

# E-Series HMIC Double Balanced Mixer

## 1400 - 2000 MHz

# EMD40-1800L

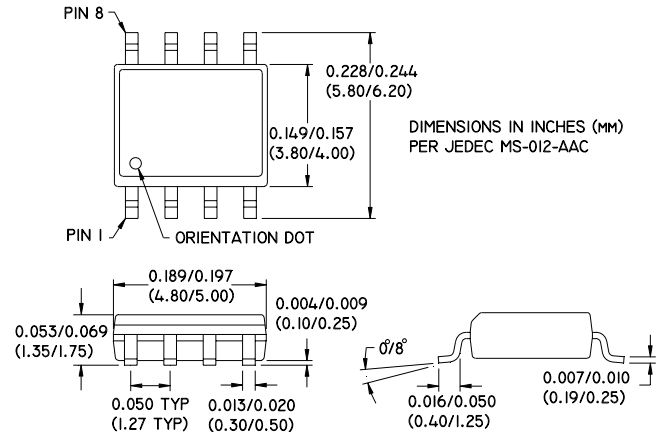
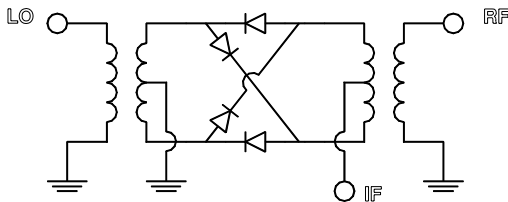
### Features

- \* SOIC-8 package
- \* IC process
- \* Low profile
- \* LO Drive +3dBm to +7dBm

### Description

M/A-COM's EMD40-1800L is a passive double balanced mixer in a low cost, surface mount SOIC-8 package. Fabricated using a mature silicon process (HMIC), it is ideally suited for high volume cellular and wireless applications. Typical applications include frequency up/down conversion, modulation and demodulation in JDC (1500MHz), DCS (1800MHz) and PCS (1900MHz).

### Schematic



### Pin Configuration

Pin	Function	Pin	Function
1	GND	5	LO
2	IF	6	GND
3	GND	7	GND
4	GND	8	RF

### Ordering Information

Part Number	Packaging
EMD40-1800L	Tube
EMD40-1800LTR	Tape and Reel

### Specifications @ 25°C

Frequency Range	1400 - 2000 MHz		
<b>Conversion Loss</b>	<b>Maximum</b>	<b>Mean (x)</b>	<b>Sigma (σ)</b>
1400 - 1700 MHz	8.0 dB	6.80 dB	0.27
1700 - 2000 MHz	9.5 dB	7.90 dB	0.26
<b>L - R Isolation</b>	<b>Minimum</b>	<b>Typical</b>	
1400 - 1700 MHz	28.0 dB	33.5 dB	
1700 - 2000 MHz	25.0 dB	28.8 dB	
<b>L - I Isolation</b>	<b>Minimum</b>	<b>Typical</b>	
1400 - 1700 MHz	23.0 dB	27.2 dB	
1700 - 2000 MHz	23.0 dB	27.0 dB	
<b>LO VSWR</b>	<b>Maximum</b>	<b>Typical</b>	
1400 - 1700 MHz	3.20	2.66	
1700 - 2000 MHz	2.90	2.41	
<b>RF VSWR</b>	<b>Maximum</b>	<b>Typical</b>	
1400 - 1700 MHz	3.00	1.75	
1700 - 2000 MHz	2.70	1.71	
<b>IF VSWR</b>	<b>Maximum</b>	<b>Typical</b>	
DC - 400 MHz	1.80	1.40	
<b>Input IP3</b>	<b>Minimum</b>	<b>Typical</b>	
1400 - 1700 MHz	8.0 dBm	11.0 dBm	
1700 - 2000 MHz	10.0 dBm	14.2 dBm	
<b>IF 1.0 dB Bandwidth</b>	DC - 500MHz		
<b>Input 1dB Compression</b>	+1.0 dBm		

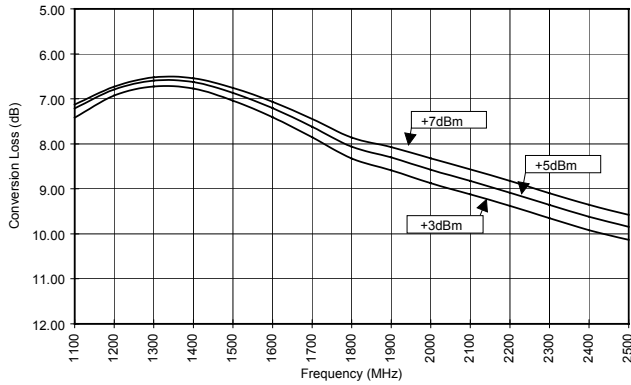
Test conditions: LO drive = +7dBm, IF frequency = 60MHz. Mean and sigma calculated at 1500MHz and 1800MHz.

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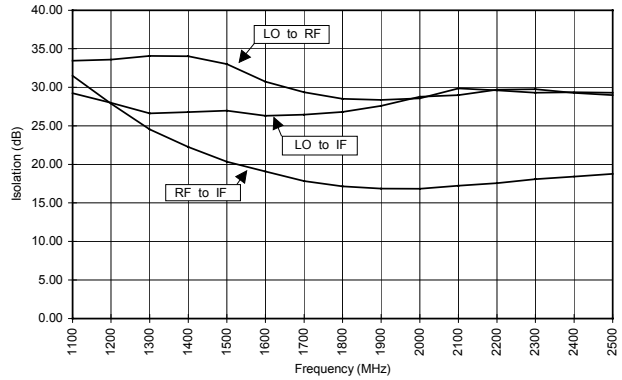
Specifications Subject to Change Without Notice

## Typical Performance Over Extended Bandwidth (1100MHz - 2500MHz)

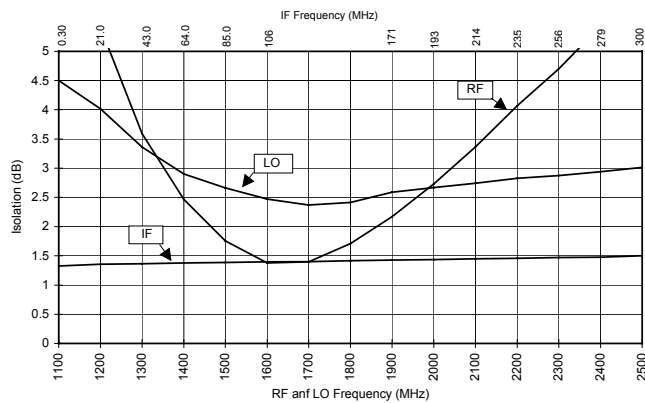
### Conversion Loss



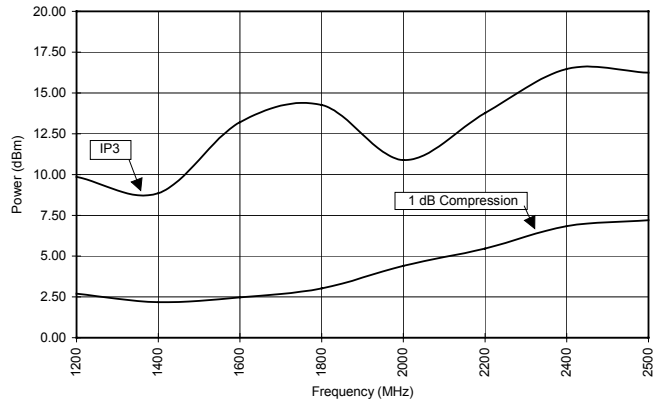
### Isolation



### VSWR



### IP3 and 1dB Compression



Note: Conversion loss measured with fixed IF frequency of 60MHz. All measurements made with input power of +7dBm.

## Spurious Table

(In dBc below IF, assuming down conversion)

RF (n)	nf <sub>LO</sub> + mf <sub>RF</sub>					nf <sub>LO</sub> - mf <sub>RF</sub>				
	0	1	2	3	4	0	1	2	3	4
0	X	17	16	11	41	X	17	16	11	40
1	12	0	29	36	44	10	0	25	14	32
2	47	39	60	44	43	47	38	53	40	58
3	54	58	55	45	57	53	51	57	52	49
4	79	66	63	70	72	79	61	62	61	64
	0	1	2	3	4	0	1	2	3	4

LO (m)

RF = 1842.5 MHz, -5dBm  
LO = 1772.5 MHz, +7dBm

## Absolute Maximum Ratings

Parameter	Absolute Maximum
RF Input Power	+17dBm
LO Drive Power	+17dBm
Operating/Storage Temp.	-40°C to +85°C

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