/95/EC.

MLP 3mm Package - Circuit Side

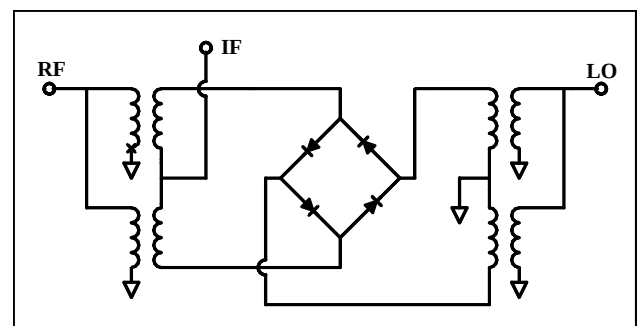


PIN Configuration ³

PIN	Function	PIN	Function
1	N/C	9	N/C
2	N/C	10	RF
3	LO	11	N/C
4	N/C	12	N/C
5	N/C	13	N/C
6	N/C	14	IF
7	N/C	15	N/C
8	N/C	16	N/C

3. Center area is ground

Schematic



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Electrical Specifications @ 25°C

Parameter	Frequency Range	Test Conditions	Units	Min.	Typ.	Max.
Conversion Loss	900 MHz 850 - 1050 MHz	LO Drive = +7 dBm RF = -10 dBm, IF = 60 MHz	dB dB	— —	8.2 8.5	8.9 9.5
L - R Isolation	900 MHz 850 - 1050 MHz	LO Drive = +7 dBm RF Level = -10 dBm	dB dB	— —	65 62	— —
L - I Isolation	900 MHz 850 - 1050 MHz	LO Drive = +7 dBm RF Level = -10 dBm	dB dB	— —	46 46	— —
R - I Isolation	900 MHz 850 - 1050 MHz	LO Drive = +7 dBm RF Level = -10 dBm	dB dB	— —	23 23	— —
LO VSWR	900 MHz 850 - 1050 MHz	LO Drive = +7 dBm RF Level = -10 dBm	Ratio Ratio	— —	1.5:1 1.5:1	— —
RF VSWR	900 MHz 850 - 1050 MHz	LO Drive = +7 dBm RF Level = -10 dBm	Ratio Ratio	— —	1.3:1 1.5:1	— —
IF VSWR	DC - 400 MHz	LO Drive = +7 dBm RF Level = -10 dBm	Ratio Ratio	— —	1.5:1 1.5:1	— —
Input IP3	900 MHz 850 - 1050 MHz	LO Drive = +7 dBm RF = -10 dBm, IF = 60 MHz	dBm dBm	17.8 16.9	21.0 20.5	— —
Input 1 dB Compression	900 MHz 850 - 1050 MHz	LO Drive = +7 dBm IF = 60 MHz	dBm dBm	— —	4.3 4.3	— —
IF 1 dB Bandwidth	DC - 400 MHz	LO = 900 MHz @ +7 dBm	MHz	0	—	400

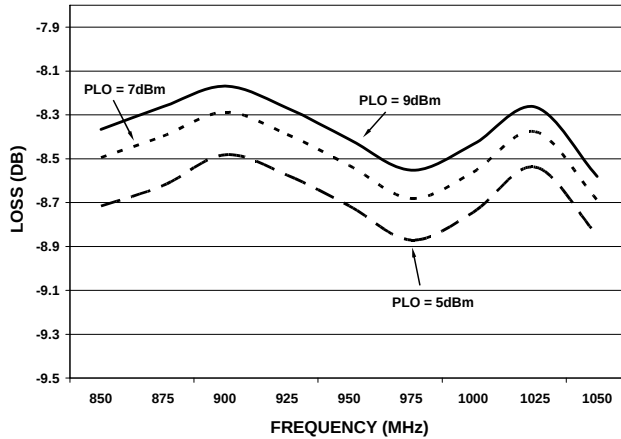
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Typical Performance Curves

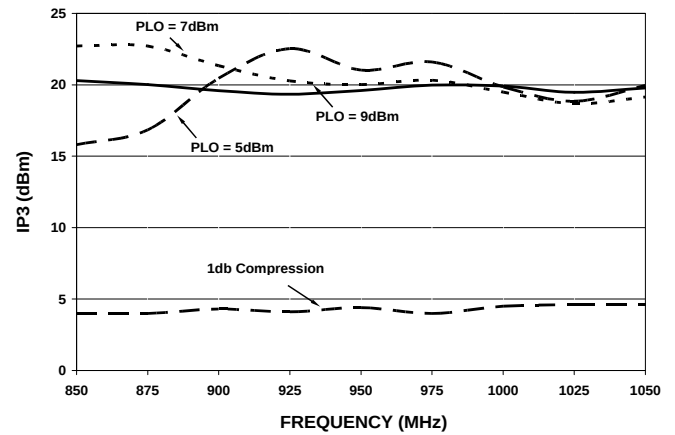
Conversion Loss vs. Frequency

LO Drive = +5/+7/+9 dBm, RF = -10 dBm, IF = 60 MHz



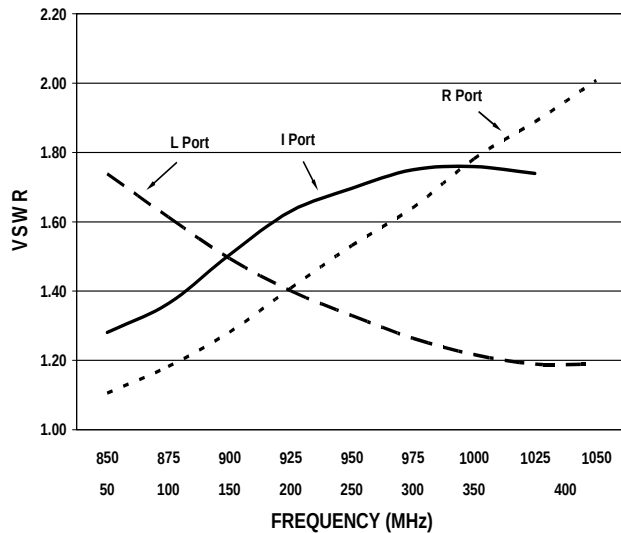
Input 1 dB & P1dB vs. Frequency

LO Drive = +5/+7/+9 dBm, RF = -10 dBm, IF = 60 MHz



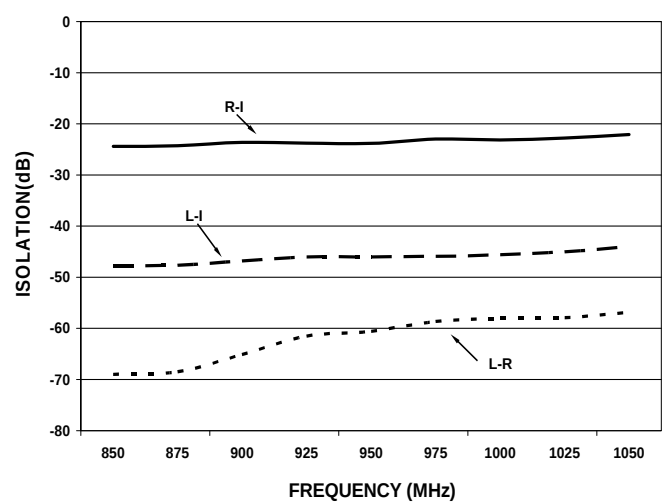
VSWR vs. Frequency

LO Drive = +7 dBm, RF = -10 dBm, IF = 60 MHz



Isolation vs. Frequency

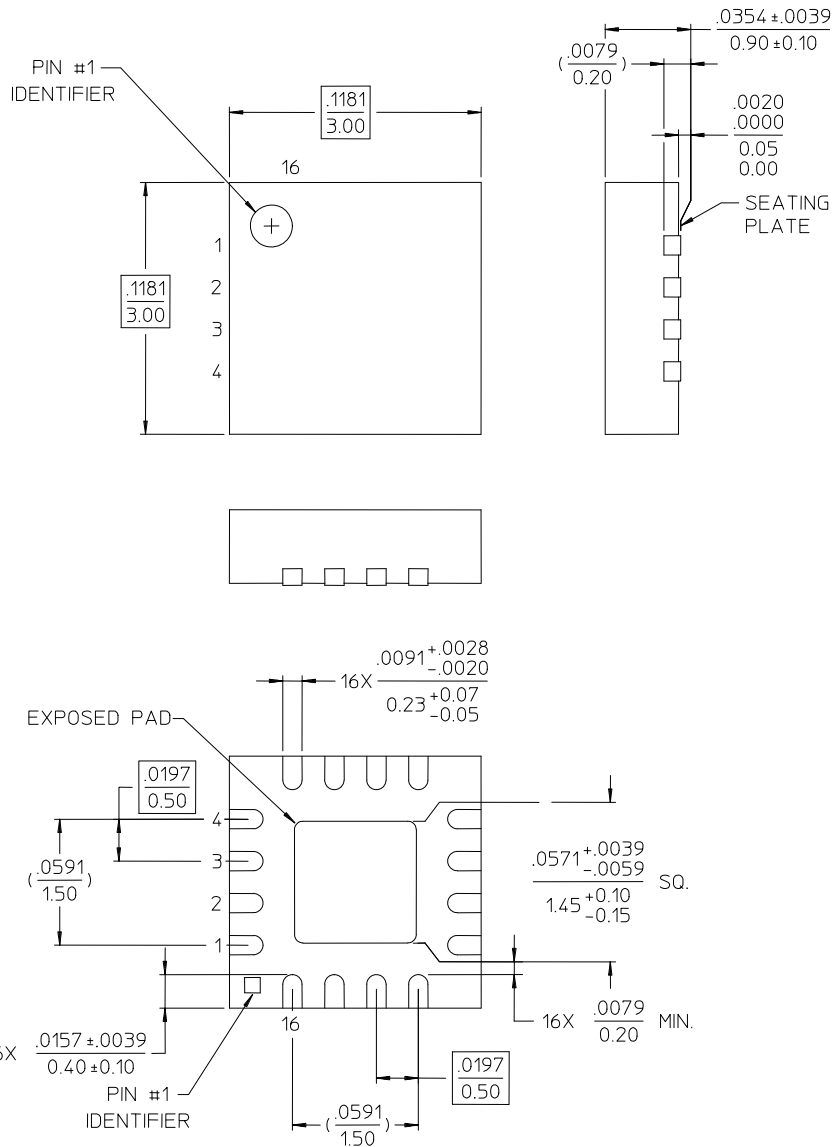
LO Drive = +7 dBm, RF = -10 dBm



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MAMX-090950-1277LT Outline 3mm FQFP - 16 Lead Saw Singulated



- NOTES: 1. REFERENCE JEDBC MO-220, VAR. VBBD-1 FOR ADDITIONAL DIMENSIONAL AND TOLERANCE INFORMATION.
2. REFERENCE S2083 APPLICATION NOTE FOR PCB FOOTPRINT INFORMATION.
3. ALL DIMENSIONS SHOWN AS INCHES/MM.