

**E-Series Surface Mount Mixer**  
80 – 2500 MHz

**ESMD-C50H**  
V3

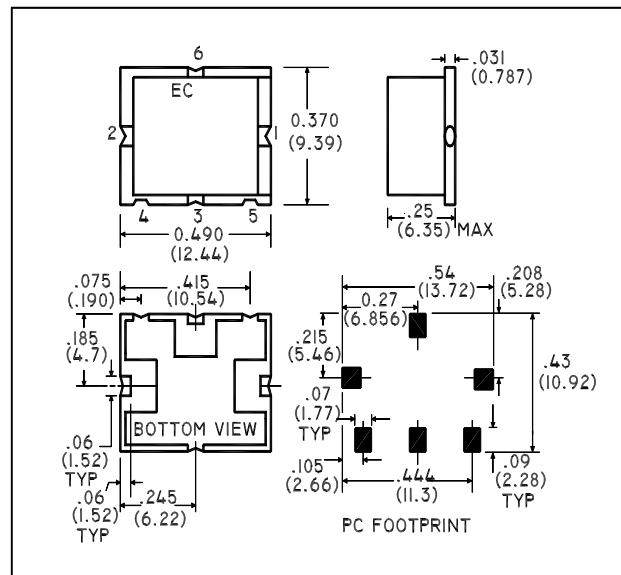
**Features**

- LO Power +17 dBm
- Up to +14 dBm RF
- Surface Mount
- Tape and reel packaging available

**Description**

M/A-COM's ESMD-C50H is a Low Cost, 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-C50H is also suitable for Transmitter upconversion at any frequency up to 2.5GHz. Parts are packaged in tape & reel.

**SM - 2 Package**



**Electrical Specifications:  $T_A = 25^\circ\text{C}$ ,  $Z_0 = 50\Omega$ <sup>1</sup>**

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	—	6.1	7.5
		1000 - 2500	dB	—	7.34	9.0
Isolation	LO to RF	80 - 1000	dB	25	33.5	—
		1000 - 2500	dB	20	28.9	—
Isolation	LO to IF	80 - 1000	dB	26	31.5	—
		1000 - 2500	dB	13.5	17.4	—
Isolation	RF to IF	80 - 1000	dB	20	26.9	—
		1000 - 2500	dB	20	25.9	—
VSWR	LO	80 - 1000	—	—	1.42	2.0
		1000 - 2500	—	—	1.63	2.5
VSWR	RF	80 - 1000	—	—	1.72	2.8
		1000 - 2500	—	—	1.71	2.4
VSWR	IF	DC - 600	—	—	2.55	3.2
		—	—	—	—	—
Input IP3	—	200 - 1000	dBm	21	27	—
		1000 - 2500	dBm	18	25	—
Input 1 dB Compression	—	80 -2500	dBm	—	14.0	—

**Ordering Information**

Part Number	Package
ESMD-C50HTR	Tape and Reel (500 piece Reel)

- **North America** Tel: 800.366.2266 / Fax: 978.366.2266
- **Europe** Tel: 44.1908.574.200 / Fax: 44.1908.574.300
- **Asia/Pacific** Tel: 81.44.844.8296 / Fax: 81.44.844.8298

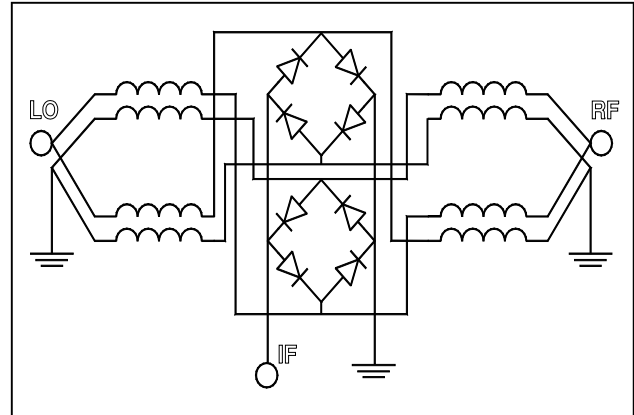
Visit [www.macom.com](http://www.macom.com) for additional data sheets and product information.

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**Pin Configuration**

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

**Schematic**



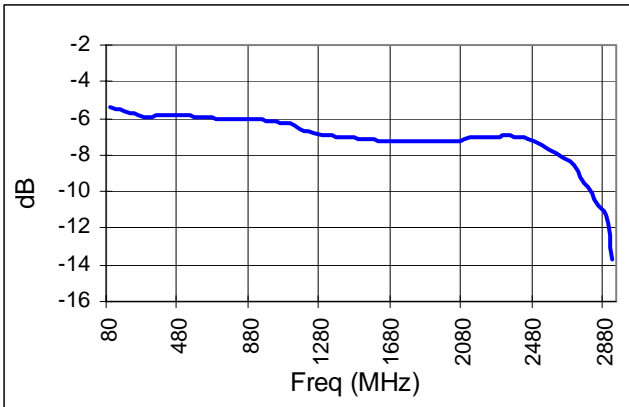
**Absolute Maximum Ratings <sup>1</sup>**

Parameter	Absolute Maximum
RF Input Power	+23 dBm
LO Drive Power	+23 dBm
Operating Temperature	-40°C to +85°C
Storage Temperature	-55°C to +125°C

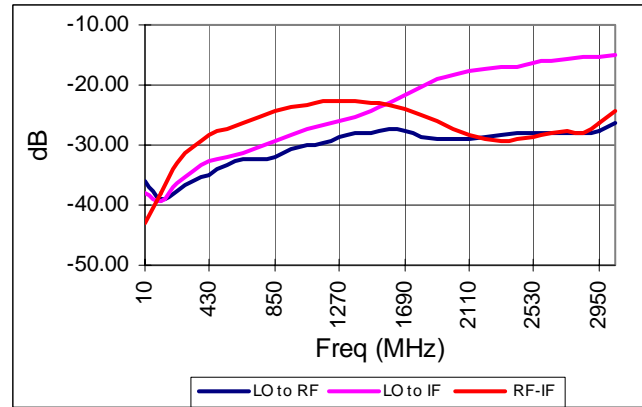
1. Operation of this device above any one of these parameters may cause permanent damage.

**Typical Performance Curves**

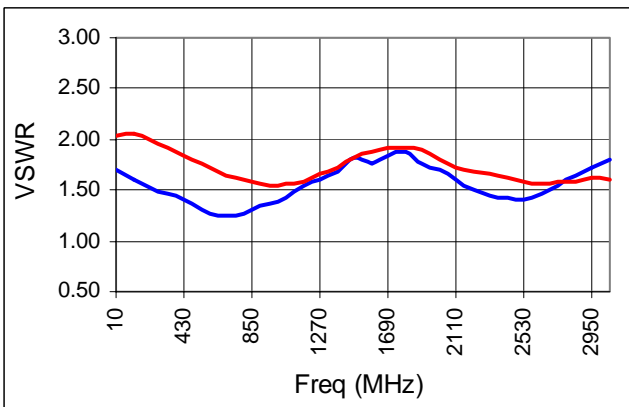
**Conversion Loss**



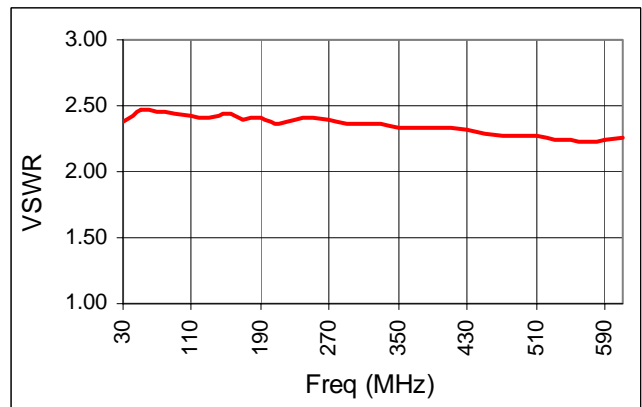
**Isolation**



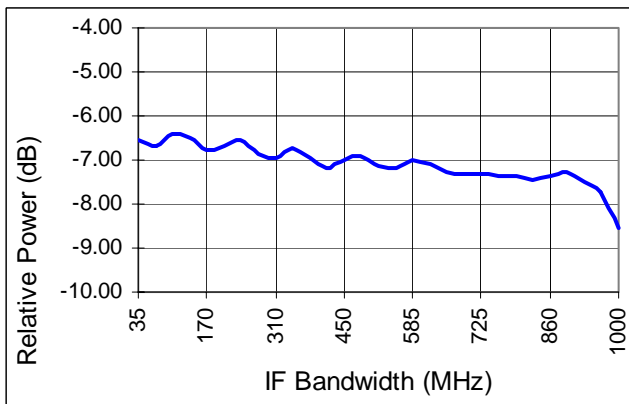
**LO & RF VSWR**



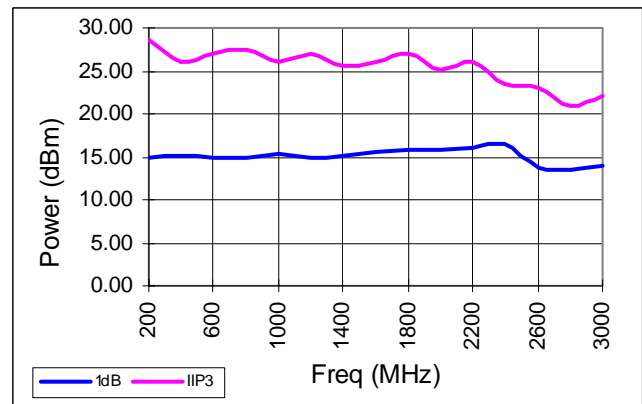
**IF VSWR**



**IF Bandwidth**



**IIP3 & 1 dB Compression**



3

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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	-6	12	21	13	
	1	29	0	35	18	42	
	2	64	58	58	51	72	
	(n)	3	76	80	78	76	73
		4	83	85	85	82	85.34
		0	1	2	3	4	
LO (m)							

RF = 1842.50 MHz, -5dBm  
LO = 1772.50 MHz, +17dBm  
IF = 70 MHz

**Spurious Table: 900MHz**

(In dBc below IF, assuming down conversion)

		nf <sub>LO</sub> - mf <sub>RF</sub>					
RF	0	X	2	14	12	29	
	1	20	0	37	12	39	
	2	25	26	38	27	32	
	(n)	3	46	41	44	43	44
		4	57	56	54	55	57
		0	1	2	3	4	
LO (m)							

RF = 970 MHz, -5dBm  
LO = 900 MHz, +17dBm  
IF = 70 MHz

**Spurious Table: 1900MHz**

(In dBc below IF, assuming down conversion)

		nf <sub>LO</sub> - mf <sub>RF</sub>					
RF	0	X	-8	21	16	19	
	1	24	0	39	17	50	
	2	29	32	29	22	31	
	(n)	3	51	46	51	41	50
		4	52	55	55	52	55
		0	1	2	3	4	
LO (m)							

RF = 1960 MHz, -5dBm  
LO = 1890 MHz, +17dBm  
IF = 70 MHz