

**M/A-COM****MA4EX180L-1225**

Silicon Double Balanced HMIC™ Mixer 1300 - 1900 MHz



Features

- Low Cost Miniature Plastic Package
- Low Conversion Loss:
6.5 dB at 1550 MHz
7.5 dB at 1800 MHz
- +3 to +7 dBm LO Drive
- HMIC™ Process
- Silicon Low Barrier Schottky Diodes
- DC -400 MHz IF Bandwidth

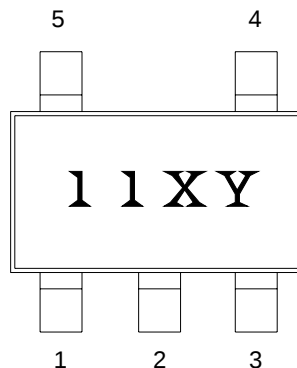
Description

M/A-COM's MA4EX180L-1225 is a silicon monolithic 1300 - 1900 MHz double balanced mixer in a low cost miniature surface mount SOT-25 package. The dies uses M/A-COM's unique HMIC™ silicon/glass process to achieve low loss passive elements while retaining the advantages of low barrier silicon Schottky diodes.

Applications

These mixers are well suited for high volume wireless applications where small size and repeatability are required. Typical applications include frequency conversion, modulation, and demodulation for receivers and transmitters in both portable PCS and base station applications.

SOT-25 Outline



Pin Configuration

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

Ordering Information

Model No.	Package
MA4EX180L-1225	Bulk
MA4EX180L-1225T	Tape and Reel

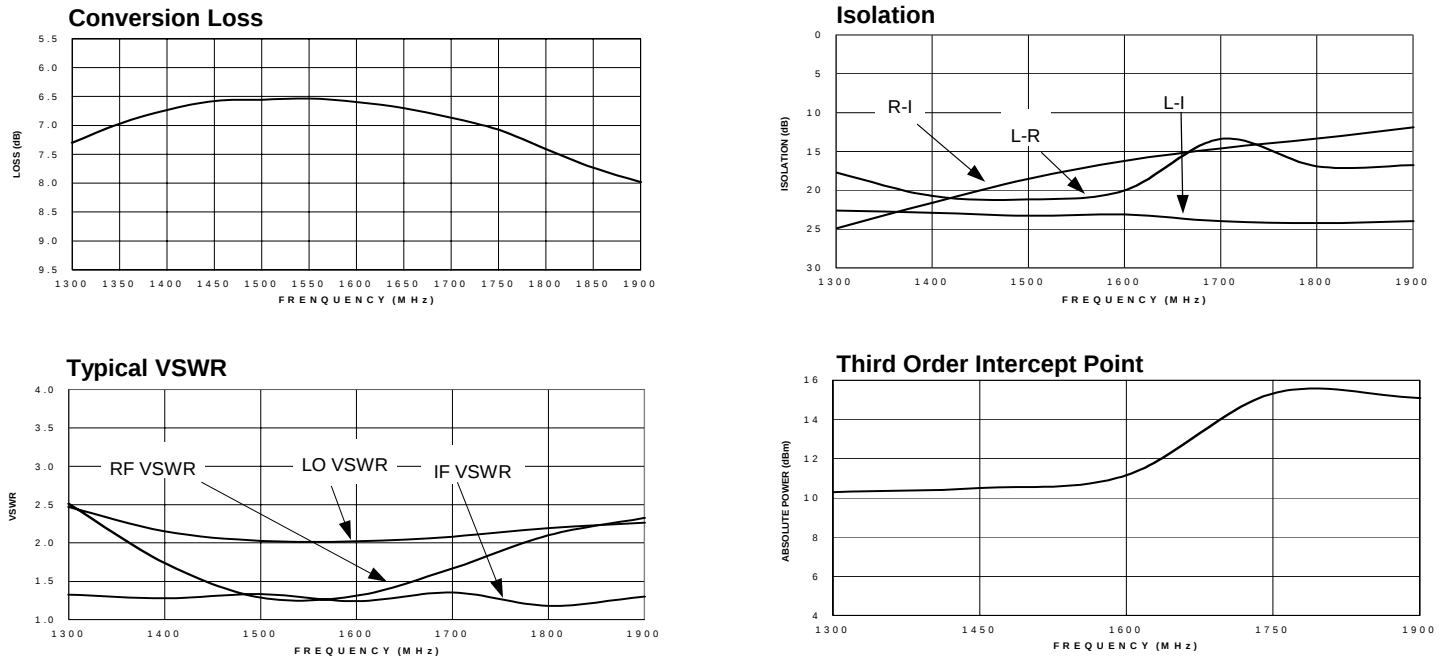
Electrical Specifications @ +25°C

Parameter	Frequency Range	Test Conditions	Units	Min.	Typ.	Max.
Conversion Loss	1550 MHz	LO Drive = +5 dBm, $f_{LO} = f_{RF} + f_{IF}$	dB	—	6.5	7.5
	1300-1900 MHz	RF = -10 dBm, IF = 60 MHz	dB	—	7.5	9.0
L - R Isolation	1550 MHz	LO Drive = +5 dBm	dB	18	21	—
	1300-1900 MHz	RF Level = -10 dBm	dB	—	15	—
L - I Isolation	1550 MHz	LO Drive = +5 dBm	dB	—	23	—
	1300-1900 MHz	RF Level = -10 dBm	dB	—	22	—
R - I Isolation	1550 MHz	LO Drive = +5 dBm	dB	—	17	—
	1300-1900 MHz	RF Level = -10 dBm	dB	—	16	—
LO VSWR	1550 MHz	LO Drive = +5 dBm	—	—	2.0	—
	1300-1900 MHz	RF Level = -10 dBm	—	—	2.2	—
RF VSWR	1550 MHz	LO Drive = +5 dBm	—	—	1.3	—
	1300-1900 MHz	RF Level = -10 dBm	—	—	2.0	—
IF VSWR	DC - 400 MHz	LO Drive = +5 dBm	—	—	1.5	—
		IF Level = -10 dBm	—	—	—	—
Input IP3	1550 MHz	LO Drive = +5 dBm, tone scaling = 10 MHz	dBm	9.0	+10.5	—
	1300-1900 MHz	IF = 60 MHz, $f_{RF} = f_{LO} - F_{IF}$	dBm	9.0	+12.0	—
Input 1 dB Compression	1550 MHz	LO Drive = +5 dBm	dBm	—	+1.4	—
	1300-1900 MHz	IF = 60 MHz	dBm	—	+1.9	—
IF 1 dB Bandwidth	0-400 MHz	LO = 1500 MHz @ +5 dBm	MHz	—	400	—

V2.00

Typical Performance Curves

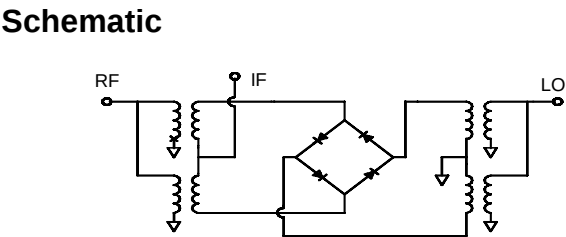
(LO Drive = +5 dBm, RF = -10 dBm, IF = 60 MHz)



Absolute Maximum Rating¹

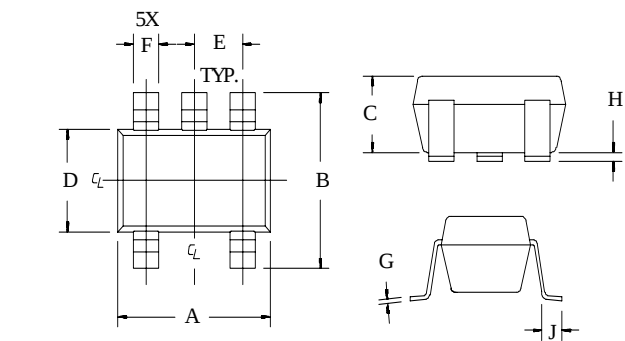
Parameter	Maximum Ratings
Operating Temperature	-40°C to +85°C
Storage Temperature	-65°C to +150°C
Incident LO Power	+20 dBm
Incident RF Power	+20 dBm

1. Exceeding these limits may cause permanent damage.



Case Style

SOT-25



SOT-25^{1,2}

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.1103	0.1181	2.8	3.10
B	0.1023	0.1181	2.6	3.00
C	0.0355	0.0512	0.9	1.30
D	0.0591	0.0669	1.5	1.7
E	0.0374 Typ.		0.95 Typ.	
F	0.0138	0.0197	0.35	0.5
G	0.0031	0.0079	0.08	0.20
H	0.0020	0.0059	0.05	0.15
J	0.0138	0.0216	0.35	0.55

1. Dimensions do not include mold flash, protrusion or gate burrs which shall not exceed 0.0098 in (.25mm) per side.
2. Lead Coplanarity is 0.003 (0.08) max.