MA4EX950H1-1225T

Silicon Double Balanced HMIC Mixer
700 - 1200 MHz

Rev. V4

Features

- 7.0 dB Typical Conversion Loss
- +13 to +17 dBm LO Drive
- HMIC IC Process
- Silicon High Barrier Schottky Barrier Diodes
- DC - 400 MHz IF Bandwidth
- Low Cost Miniature Plastic Package
- RoHS* Compliant with 260°C Reflow Capability
- 100% Matte Tin Plating

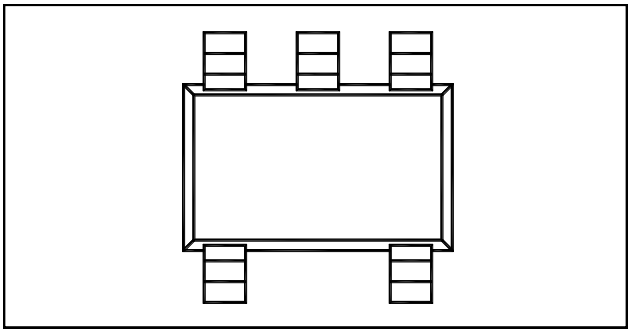
Description

M/A-COM's MA4EX950H1-1225T is a silicon monolithic 700 - 1200 MHz, high barrier, double balanced mixer in a low cost miniature surface mount SOT25 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.

Applications

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

Package Outline



PIN Configuration

PIN	Function	PIN	Function
1	RF	4	Gnd
2	Gnd	5	IF
3	LO		

Ordering Information

Model No.	Package
MA4EX950H1-1225T	Tape and Reel
MAMX-000950-000SMB	Sample Test Board

Electrical Specifications @ 25°C

Parameter	Frequency Range	Test Conditions	Units	Min.	Typ.	Max.
Conversion Loss	800 MHz 0.7 - 1.2 GHz	LO Drive = +15 dBm RF = -10 dBm, IF = 60 MHz	dB dB	— —	6.6 8.1	7.5 10.5
L - R Isolation	800 MHz 0.7 - 1.2 GHz	LO Drive = +15 dBm RF Level = -10 dBm	dB dB	— —	27.5 23.0	— —
L - I Isolation	800 MHz 0.7 - 1.2 GHz	LO Drive = +15 dBm RF Level = -10 dBm	dB dB	— —	28.5 28.5	— —
R - I Isolation	800 MHz 0.7 - 1.2 GHz	LO Drive = +15 dBm RF Level = -10 dBm	dB dB	— —	25.0 22.5	— —
RF VSWR	800 MHz 0.7 - 1.2 GHz	LO Drive = +15 dBm RF Level = -10 dBm	Ratio Ratio	— —	1.20:1 1.50:1	— —
IF VSWR	DC - 400 MHz	LO Drive = +15 dBm RF Level = -10 dBm	Ratio	—	1.55:1	—
Input IP3	850 MHz 0.7 - 1.2 GHz	LO Drive = +15 dBm RF = -5 dBm, IF = 60 MHz	dBm dBm	21.0 20.0	23.8 25.0	— —
Input 1 dB Compression	850 MHz 0.7 - 1.2 GHz	LO Drive = +15 dBm RF = -5 dBm, IF = 60 MHz	dBm dBm	— —	8.3 9.1	— —
IF 1 dB Bandwidth	DC - 400 MHz	LO = 850 MHz @ +15 dBm	MHz	0	—	400

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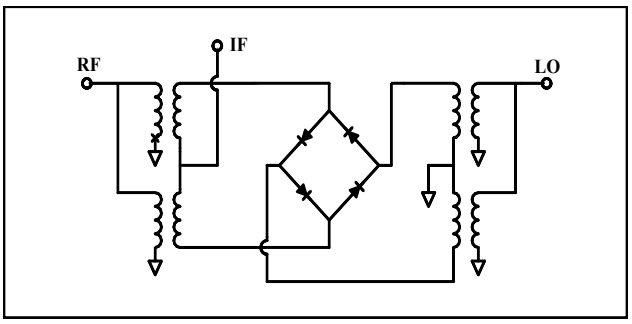
Absolute Maximum Ratings

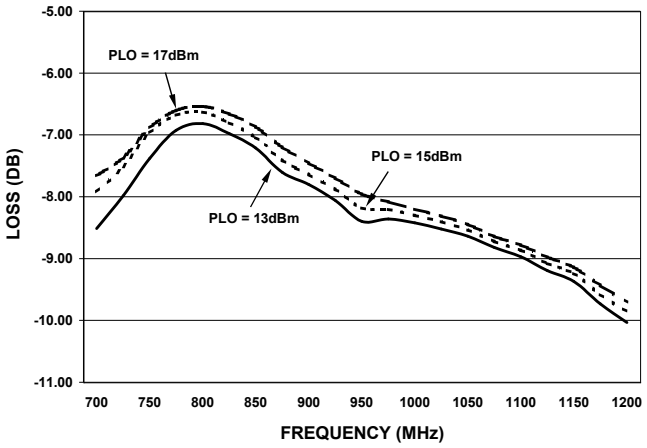
Parameter	Maximum Ratings
Operating Temperature	-40°C to +85°C
Storage Temperature	-65°C to +150°C
Incident LO Power	+20 dBm
Incident RF Power	+20 dBm

1. Exceeding these limits may cause permanent damage.

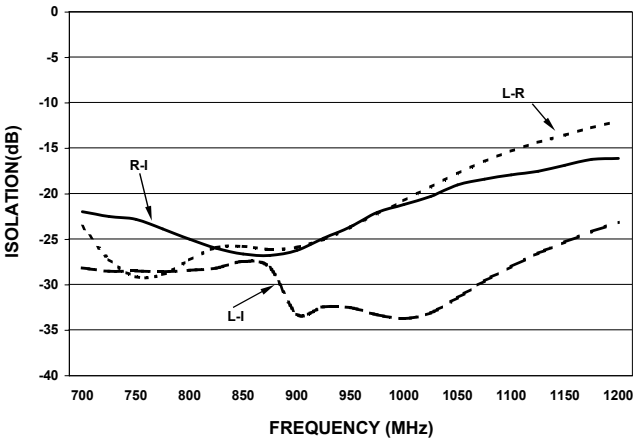
Schematic



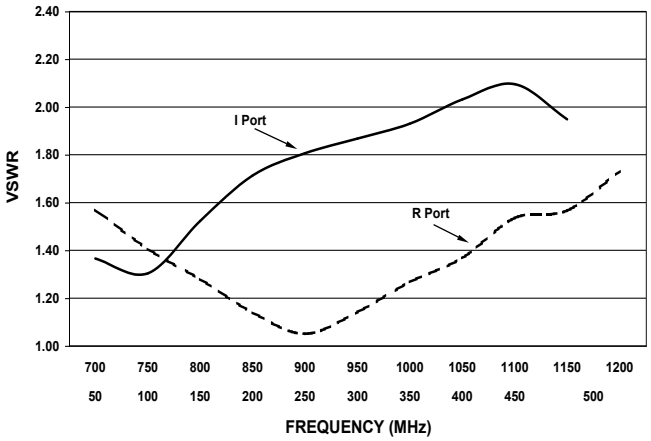
Conversion Loss



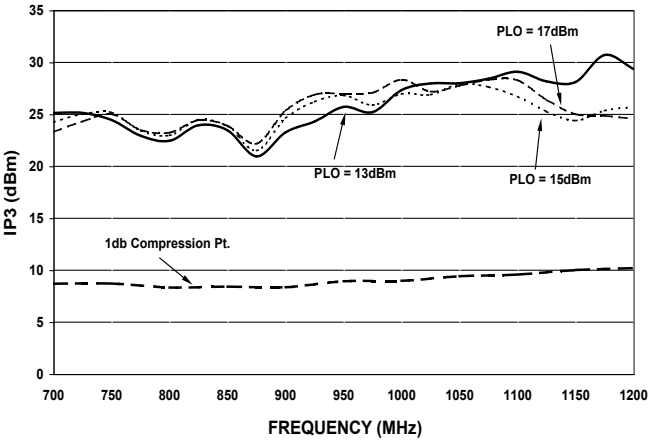
Isolation



VSWR



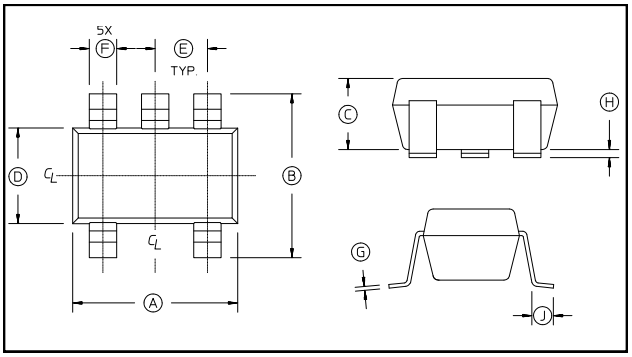
Input IP3 & 1 dB Compression



Case Styles

SOT-25

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.106	0.122	2.70	3.10
B	0.100	0.118	2.54	3.00
C	-	0.051	-	1.30
D	.063 REF.		1.60 REF.	
E	0.032	0.043	0.80	1.10
F	0.014	0.020	0.35	0.50
G	0.003	-	0.08	-
H	0.000	0.006	0.00	0.15
J	0.018 REF.		0.45 REF	



2. Leads Coplanarity should be 0.003 (0.08) max.

Mounting Information

The illustration indicates the recommended mounting pad configuration for the SOT-25 package. Solder paste containing flux should be screened onto the pads to a thickness of 0.005- 0.007 inches. The plastic package is placed in position, firmly adhering to the solder paste.

Permanent attachment is performed by a reflow soldering procedure during which the tab temperature does not exceed +275 °C and the body temperature does not exceed +260 °C for the RoHS compliant devices.

Please refer to Application Note M538 for surface mounting instructions.