



E-Series Surface Mount Mixer 1850 – 1980 MHz

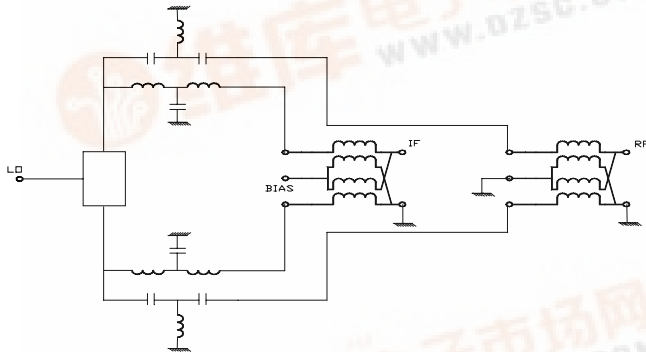
Features

- LO Power +13 dBm
- +22dB Compression Point
- Surface Mount
- +32dBm IIP3
- Up and Down converting

Description

M/A Com's EFM-1900 uses a novel, patent pending design to achieve very high linearity at low LO drive levels. Typically IP3 performance is +32dBm with an LO drive level of just +13dBm. The mixer combines PHEMT devices and carefully matched transformers in a surface mount package which can be used for both up and down converting. It is ideally suited for wireless applications where high linearity is required. Parts are

Schematic

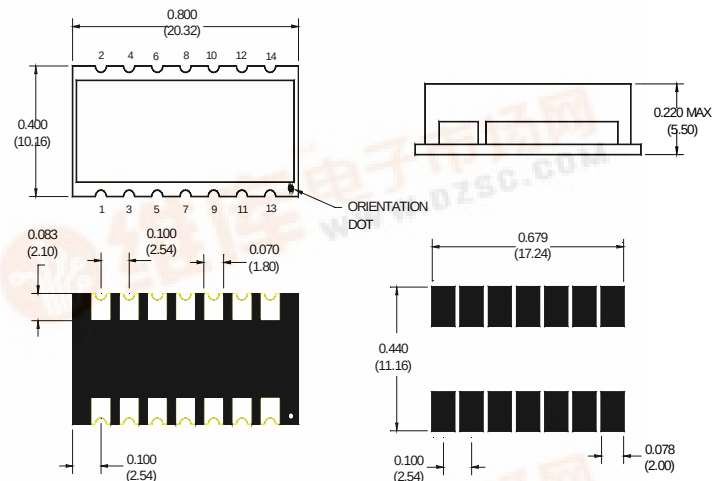


Electrical Specifications

Parameter	Units	Minimum	Typical	Maximum
Frequency Range	RF 1850 -1980 MHz LO 1350 - 1880 MHz IF 100 - 500 MHz DC bias 3V $\pm$ 0.3V	—	—	—
Conversion Loss	1850 - 1980 MHz	dB	7.5	9.5
L - R Isolation	1350 - 1880 MHz	dB	15.0	19.0
L - I Isolation	1350 - 1880 MHz	dB	22.0	28.0
R - I Isolation	1350 - 1880 MHz	dB	25.0	35.0
LO VSWR	1350 - 1880 MHz	—	3.8	—
RF VSWR	1850 - 1980 MHz	—	3.5	—
IF VSWR	100 - 500 MHz	—	1.8	—
Input IP3	dBm	28.0	32.0	—
Input 1dB Compression	dBm	—	+22.0	—

SM-106 Package

Note: Non Hermetic Package,Metal Cover.



Absolute Maximum Ratings

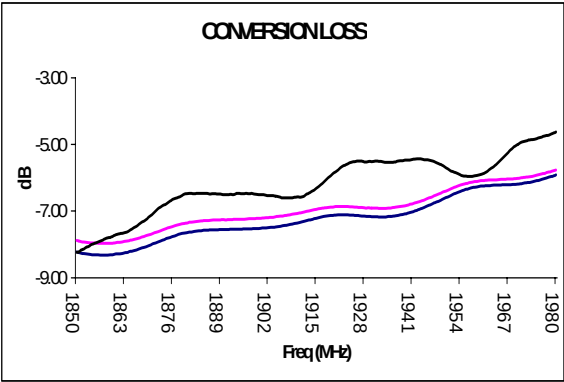
Parameter	Absolute Maximum
RF Power	200 mW
Peak IF Current	40 mA
Storage Temperature	-40°C to +85°C
Operating Temperature	-40°C to +85°C
ESD Rating	Zero

Pin Configuration

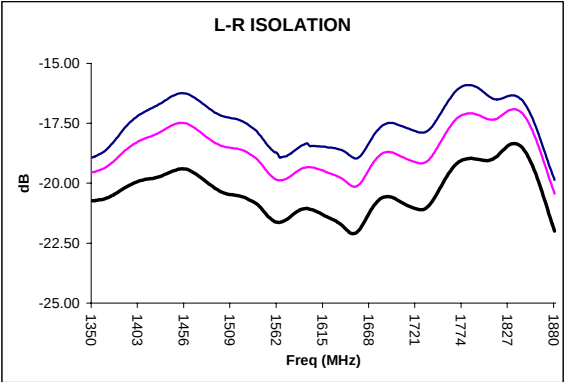
Function	Pin No.
LO	9
RF	2
IF	14
BIAS	13
Ground	1,3,4,5,6,7,8,10,11,12
Unconnected	—

Typical Performance

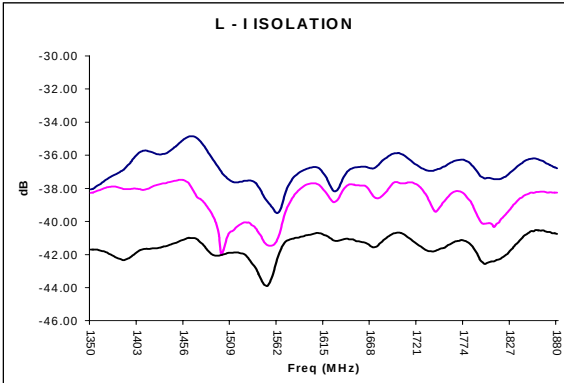
Conversion Loss



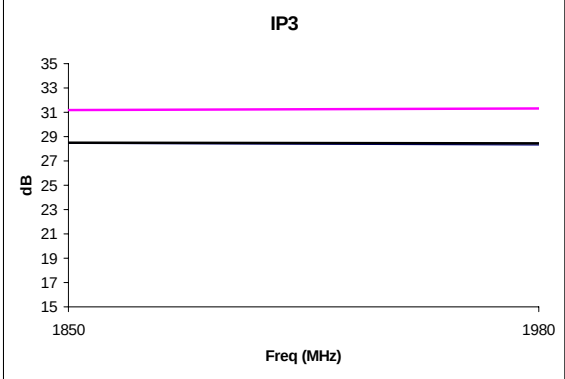
L - R Isolation



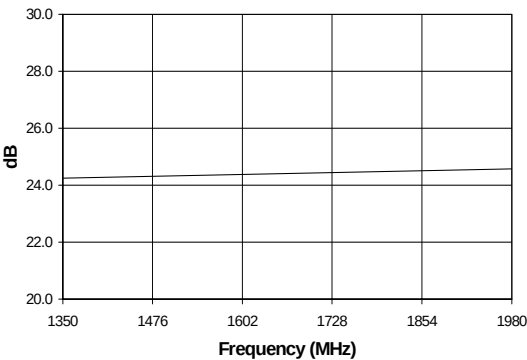
L-I Isolation



Input IP3



1dB Compression Point



Spurious Table: 1850MHz

(In dBc below IF, assuming down conversion)

		nf _{LO} - mf _{RF}				
		0	X	16	8	16
RF	0	X				
	1	26	0	42	47	58
	2	67	77	55	77	77
	(n)	3	77	77	77	77
	4	77	77	77	77	77
		0	1	2	3	4

LO (m)

RF = 1850 MHz, 0dBm
 LO = 1750 MHz, +13dBm
 IF = 100 MHz

Spurious Table: 1850MHz

(In dBc below IF, assuming down conversion)

		nf _{LO} - mf _{RF}				
		0	X	13	29	27
RF	0	X				
	1	27	0	17	58	45
	2	58	77	53	49	74
	(n)	3	77	77	77	77
	4	77	77	77	77	77
		0	1	2	3	4

LO (m)

RF = 1850 MHz, 0dBm
 LO = 1350 MHz, +13dBm
 IF = 500 MHz

Spurious Table: 1980MHz

(In dBc below IF, assuming down conversion)

		nf _{LO} - mf _{RF}				
		0	X	9	25	34
RF	0	X				
	1	30	0	55	62	60
	2	77	69	66	74	77
	(n)	3	77	77	77	77
	4	77	77	77	77	77
		0	1	2	3	4

LO (m)

RF = 1980 MHz, 0dBm
 LO = 1880 MHz, +13dBm
 IF = 100 MHz

Spurious Table: 1980MHz

(In dBc below IF, assuming down conversion)

		nf _{LO} - mf _{RF}				
		0	X	12	18	14
RF	0	X				
	1	30	0	21	59	58
	2	70	77	66	60	75
	(n)	3	77	77	77	77
	4	77	77	77	77	77
		0	1	2	3	4

LO (m)

RF = 1980 MHz, 0dBm
 LO = 1480 MHz, +13dBm
 IF = 500 MHz