

# MAEXP190H-1277T

Silicon Double Balanced HMIC Mixer  
1700 – 2200 MHz

Rev. V2

## Features

- + 33 dBm Typical Input IP3
- 8.3 dB Typical Conversion Loss
- + 17 to + 19 dBm LO Drive
- Fully Balanced Passive Mixer
- NO External Matching Required
- Low Cost Miniature Plastic MLP Package

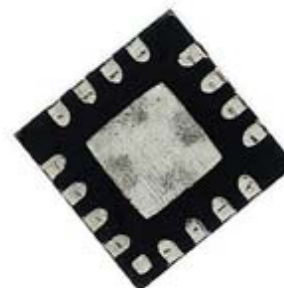
## Description

M/A-COM's MA4EXP190H-1277 is a silicon monolithic 1700-2200 MHz, high 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 high barrier silicon schottky barrier diodes to produce a compact device.

## Applications

These mixers are well suited for GSM, DCS, PCS, CDMA and UMTS base station applications where small size and high performance are required. Typical applications include frequency conversion, modulation, and demodulation in wireless receivers and transmitters.

## MLP 3mm Package - Circuit Side View



PIN 1

PIN 16

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

## Ordering Information

Model No.	Package
MA4EXP190H-1277T	Tape and Reel

## Electrical Specifications @ +25°C

Parameter	Frequency Range	Test Conditions	Units	Min.	Avg.	Max.
Conversion Loss	1925 MHz	LO Drive = +19 dBm	dB	-	8.3	9.5
	1700 – 2200 MHz	RF = -10 dBm, IF = 60 MHz		-	8.4	9.5
L - R Isolation	1925 MHz	LO Drive = +17 dBm	dB	-	48	-
	1700 – 2200 MHz	RF Level = -10 dBm		-	48	-
L - I Isolation	1925 MHz	LO Drive = +17 dBm	dB	-	46	-
	1700 – 2200 MHz	RF Level = -10 dBm		-	44	-
R - I Isolation	1925 MHz	LO Drive = +17 dBm	dB	-	25	-
	1700 – 2200 MHz	RF Level = -10 dBm		-	25	-
RF VSWR	1925 MHz	LO Drive = +17 dBm	Ratio	-	1.1:1	-
	1700 – 2200 MHz	RF Level = -10 dBm		-	1.3:1	-
IF VSWR	DC - 500 MHz	LO Drive = +17 dBm IF Level = -10 dBm	Ratio	-	1.6:1	-
Input IP3	2025 MHz	LO Drive = +19 dBm	dBm	-	34.0	-
	1700 – 2200 MHz	RF = -10 dBm, IF = 60 MHz		-	32.0	-
Input 1 dB Compression	1925 MHz	LO Drive = +17 dBm	dBm	-	11.3	-
	1700 – 2200 MHz	IF = 60 MHz		-	11.2	-
IF 1 dB Bandwidth	DC - 400 MHz	LO = 1850 MHz @ +17dBm	MHz	0	-	400

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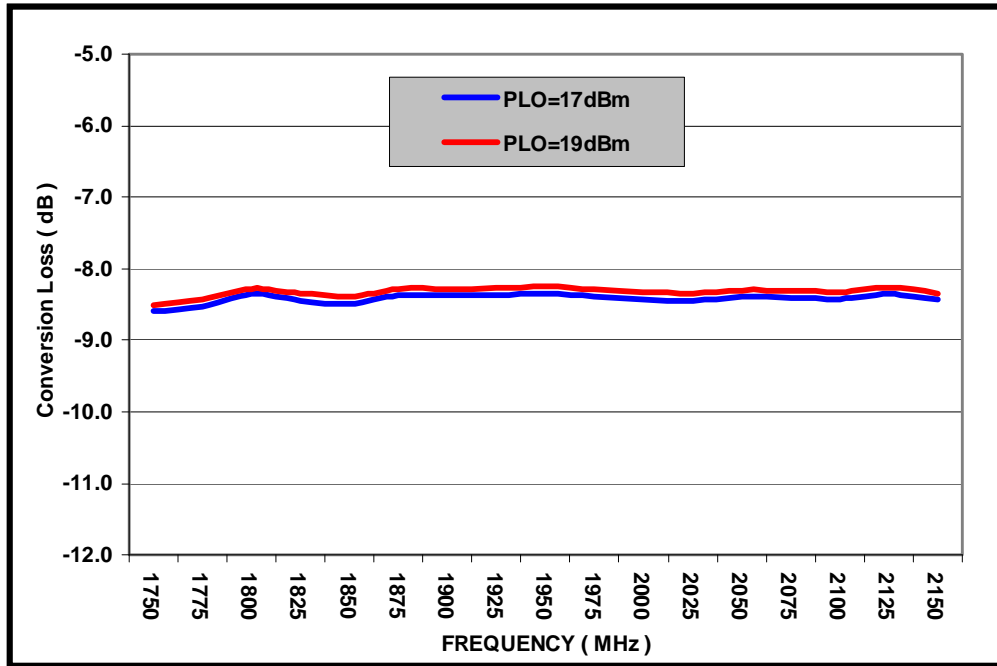


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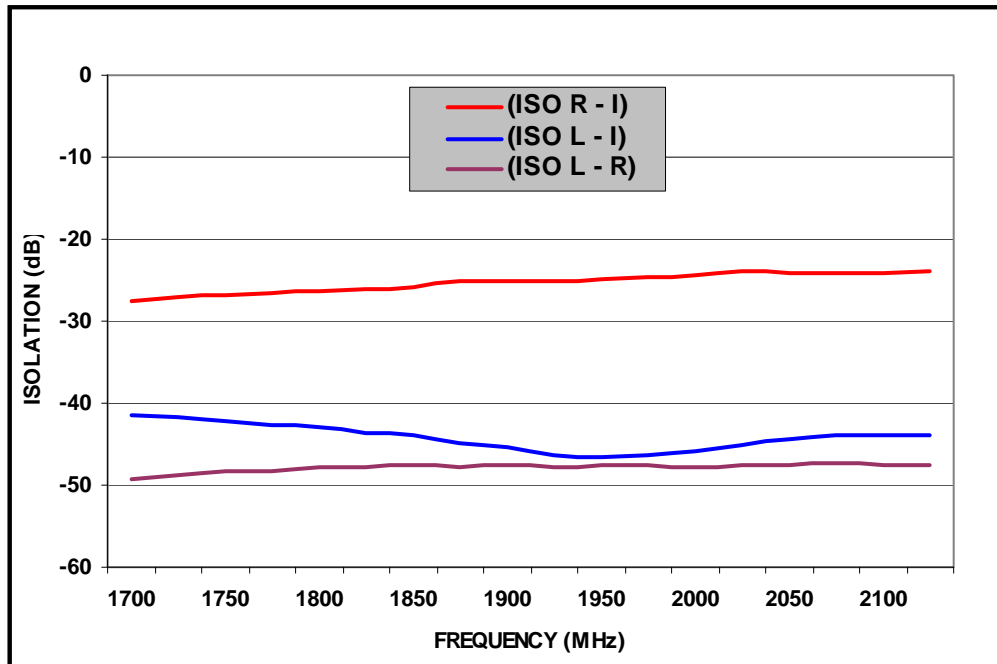
Rev. V2

Typical Performance Curves ( LO Drive = +17dbm, RF = -10dBm, IF = 60MHz )

## CONVERSION LOSS



## ISOLATION



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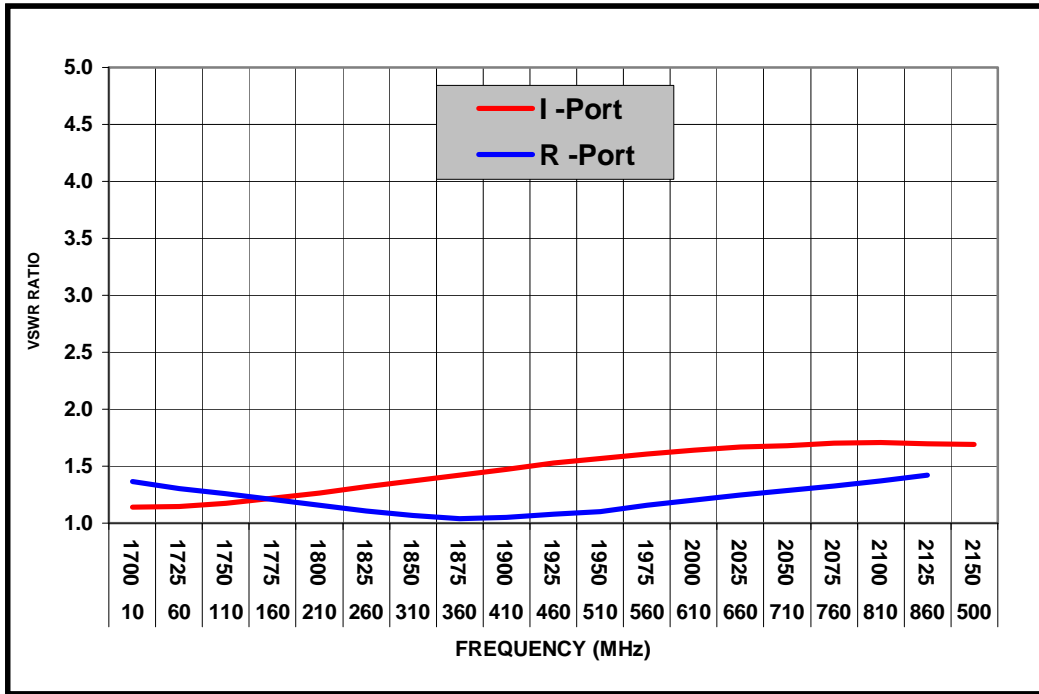


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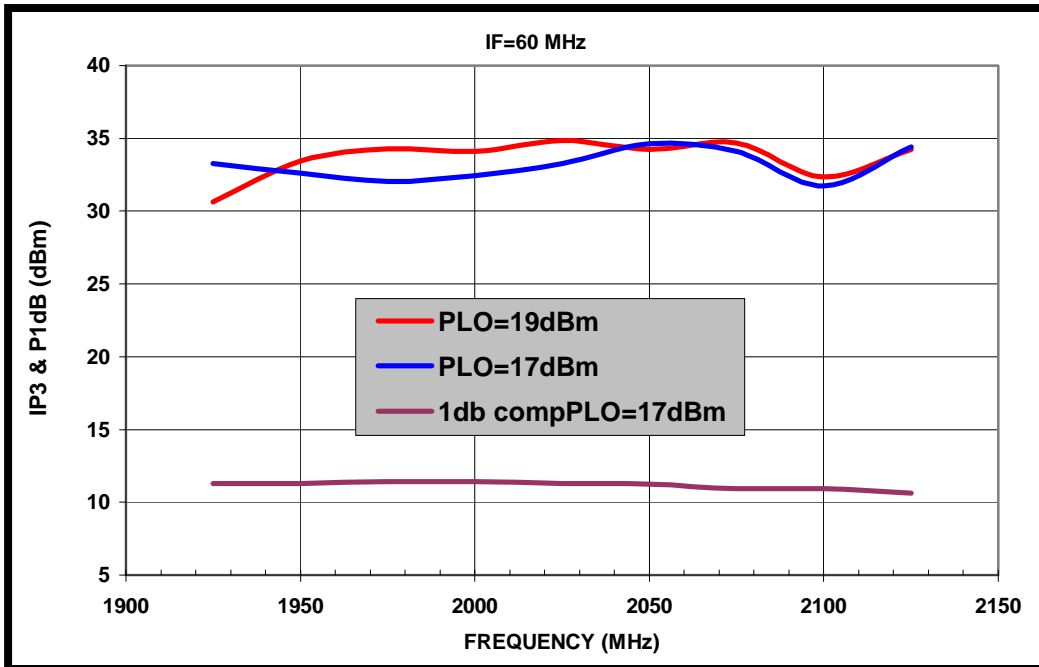
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## Typical Performance Curves ( LO Drive = +17dbm, RF = -10dBm, IF = 60MHz )

RF & IF VSWR



INPUT IP3 & 1dB Compression Power



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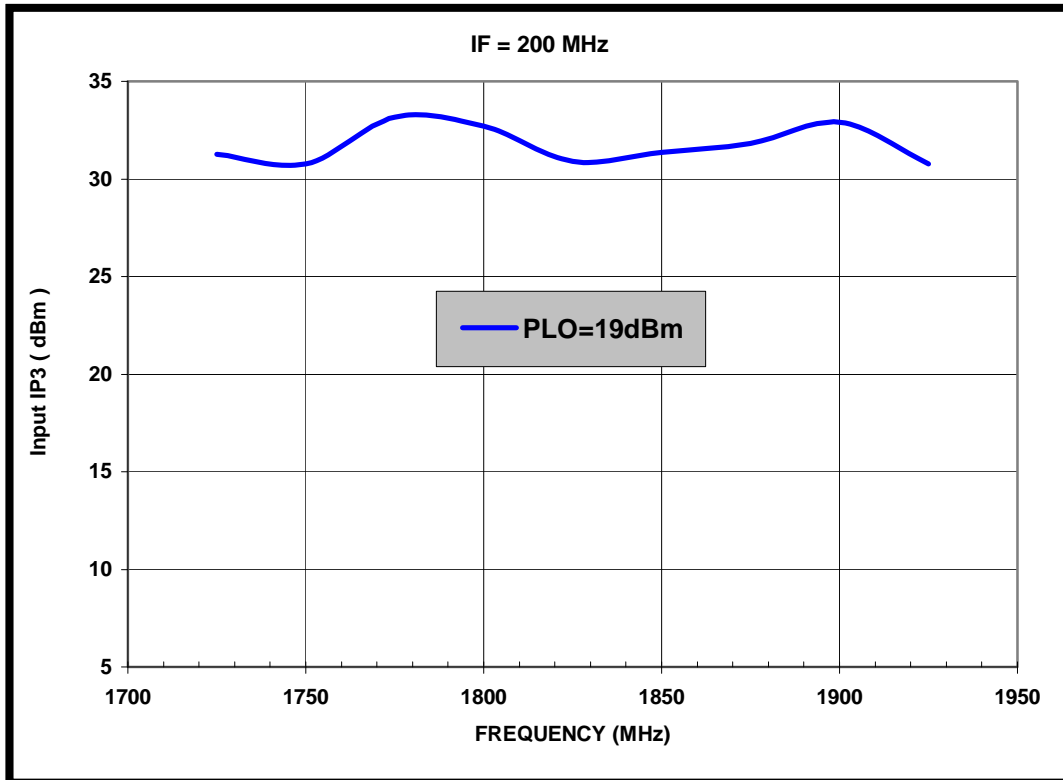


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Typical Performance Curves ( LO Drive = +19dBm, RF = -10dBm, IF = 200 MHz )

## INPUT IP3



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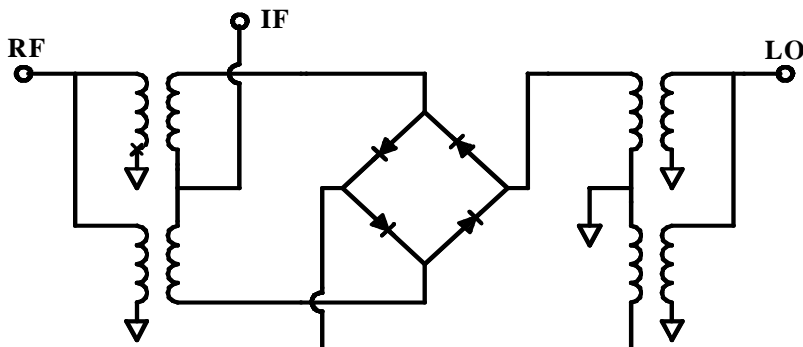
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## Mixer Schematic



## Absolute Maximum Ratings<sup>1</sup>

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.

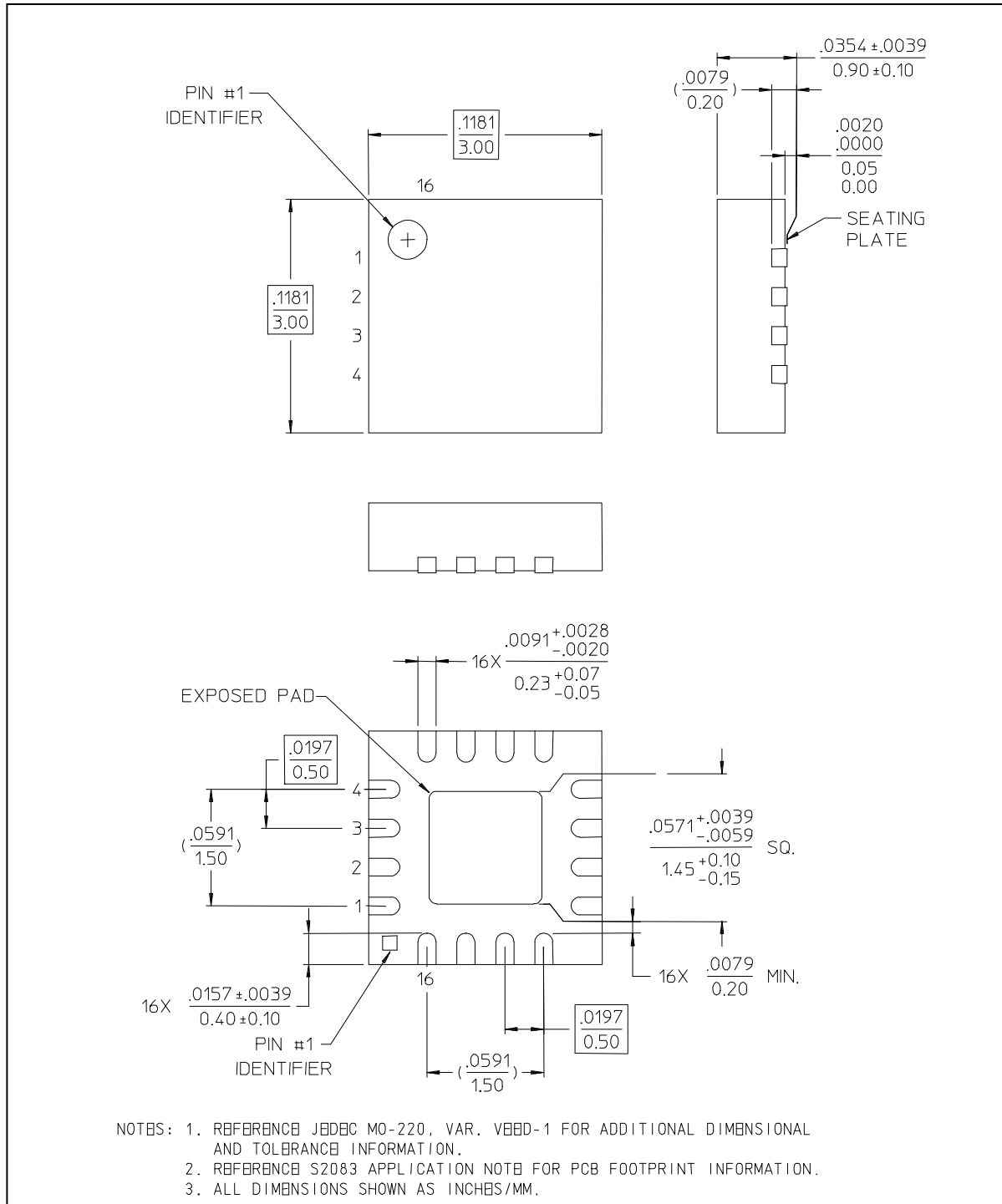
1. Exceeding these limits may cause permanent damage.

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## MA4EXP190H-1277 Outline – 3mm FQFP-N 16 Lead Saw Singulated



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