

MA4EXP950L-1277T

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
- NO External Matching Required
- Low Cost Miniature Plastic MLP Package

Description

M/A-COM's MA4EXP950L-1277 is a silicon monolithic 850-1050 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.

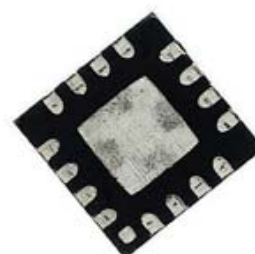
Applications

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.

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	-	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	-	65 62	-
L - I Isolation	900 MHz 850-1050 MHz	LO Drive = +7 dBm RF Level = -10 dBm	dB	-	46 46	-
R - I Isolation	900 MHz 850-1050 MHz	LO Drive = +7 dBm RF Level = -10 dBm	dB	-	23 23	-
LO VSWR	900 MHz 850-1050 MHz	LO Drive = +7 dBm RF Level = -10 dBm	Ratio	-	1.5:1 1.5:1	-
RF VSWR	900 MHz 850-1050 MHz	LO Drive = +7 dBm RF Level = -10 dBm	Ratio	-	1.3:1 1.5:1	-
IF VSWR	DC - 400 MHz	LO Drive = +7 dBm IF Level = -10 dBm	Ratio	-	1.5:1	-
Input IP3	900 MHz 850-1050 MHz	LO Drive = +7 dBm RF = -10 dBm, IF = 60 MHz	dBm	17.8 16.9	21.0 20.5	-
Input 1dB Compression	850-1050 MHz	LO Drive = +7 dBm, IF = 60 MHz	dBm	-	4.3	-
IF 1 dB Bandwidth	DC - 400 MHz	LO = 900 MHz @ +7dBm	MHz	0	-	400

MLP 3mm Package - Circuit Side View



PIN 1 PIN 16

PIN CONFIGURATION (Center Area is Ground)

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
MA4EXP950L-1277T	Tape and Reel

MA4EXP950L-1277T

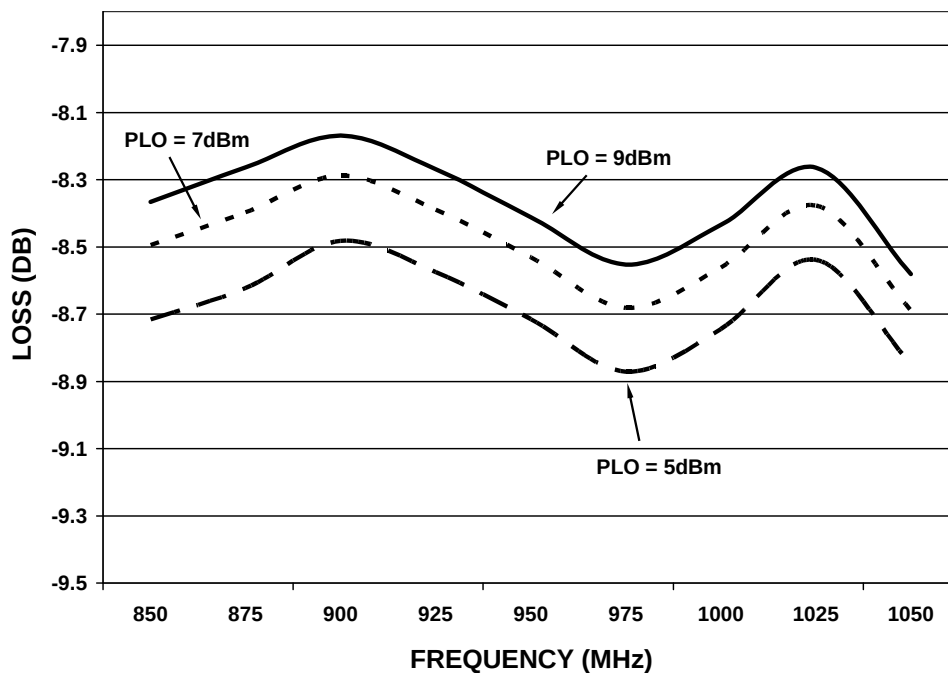


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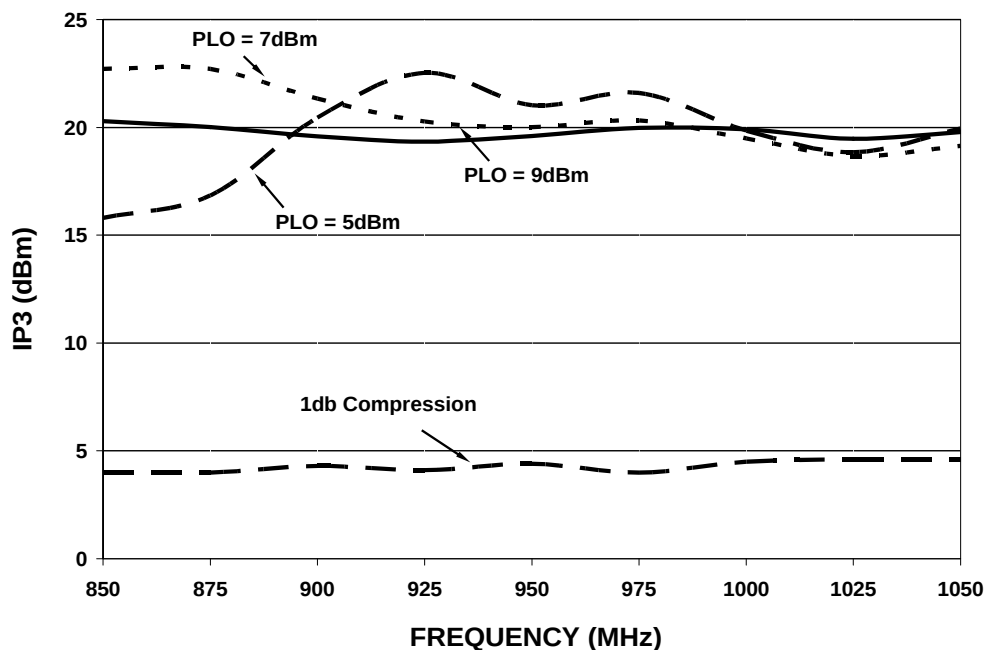
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Typical Performance Curves (LO Drive= +5, +7, +9 dbm, RF= -10dBm, IF= 60MHz)

Conversion Loss



Input IP3 and P1dB

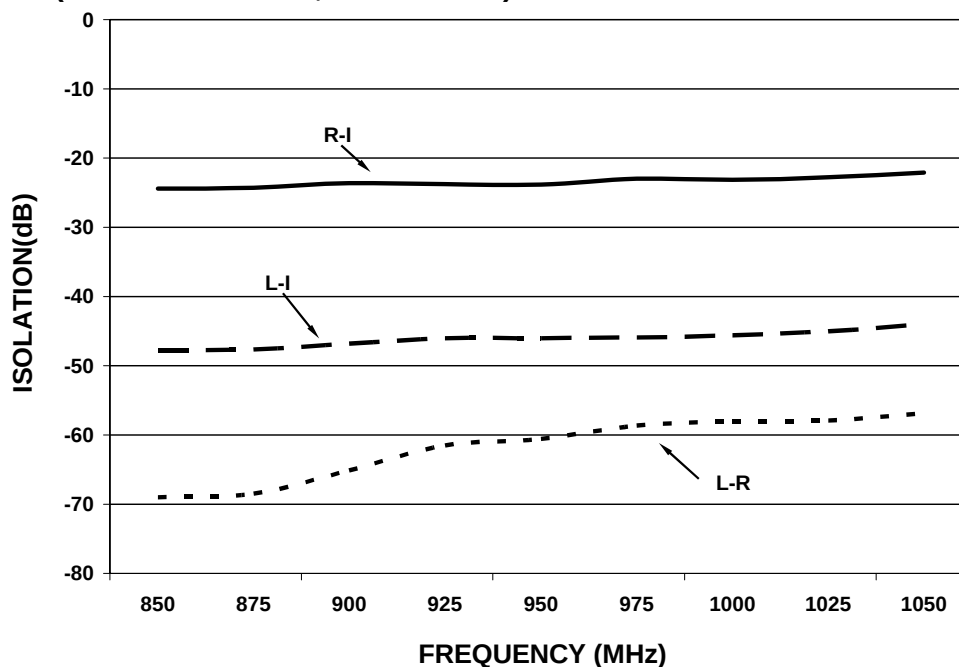


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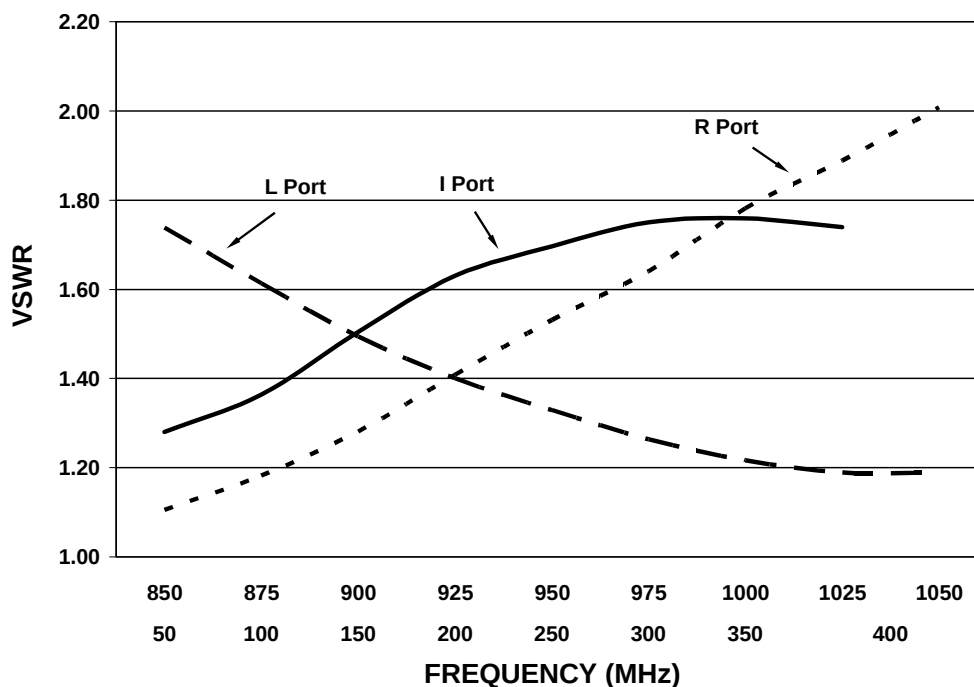
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Isolation (LO Drive= +7dbm, RF= -10dBm)



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

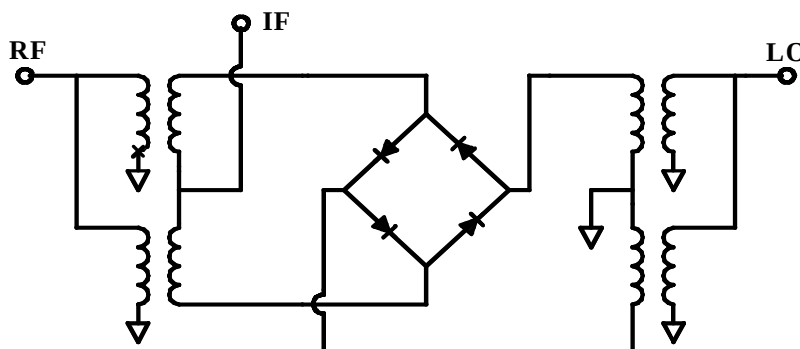


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Mixer Schematic



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.

1. Exceeding these limits may cause permanent damage.

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The drawing illustrates the mechanical specifications of a TO-18 package. It includes three views: a top view, a side view, and a bottom view.

- Top View:** Shows a square body with a central square pad. Dimensions include a body width of $.1181 \pm .0039$ inches (3.00 mm), a central pad width of $.0354 \pm .0039$ inches (9.00 mm), and a pin pitch of $.0079$ inches (0.20 mm). A circular feature with a '+' sign is located near the top-left corner.
- Side View:** Shows the profile of the package with a total height of $.090 \pm .010$ inches. It includes a seating plate with a thickness of $.0020$ inches and a diameter of $.0000$ inches. The pin diameter is $.005$ inches.
- Bottom View:** Shows the underside of the package with a central square pad. Dimensions include a body width of $.1181 \pm .0039$ inches (3.00 mm), a central pad width of $.0354 \pm .0039$ inches (9.00 mm), and a pin pitch of $.0079$ inches (0.20 mm). A circular feature with a '+' sign is located near the top-left corner.

Key dimensions and tolerances are provided in both inches and millimeters. The package is identified by PIN #1 and IDENTIFIER.