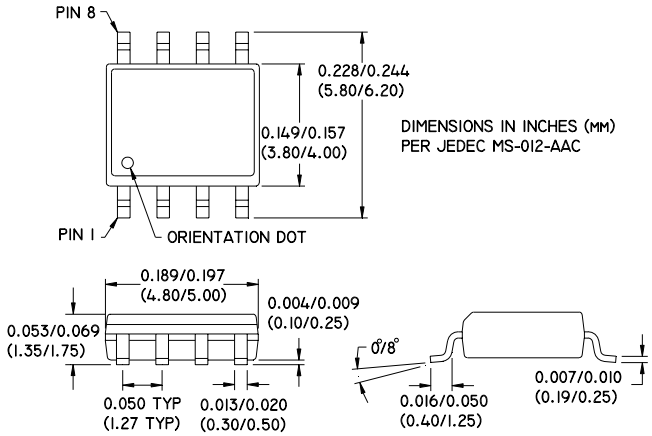
AMP M/A-COM

ISO 9001
CERTIFIED

E-Series HMIC Double Balanced Mixer
1400 - 2500 MHz EMD40-2400L

Features

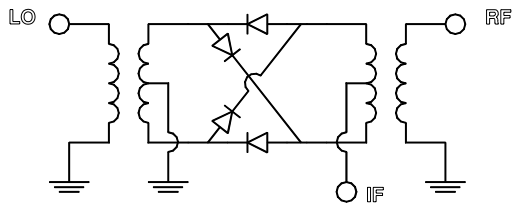
* SOIC-8 package
* IC process
* Low profile
* LO Drive +3dBm to +7dBm



Description

M/A-COM's EMD40-2400L 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), PCS (1900MHz) and WLAN (2400MHz).

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
EMD40-2400L	Tube
EMD40-2400LTR	Tape and Reel

Specifications @ 25°C

Frequency Range	**1400 - 2500 MHz**		
Conversion Loss	**Maximum**	**Mean (x)**	**Sigma (σ)**
1400 - 1700 MHz	11.0 dB	7.11 dB	0.15
1700 - 2000 MHz	7.0 dB	6.33 dB	0.08
2000 - 2500 MHz	9.0 dB	7.88 dB	0.20
L - R Isolation	**Minimum**	**Typical**	
1400 - 1700 MHz	25.0 dB	35.3 dB	
1700 - 2000 MHz	26.0 dB	29.9 dB	
2000 - 2500 MHz	25.0 dB	28.2 dB	
L - I Isolation	**Minimum**	**Typical**	
1400 - 1700 MHz	20.0 dB	26.7 dB	
1700 - 2000 MHz	23.0 dB	25.1 dB	
2000 - 2500 MHz	25.0 dB	29.7 dB	S1219D

Specifications Subject to Change Without Notice

E-Series Double Balanced Mixer

EMD40-2400L (2 of 3)

Specifications @ 25°C (con't)

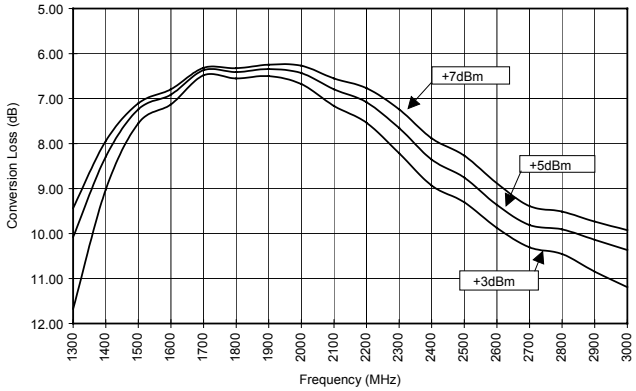
LO VSWR	Maximum	Typical
1400 - 1700 MHz	4.20	3.54
1700 - 2000 MHz	3.20	2.79
2000 - 2500 MHz	2.80	2.58
RF VSWR	**Maximum**	**Typical**
1400 - 1700 MHz	4.00	3.02
1700 - 2000 MHz	2.20	1.60
2000 - 2500 MHz	3.20	2.29
IF VSWR	**Maximum**	**Typical**
DC - 400 MHz	2.20	2.01
Input IP3	**Minimum**	**Typical**
1400 - 1700 MHz	6.50 dBm	9.33 dBm
1700 - 2000 MHz	8.50 dBm	11.17 dBm
2000 - 2500 MHz	12.50 dBm	16.16 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 1500MHz, 1800MHz, 2400MHz and are typical values only.

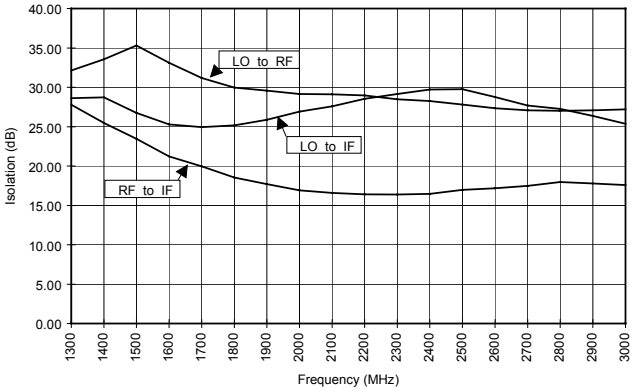
Typical Performance

Over Extended Bandwidth (1300MHz - 3000MHz)

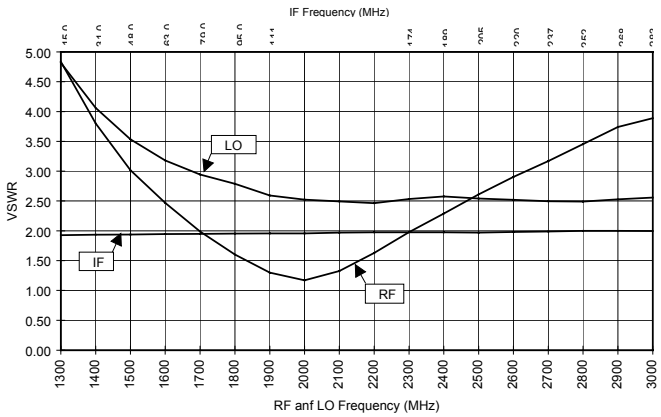
Conversion Loss



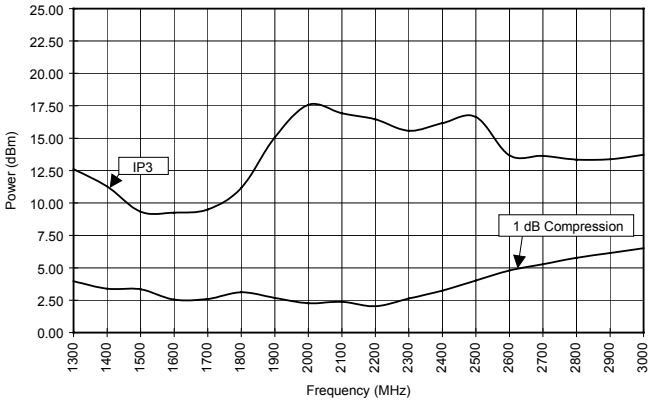
Isolation



VSWR



IP3 and 1dB Compression



Note: Conversion loss measured with fixed IF frequency of 60MHz. All measurements made with input power of +7dBm. S1219D

E-Series Double Balanced Mixer EMD40-2400L (3 of 3)

Spurious Table: 1800MHz

(In dBc below IF, assuming down conversion)

		$nf_{LO} + mf_{RF}$					$nf_{LO} - mf_{RF}$				
	0	X	12	17	11	35	X	12	17	11	35
	1	13	0	24	33	38	13	0	28	12	29
RF	2	52	39	59	39	44	53	54	50	35	55
(n)	3	46	59	60	48	55	46	55	50	44	45
	4	73	66	64	68	77	73	61	78	56	68
		0	1	2	3	4	0	1	2	3	4

LO (m)

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

Spurious Table: 1900MHz

(In dBc below IF, assuming down conversion)

		$nf_{LO} + mf_{RF}$					$nf_{LO} - mf_{RF}$				
	0	X	12	17	11	33	X	13	17	13	35
	1	10	0	26	30	38	11	0	28	13	28
RF	2	45	39	55	38	44	46	37	57	36	48
(n)	3	47	55	58	48	57	48	60	58	51	47
	4	70	61	65	70	72	70	61	62	55	64
		0	1	2	3	4	0	1	2	3	4

LO (m)

RF = 1960 MHz, -5dBm
LO = 1890 MHz, +7dBm

Spurious Table: 2400MHz

(In dBc below IF, assuming down conversion)

		$nf_{LO} + mf_{RF}$					$nf_{LO} - mf_{RF}$				
	0	X	16	14	9	35	X	17	15	12	36
	1	8	0	34	23	34	8	0	18	14	33
RF	2	41	51	46	44	46	42	45	45	49	45
(n)	3	49	53	56	56	57	51	56	50	47	52
	4	66	54	58	69	73	66	56	60	63	68
		0	1	2	3	4	0	1	2	3	4

LO (m)

RF = 2484 MHz, -5dBm
LO = 2210 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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AMP M/A-COM Eurotec * Loughmahon Technology Park * Blackrock * Cork * Ireland * Tel: 353-21-808300 * Fax: 353-21-359935