

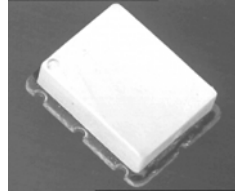
# E-Series Surface Mount Mixer

## 80 – 2500 MHz



### Features

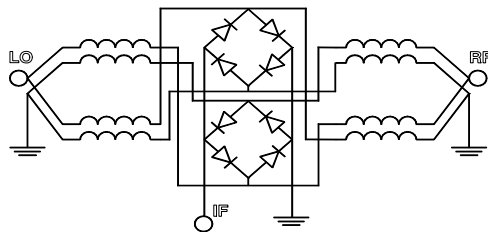
- LO Power +10 dBm
- Up to +5 dBm RF
- Surface Mount



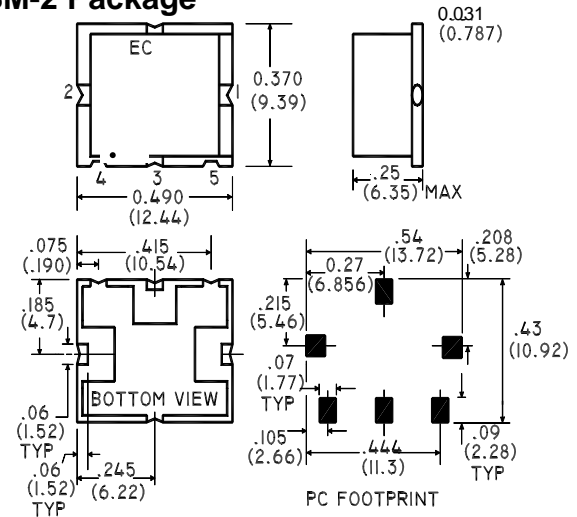
### Description

M/A-COM's ESMD-C50L is a Low Cost, Low Drive, Passive Double Double Balanced Mixer. Constructed using very broad band ferrite balun transformers and matched silicon schottky diodes, it's performance is especially suited to high dynamic range receivers. Given it's high 1dB compression point, the ESMD-C50L is also suitable for Transmitter upconversion at any frequency up to 2.5GHz.

### Schematic



### SM-2 Package



Part Number	Packaging
ESMD-C50L	Tube
ESMD-C50LTR	Tape and Reel

### Electrical Specifications @ +25°C

Parameter	Units	Minimum	Typical	Maximum	Mean (x)	Sigma (σ)
Frequency Range	80 - 2500 MHz	—	—	—	—	—
IF 1.0 dB Bandwidth = DC - 1000 MHz	—	—	—	—	—	—
Conversion Loss	80 - 1000 MHz	—	—	7.8	6.45	0.10
	1000 - 2500 MHz	—	—	9.0	7.73	0.14
L - R Isolation	80 - 1000 MHz	25.0	33.5	—	—	—
	1000 - 2500 MHz	21.0	30.4	—	—	—
L - I Isolation	80 - 1000 MHz	25.0	30.2	—	—	—
	1000 - 2500 MHz	13.0	19.1	—	—	—
R - I Isolation	80 - 1000 MHz	22.0	26.6	—	—	—
	1000 - 2500 MHz	18.0	22.9	—	—	—
LO VSWR	80 - 1000 MHz	—	1.55	2.0	—	—
	1000 - 2500 MHz	—	1.38	2.0	—	—
RF VSWR	80 - 1000 MHz	—	1.42	1.8	—	—
	1000 - 2500 MHz	—	1.85	2.4	—	—
IF VSWR	DC - 600 MHz	—	1.41	1.8	—	—
Input IP3	200 - 1000 MHz	17.0	21.5	—	—	—
	1000 - 2500 MHz	14.0	19.82	—	—	—
Input 1dB Compression	dBm	—	+5.0	—	—	—

Test Conditions: LO Drive = +10dBm, IF frequency = 70MHz. Mean and Sigma calculated at 900MHz & 1800MHz.

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### Absolute Maximum Ratings

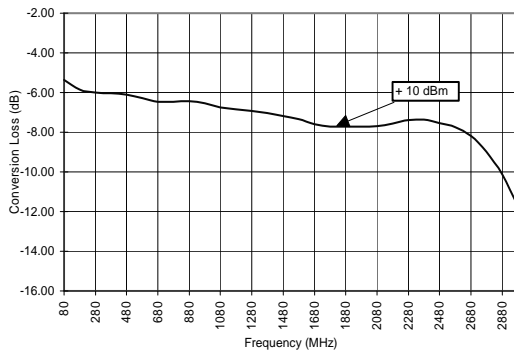
Parameter	Absolute Maximum
RF Input Power	+17 dBm
LO Drive Power	+17 dBm
Operating/Storage Temperature	-40°C to +85°C

### Pin Configuration

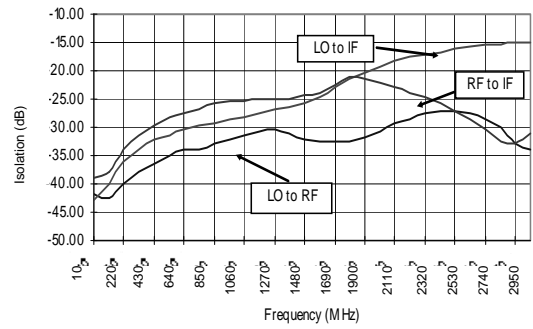
Function	Pin No.
RF	1
LO	2
IF	3
Ground	4,5,6

### Typical Performance @ +25°C

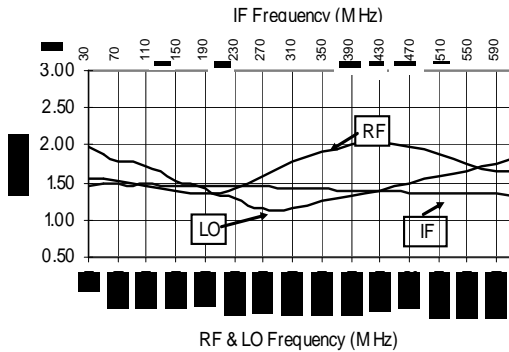
#### Conversion Loss



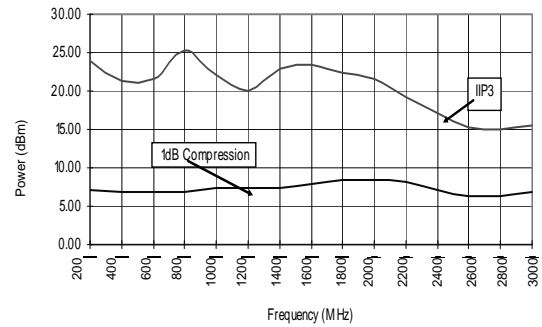
#### Isolation



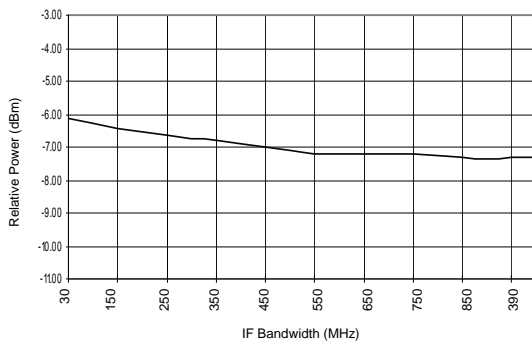
#### VSWR



#### IIP3 & 1dB Compression



#### IF Bandwidth



Note: Conversion Loss measured with fixed IF frequency of 70MHz.  
All measurements made with input power of +10 dBm.

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**Spurious Table: 1800MHz**

(In dBc below IF, assuming down conversion)

		nf <sub>LO</sub> - mf <sub>RF</sub>					
RF	0	X	-2	26	25	32	
	1	21	0	36	18	50	
	2	54	56	51	46	60	
	(n)	3	69	64	67	65	62
		4	82	84	84	82	83
		0	1	2	3	4	

LO (m)

RF = 1842.50 MHz, -5dBm  
 LO = 1772.50 MHz, +10dBm  
 IF = 70 MHz

**Spurious Table: 900MHz**

(In dBc below IF, assuming down conversion)

		nf <sub>LO</sub> - mf <sub>RF</sub>					
RF	0	X	9	22	23	32	
	1	18	0	36	12	36	
	2	53	49	59	49	51	
	(n)	3	65	59	63	65	64
		4	84	8	83	83	82
		0	1	2	3	4	

LO (m)

RF = 970 MHz, -5dBm  
 LO = 900 MHz, +10dBm  
 IF = 70 MHz

**Spurious Table: 1900MHz**

(In dBc below IF, assuming down conversion)

		nf <sub>LO</sub> - mf <sub>RF</sub>					
RF	0	X	-4	22	23	29	
	1	21	0	27	13	41	
	2	28	36	22	44	42	
	(n)	3	33	31	35	35	37
		4	49	51	3	51	52
		0	1	2	3	4	

LO (m)

RF = 1960 MHz, -5dBm  
 LO = 1890 MHz, +10dBm  
 IF = 70 MHz

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