

Silicon Double Balanced HMIC Mixer 2300 - 2800 MHz

Rev. V3

Features

- + 18 dBm Typical Input IP3
- 8.3 dB Typical Conversion Loss
- + 5 to + 9 dBm LO Drive
- Fully Balanced Passive Mixer
- NO External Matching Required
- Low Cost Miniature Plastic MLP Package
- RoHS* Compliant with 260 °C Reflow Capability
- 100 % MATTE Tin Plating

Description and Applications

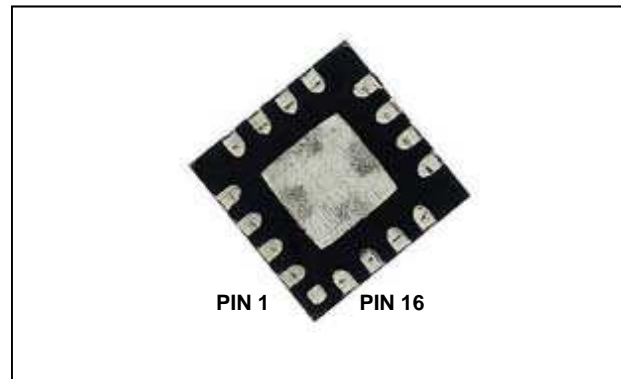
M/A-COM's MA4EXP240L-1277 is a silicon monolithic 2300-2800 MHz, low barrier, double balanced mixer in a low cost, miniature surface mount FQFP-N 3mm Square, 16 lead plastic package. The die uses M/A-COM's unique HMIC silicon/glass process to realize low loss passive elements while retaining the advantages of low barrier silicon schottky barrier diodes to produce a compact device.

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

Ordering Information

Part Number	Package
MA4EXP240L-1277T	Tape and Reel

MLP 3mm Package (Circuit Side View)



PIN Configuration¹

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

1. Package bottom is electrical ground

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

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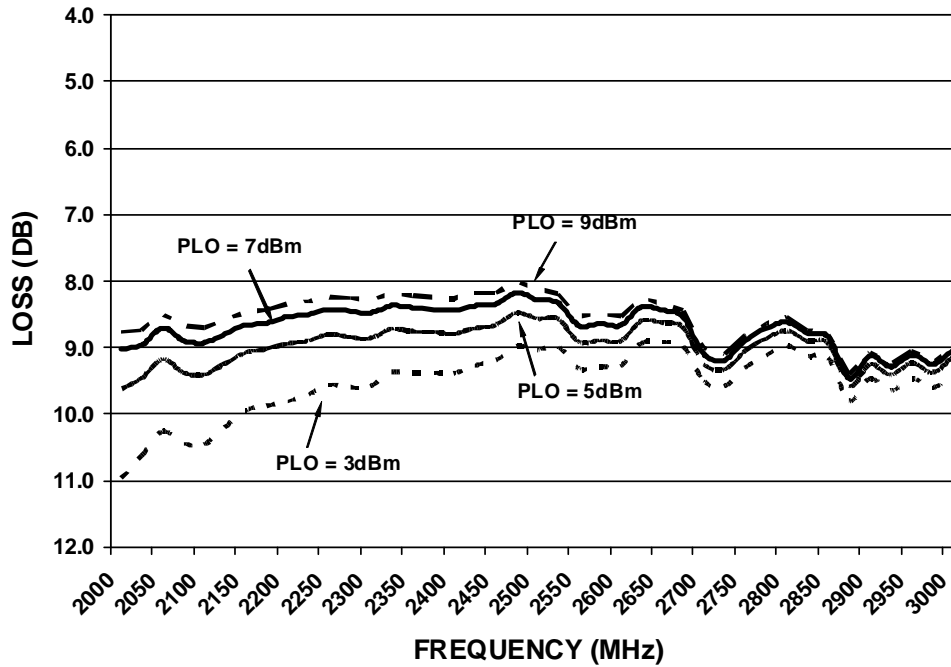
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Electrical Specifications @ +25 °C

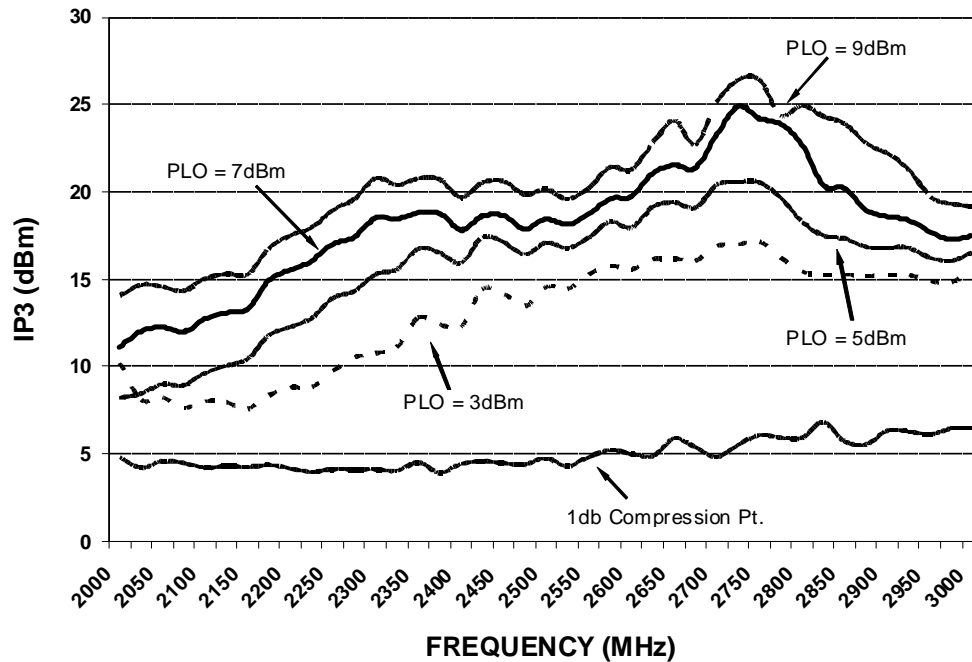
Parameter	Frequency Range	Test Conditions	Units	Min.	Avg.	Max.
Conversion Loss	2500 MHz 2300-2800 MHz	LO Drive = +7 dBm RF = -10 dBm, IF = 60 MHz	dB	- -	8.3 8.5	9.8 10.5
L - R Isolation	2500 MHz 2300-2800 MHz	LO Drive = +7 dBm RF Level = -10 dBm	dB	- -	51.0 51.0	- -
L - I Isolation	2500 MHz 2300-2800 MHz	LO Drive = +7 dBm RF Level = -10 dBm	dB	- -	42.0 39.0	- -
R - I Isolation	2500 MHz 2300-2800 MHz	LO Drive = +7 dBm RF Level = -10 dBm	dB	- -	23.0 23.0	- -
LO VSWR	2500 MHz 2300-2800 MHz	LO Drive = +7 dBm RF Level = -10 dBm	Ratio		2.0:1 1.9:1	
RF VSWR	2500 MHz 2300-2800 MHz	LO Drive = +7 dBm RF Level = -10 dBm	Ratio	- -	1.6:1 1.7:1	- -
IF VSWR	DC - 200 MHz	LO Drive = +7 dBm RF Level = -10 dBm	Ratio	- -	1.5:1 -	- -
Input IP3	2500 MHz 2300-2800 MHz	LO Drive = +7 dBm RF = -10 dBm, IF = 60 MHz	dBm	15 -	18.4 20.3	- -
Input 1 dB Compression	2500 MHz 2300-2800 MHz	LO Drive = +7 dBm IF = 60 MHz	dBm	- -	4.8 4.9	- -

Typical Performance Curves (LO Drive = +5/+7/+9 dBm, RF = -10 dBm, IF = 60 MHz)

Conversion Loss



Input IP3



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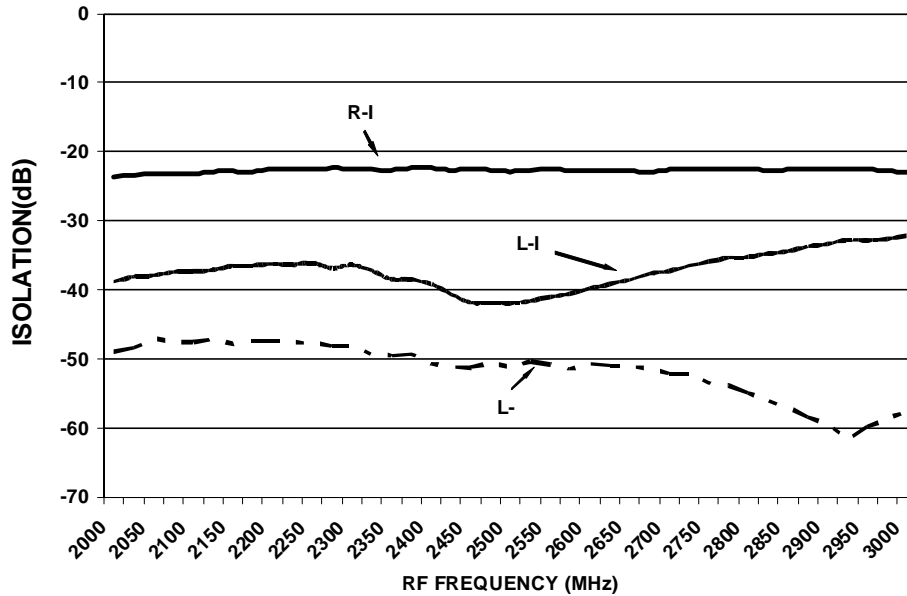


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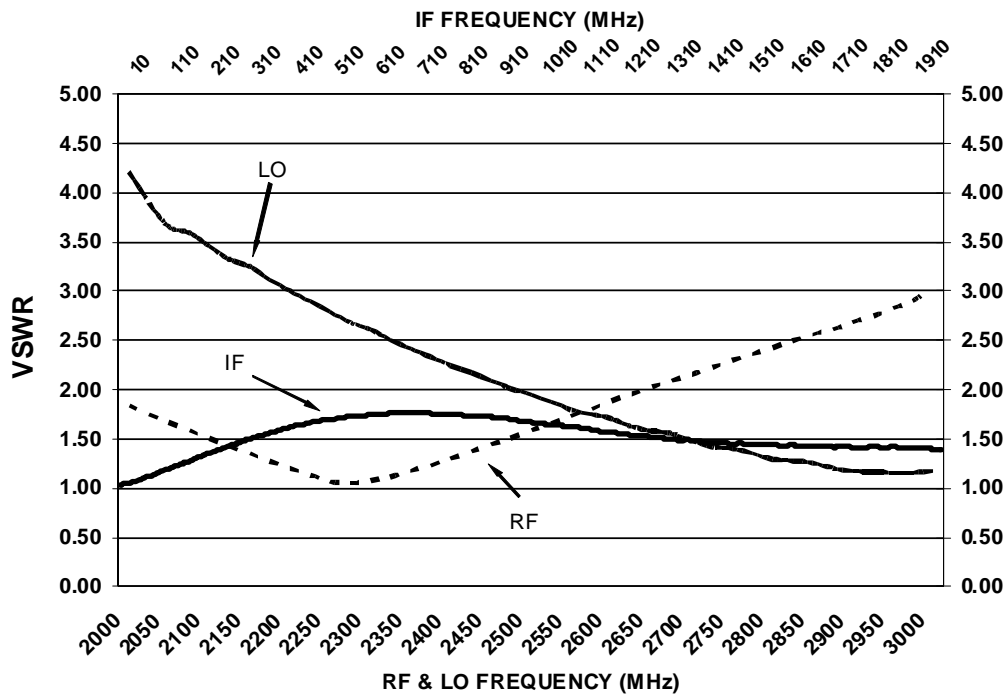
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Typical Performance Curves (LO Drive = +5/+7/+9 dBm, RF = -10 dBm, IF = 60 MHz)

Isolation (LO Drive= +7dbm, RF= -10dBm)



VSWR (LO Drive= +7dbm, RF= -10dBm, IF=-10dBm)



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Absolute Maximum Ratings¹

Parameter	Maximum Ratings
Operating Temperature	-40 °C to +85 °C
Storage Temperature	-65 °C to +150 °C
Incident LO Power	+20 dBm C.W.
Incident RF Power	+20 dBm C.W.
Soldering Temperature	+260 °C max

1. Exceeding these limits may cause permanent damage.

Mixer Schematic

