

E-Series HMIC Double Balanced Mixer

700 - 1400 MHz

EMD40-900L

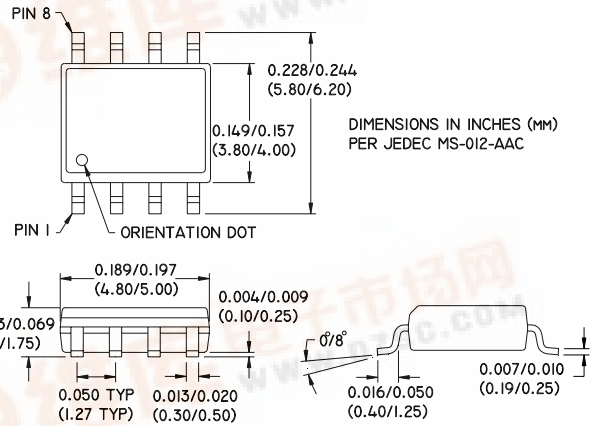
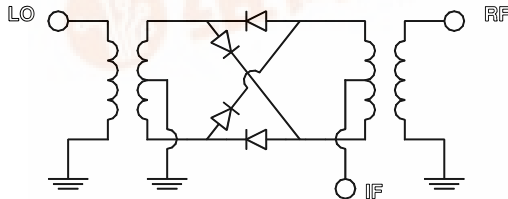
Features

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

Description

M/A-COM's EMD40-900L 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 GSM, AMPS, DAMPS and JDC frequencies.

Schematic



Pin Configuration

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

NOTE: LO and RF ports may be interchanged with a slight degradation in electrical performance.

Ordering Information

Part Number	Packaging
EMD40-900L	Tube
EMD40-900LTR	Tape and Reel

Specifications @ 25°C

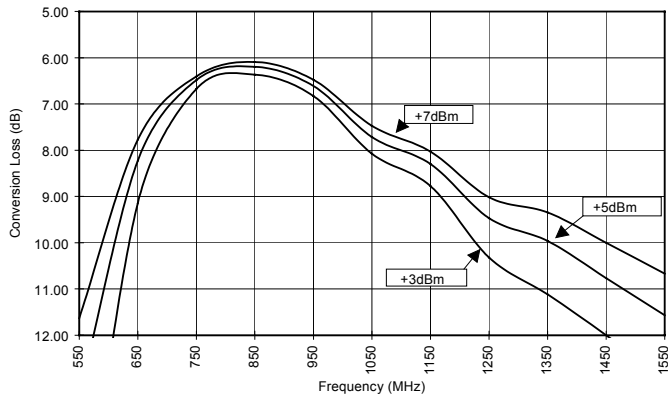
Frequency Range	700 - 1400 MHz		
Conversion Loss	Maximum	Mean (x)	Sigma (σ)
700 - 800 MHz	9.5 dB	6.40 dB	.24
800 - 1000 MHz	8.0 dB	6.09 dB	.08
1000 - 1250 MHz	10.5 dB	9.02 dB	.21
1250 - 1400 MHz	12.0 dB	11.02 dB	.21
L - R Isolation	Minimum	Typical	
700 - 1000 MHz	26.0 dB	34.2 dB	
1000 - 1400 MHz	24.0 dB	30.3 dB	
L - I Isolation	Minimum	Typical	
700 - 1000 MHz	24.0 dB	28.5 dB	
1000 - 1400 MHz	21.0 dB	26.5 dB	
LO VSWR	Maximum	Typical	
700 - 1000 MHz	2.30	1.90	
1000 - 1400 MHz	5.00	2.82	
RF VSWR	Maximum	Typical	
700 - 1000 MHz	2.60	1.43	
1000 - 1400 MHz	4.40	3.35	
IF VSWR	Maximum	Typical	
DC - 400 MHz	1.80	1.20	
Input IP3	Minimum	Typical	
700 - 1000 MHz	9.0 dBm	13.0 dBm	
1000 - 1400 MHz	10.5 dBm	15.2 dBm	
IF 1.0 dB Bandwidth	DC - 500MHz		
Input 1dB Compression	+1.0 dBm		

Test conditions: LO drive = +7dBm, IF frequency = 60MHz. Mean and sigma, calculated at 750MHz, 850MHz and 1200MHz, represent typical variation within a wafer. S1231E

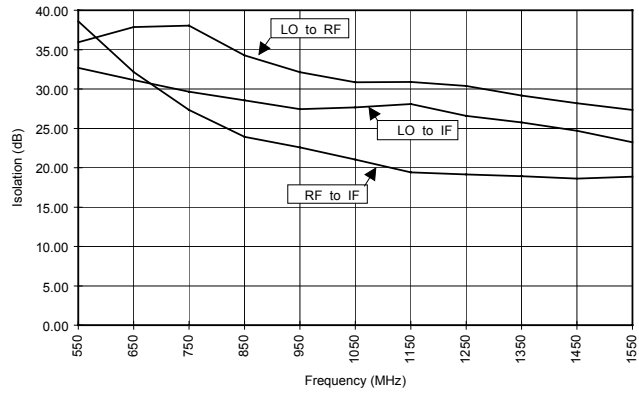
Typical Performance

Over Extended Bandwidth

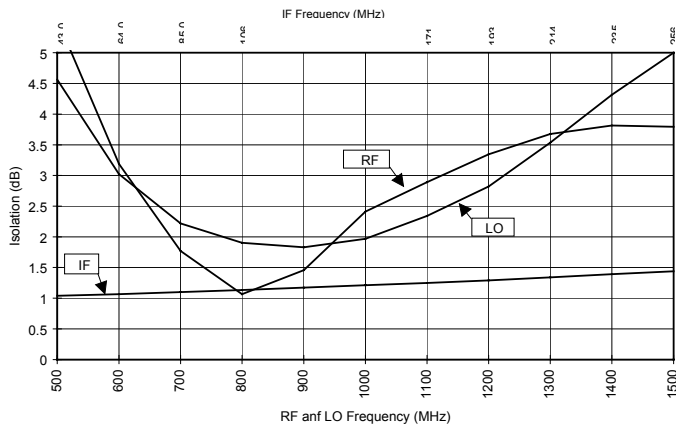
Conversion Loss



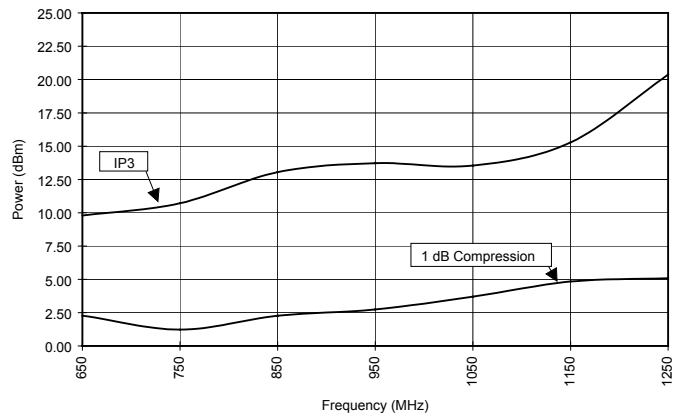
Isolation



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)

		nf _{LO} + mf _{RF}					nf _{LO} - mf _{RF}				
RF (n)	0	X	2	16	8	27	X	2	16	8	27
	1	24	0	19	29	36	24	0	43	14	26
	2	63	38	51	46	51	63	34	46	37	51
	3	57	72	58	61	61	57	56	75	55	73
	4	75	76	76	75	72	79	72	74	73	70
	0	1	2	3	4	0	1	2	3	4	
		LO (m)									

RF = 970 MHz, -10dBm
LO = 900 MHz, +7dBm

Absolute Maximum Ratings

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