Silicon Double Balanced HMIC Mixer 1700 - 2200 MHz

MA4EXP190H1-1277T
V1

Features

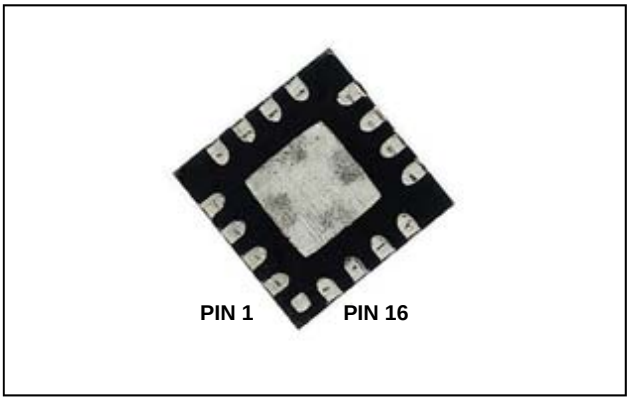
- + 33 dBm Typical Input IP3
- 8. 3 dB Typical Conversion Loss
- + 17 to + 19 dBm LO Drive
- Fully Balanced Passive Mixer
- NO External Matching Required
- Low Cost Miniature Plastic MLP Package
- Lead Free (RoHS Compliant) With 260 °C. Reflow Capability
- 100% MATTE Tin Plating

Description and Applications

M/A-COM's MA4EXP190H1-1277T 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.

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 Configuration

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

Absolute Maximum Ratings[1]

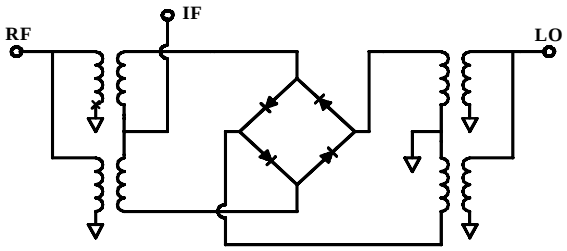
Parameter	Maximum Ratings
Operating Temperature	-40 °C to +85 °C
Storage Temperature	-65 °C to +150 °C
Incident LO Power	+20 dBm C.W.
Incident RF Power	+20 dBm C.W.
Soldering Temperature	+260 °C

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

Ordering Information

Part Number	Package
MA4EXP190H1-1277T	Tape and Reel

Mixer Schematic



• **North America** Tel: 800.366.2266 / Fax: 978.366.2266
• **Europe** Tel: 44.1908.574.200 / Fax: 44.1908.574.300
• **Asia/Pacific** Tel: 81.44.844.8296 / Fax: 81.44.844.8298

Visit www.macom.com for additional data sheets and product information.

Electrical Specifications @ +25 °C

Parameter	Frequency Range	Test Conditions	Units	Min.	Avg.	Max.
Conversion Loss	1925 MHz 1700-2200 MHz	LO Drive = +19 dBm RF = -10 dBm, IF = 60 MHz	dB	- -	8.3 8.4	9.5 9.5
L - R Isolation	1925 MHz 1700-2200 MHz	LO Drive = +17 dBm RF Level = -10 dBm	dB	- -	48.0 48.0	- -
L - I Isolation	1925 MHz 1700-2200 MHz	LO Drive = +17 dBm RF Level = -10 dBmm	dB	- -	46.0 44.0	- -
R - I Isolation	1925 MHz 1700-2200 MHz	LO Drive = +17 dBm RF Level = -10 dBm	dB	- -	25.0 25.0	- -
RF VSWR	1925 MHz 1700-2200 MHz	LO Drive = +17 dBm RF Level = -10 dBm	Ratio	- -	1.1:1 1.3:1	- -
IF VSWR	DC - 500 MHz	LO Drive = +17 dBm RF Level = -10 dBm	Ratio	- -	1.6:1 -	-
Input IP3	2025 MHz 1700-2200 MHz	LO Drive = +19 dBm RF = -10 dBm, IF = 60 MHz	dBm	- -	34.0 32.0	- -
Input 1 dB Compression	1925 MHz 1700-2200 MHz	LO Drive = +17 dBm IF = 60 MHz	dBm	- -	11.3 11.2	- -
IF1 dB Bandwidth	DC-400 MHz	LO = 1850 MHz @ +17dBm	MHz	0	-	400

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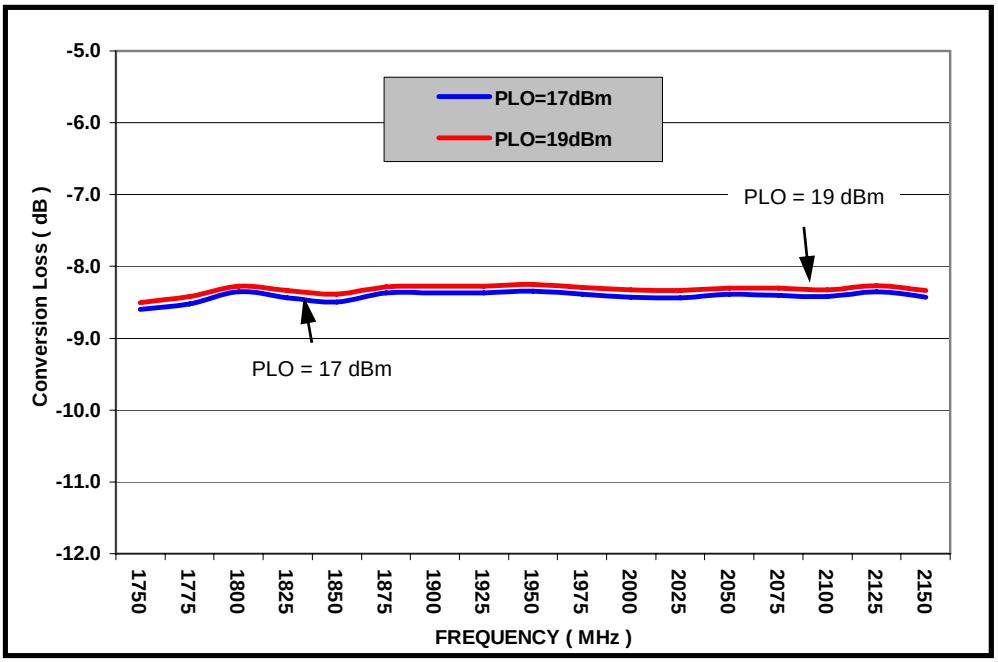
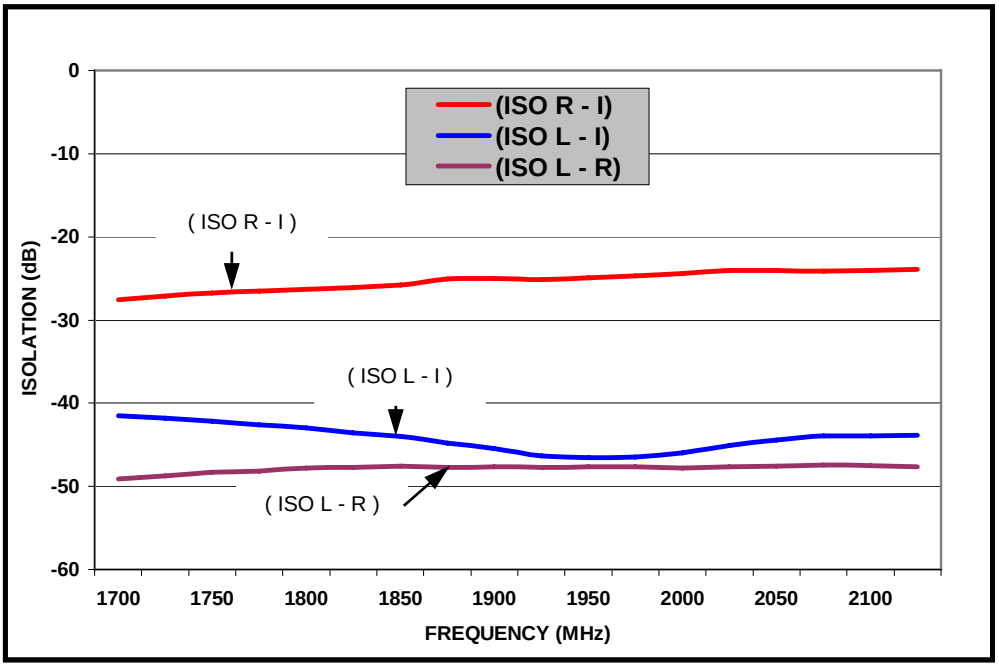
Typical Performance Curves (LO Drive = +17 dBm, RF = -10 dBm, IF = 60 MHz)

Conversion Loss



Isolation



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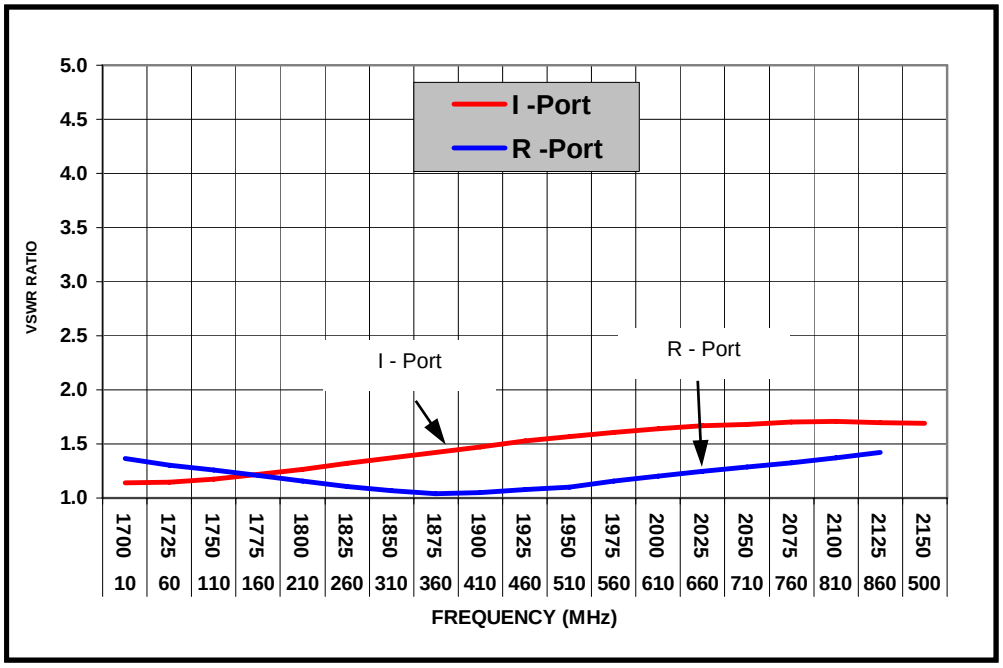
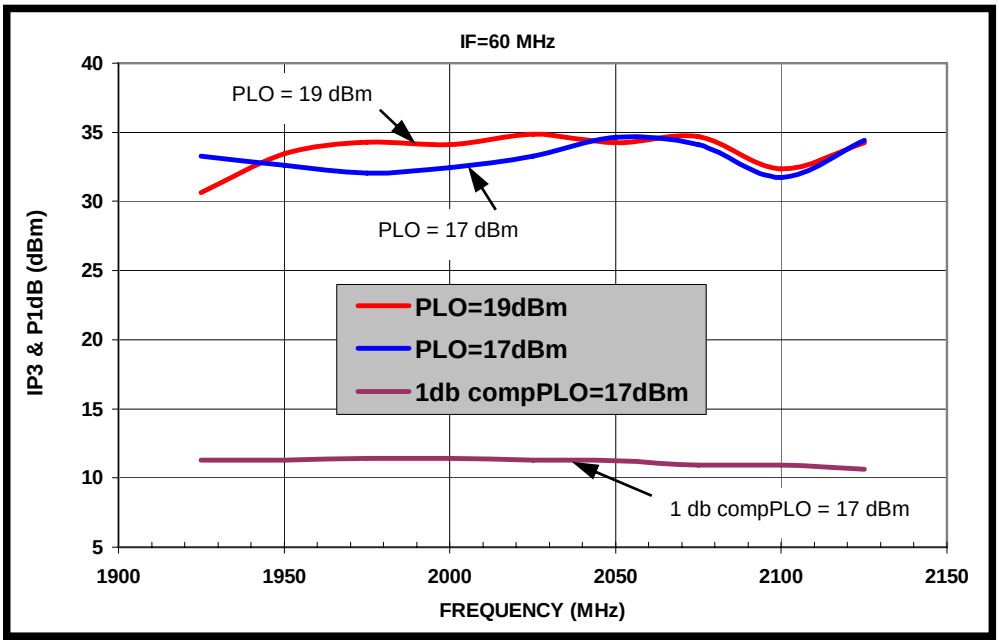
RF & IF VSWR



Input IP3 & 1dB Compression Power



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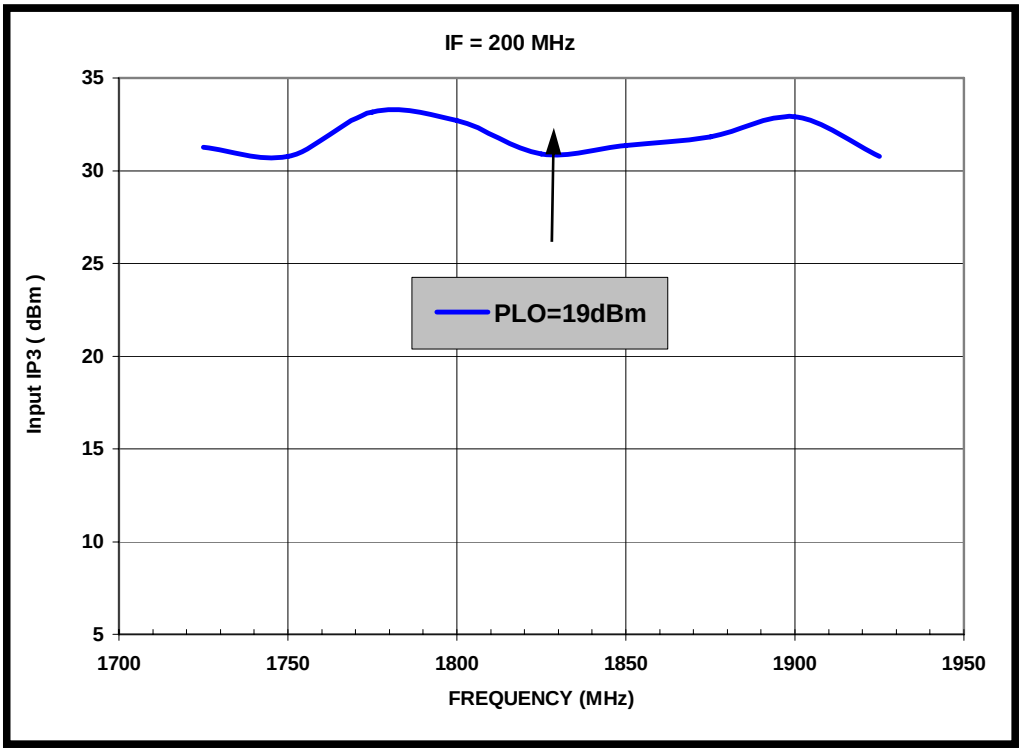
Input IP3



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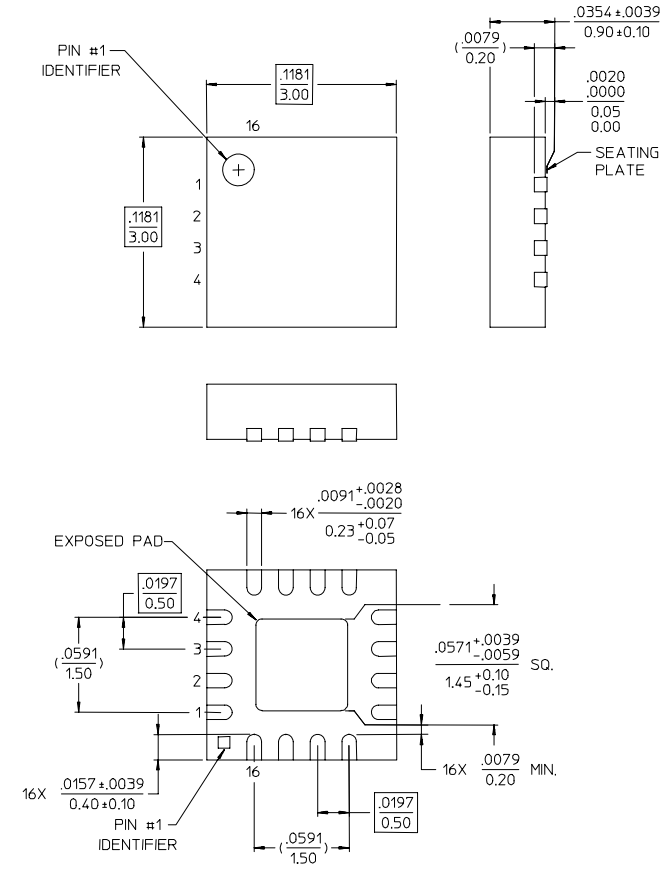
MA4EXP190H1-1277T Outline - 3mm FQFP-N 16 Lead Saw Singulated



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

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