E-Series Surface Mount Mixer
80 – 2500 MHz

MAMXES0117
V4

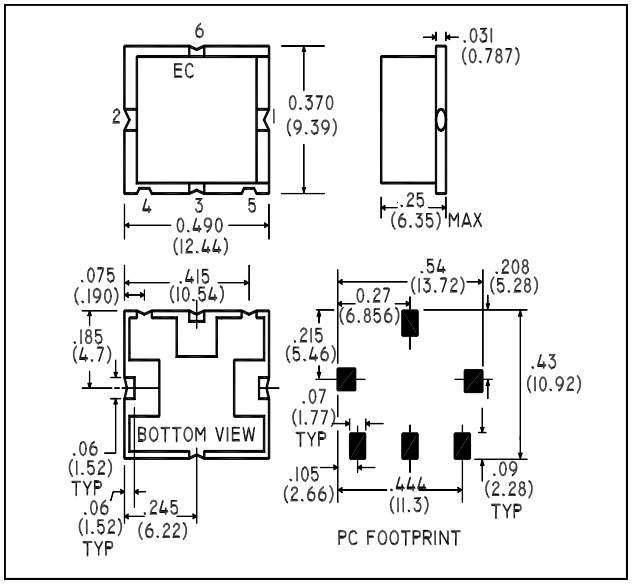
Features

- LO Power +17 dBm
- Up to +14 dBm RF
- Surface Mount
- RoHS* Compliant version of the ESMD-C50H
- Tape and reel packaging available

Description

M/A-COM's MAMXES0117 is a RoHS compliant device that is equivalent to the ESMD-C50H mixer. This device 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 MAMXES0117 is also suitable for Transmitter upconversion at any frequency up to 2.5GHz. The MAMXES0117 is offered in an SM-2 surface mount package and is designed to be utilized in both standard reflow and high temperature soldering reflow profiles.

SM — 2 Package



Electrical Specifications: T_A = 25°C, Z_0 = 50Ω [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 1000 - 2500	dB dB	— —	6.1 7.34	7.5 9.0
Isolation	LO to RF	80 - 1000 1000 - 2500	dB dB	25 20	33.5 28.9	— —
Isolation	LO to IF	80 - 1000 1000 - 2500	dB dB	26 13.5	31.5 17.4	— —
Isolation	RF to IF	80 - 1000 1000 - 2500	dB dB	20 20	26.9 25.9	— —
VSWR	LO	80 - 1000 1000 - 2500	—	—	1.42 1.63	2.0 2.5
VSWR	RF	80 - 1000 1000 - 2500	—	—	1.72 1.71	2.8 2.4

Ordering Information

Part Number	Package
MAMXES0117	Tape and Reel (500 piece reels)

* Restrictions on Hazardous Substances, European Union Directive 2002/95/EC.

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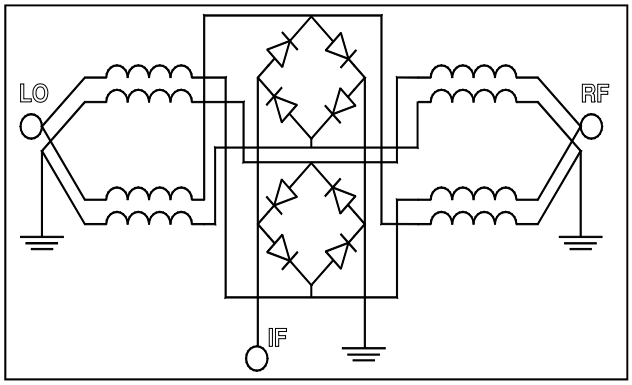
Electrical Specifications: T_A = 25°C, Z_0 = 50Ω [1]

Parameter	Test Conditions	Frequency	Units	Min	Typ	Max
VSWR	IF	DC - 600	—	—	2.55	3.2
Input IP3	—	200 - 1000 1000 - 2500	dBm dBm	21 18	27 25	— —
Input 1 dB Compression	—	80 -2500	dBm	—	14.0	—

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	+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.

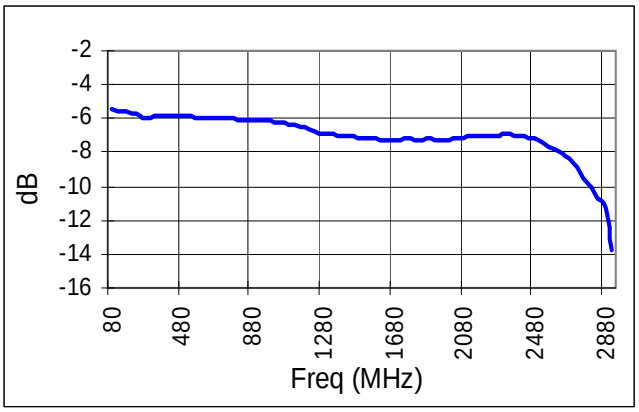
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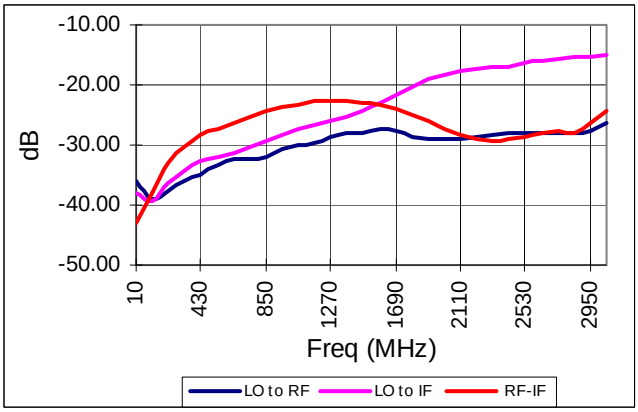
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Typical Performance Curves

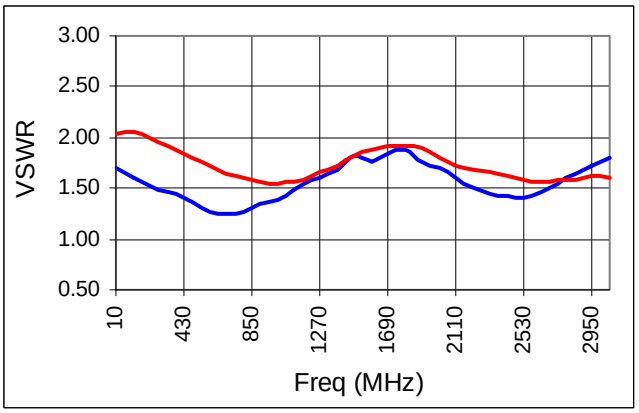
Conversion Loss



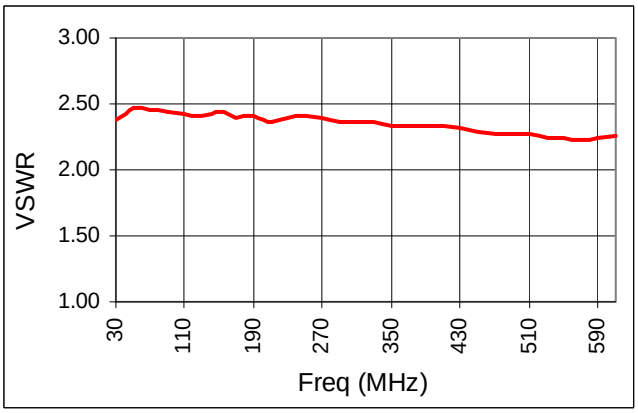
Isolation



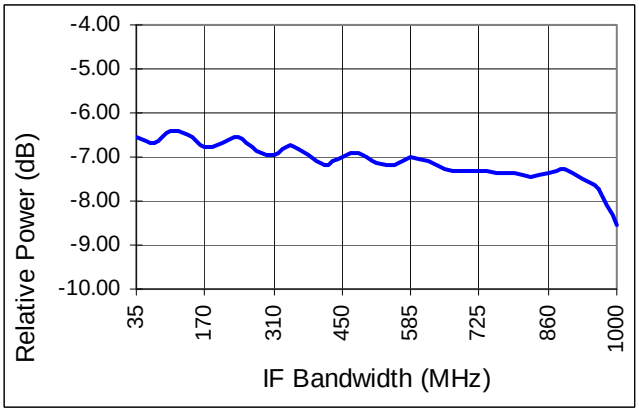
LO & RF VSWR



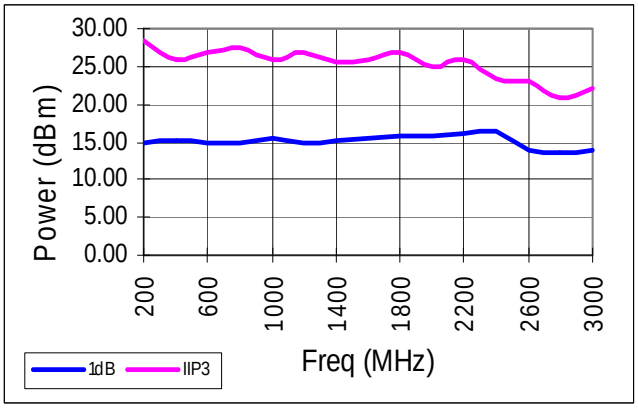
IF VSWR



IF Bandwidth



IIP3 & 1 dB Compression



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Spurious Table: 1800MHz

(In dBc below IF, assuming down conversion)

		nf_{LO} - mf_{RF}				
	0	X	-6	12	21	13
	1	29	0	35	18	42
RF	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

(In dBc below IF, assuming down conversion)

		nf_{LO} - mf_{RF}				
	0	X	2	14	12	29
	1	20	0	37	12	39
RF	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_{LO} - mf_{RF}				
	0	X	-8	21	16	19
	1	24	0	39	17	50
RF	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

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