

E-Series Surface Mount Mixer
80 – 2500 MHz

ESMD-C50L
V3

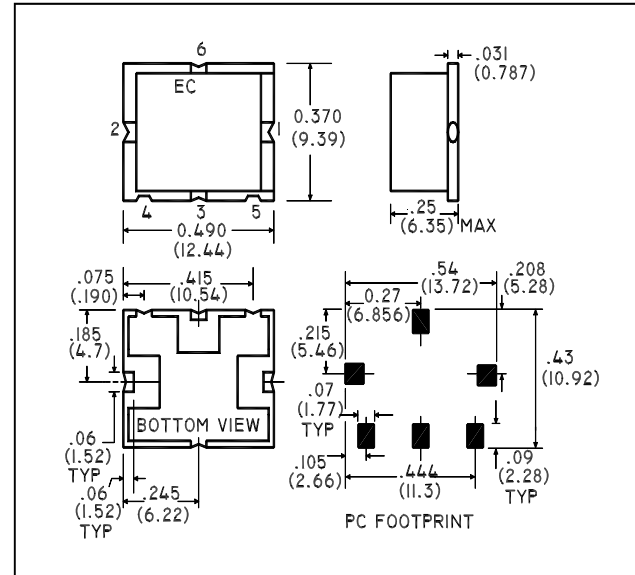
Features

- LO Power +10 dBm
- Up to +5 dBm RF
- Surface Mount
- Tape and reel packaging available

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. Parts are packaged in tape & reel.

SM - 2 Package



Electrical Specifications: $T_A = 25^\circ\text{C}$, $Z_0 = 50\Omega$ ¹

Parameter	Test Conditions	Frequency	Units	Min	Typ	Max
Frequency	IF 1.0 dB bandwidth = DC - 1000 MHz	80 -2500	MHz	—	—	—
Conversion Loss	—	80 - 1000	dB	—	6.45	7.8
		1000 - 2500	dB	—	7.73	9.0
Isolation	LO to RF	80 - 1000	dB	25	33.5	—
		1000 - 2500	dB	21	30.4	—
Isolation	LO to IF	80 - 1000	dB	25	30.2	—
		1000 - 2500	dB	13	19.1	—
Isolation	RF to IF	80 - 1000	dB	22	26.6	—
		1000 - 2500	dB	18	22.9	—
VSWR	LO	80 - 1000	—	—	1.55	2.0
		1000 - 2500	—	—	1.38	2.0
VSWR	RF	80 - 1000	—	—	1.42	1.8
		1000 - 2500	—	—	1.85	2.4
VSWR	IF	DC - 600	—	—	1.41	1.8
		—	—	—	—	—
Input IP3	—	200 - 1000	dBm	17.0	21.5	—
		1000 - 2500	dBm	14.0	19.8	—
Input 1 dB Compression	—	80 -2500	dBm	—	5.0	—

Ordering Information

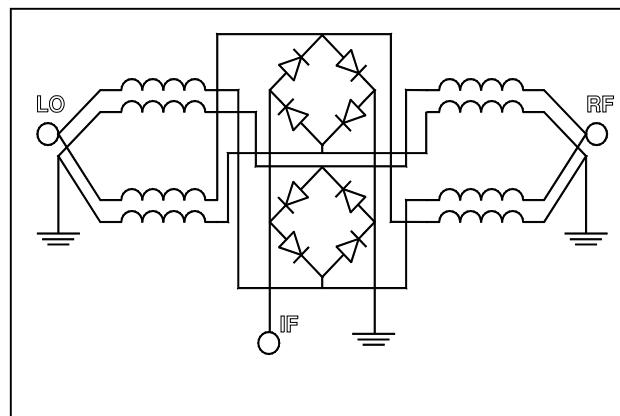
Part Number	Package
ESMD-C50LTR	Tape and Reel (500 piece Reel)

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Pin Configuration

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

Schematic



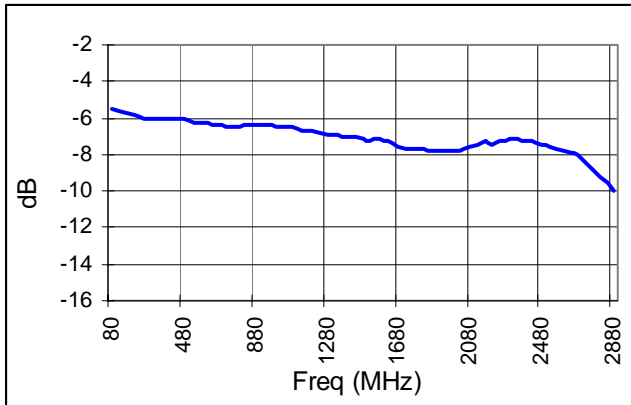
Absolute Maximum Ratings ¹

Parameter	Absolute Maximum
RF Input Power	+17 dBm
LO Drive Power	+17 dBm
Operating Temperature	-40°C to +85°C
Storage Temperature	-55°C to +125°C

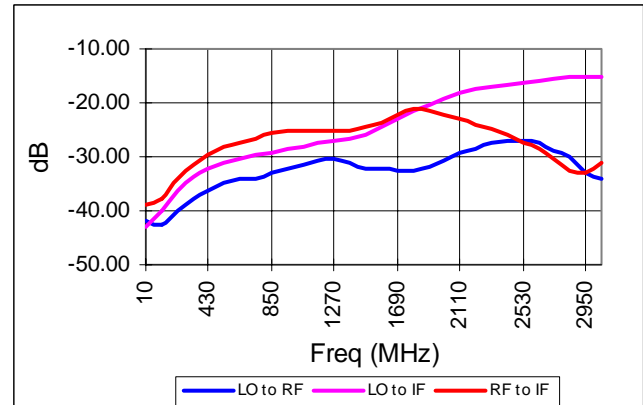
1. Operation of this device above any one of these parameters may cause permanent damage.

Typical Performance Curves

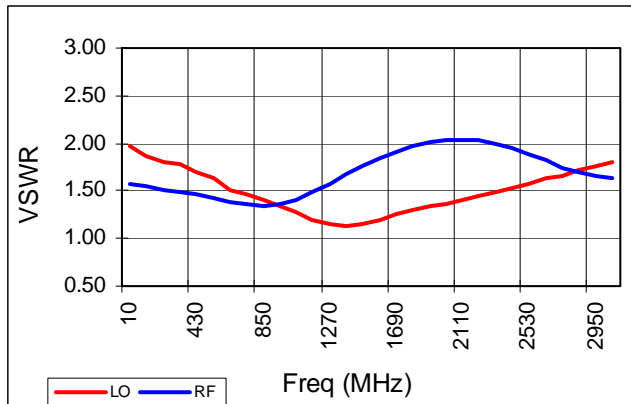
Conversion Loss



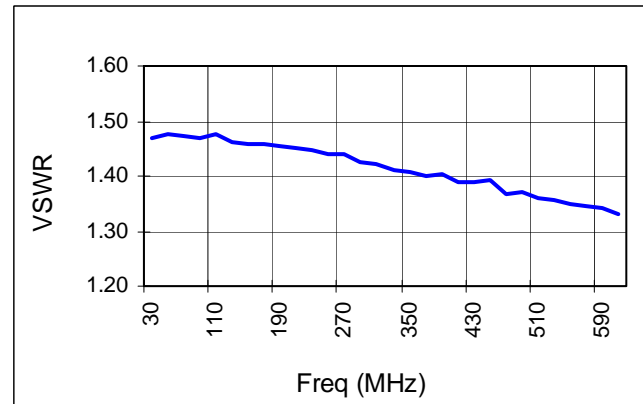
Isolation



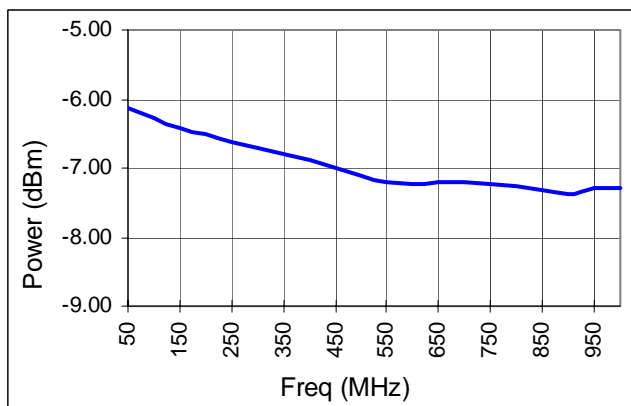
LO & RF VSWR



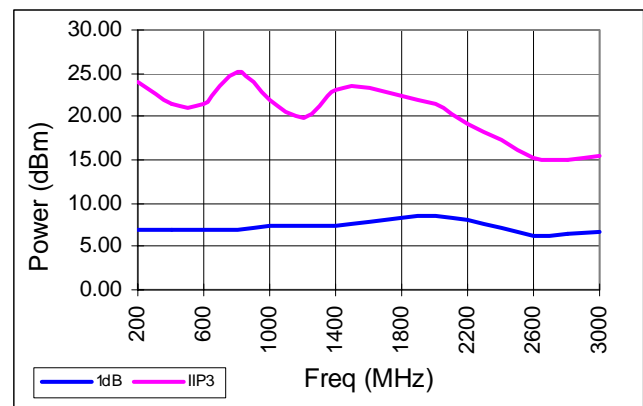
IF VSWR



IF Bandwidth



IIP3 & 1 dB Compression



Spurious Table: 900MHz

(In dBc below IF, assuming down conversion)

		nf _{LO} - mf _{RF}					
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: 1800MHz

(In dBc below IF, assuming down conversion)

		nf _{LO} - mf _{RF}					
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: 1900MHz

(In dBc below IF, assuming down conversion)

		nf _{LO} - mf _{RF}					
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