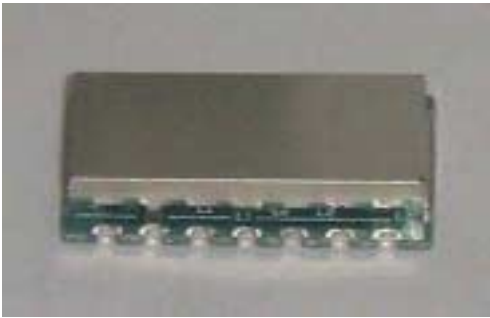


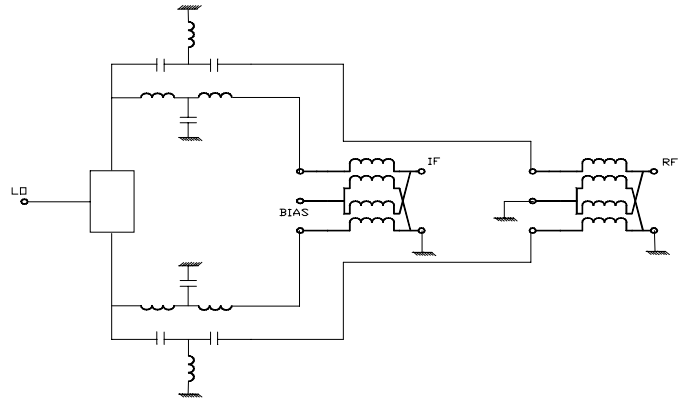
# E-Series Surface Mount Mixer

## 2110-2170 MHz

# EFM-2100



### Functional Schematic



### Features

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

### Description

M/A Com's EFM-2100 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

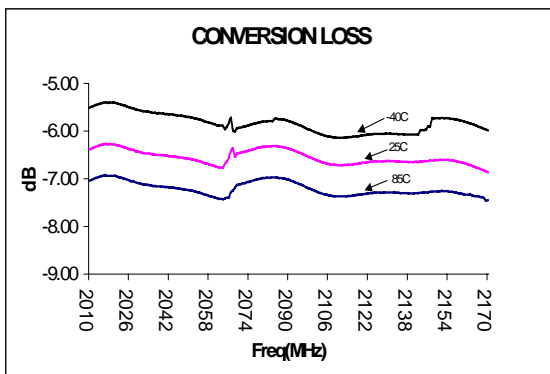
### Electrical Specifications

	Test Conditions	Units	Min.	Typ.	Max.
Frequency Range	RF 2100 - 2170 LO 1650 - 2070 IF 100-500 DC bias +3V ±0.3V	MHz MHz MHz	— — —	— — —	— — —
Conversion Loss	2110-2170 MHz	dB	—	8.5	10.0
L-R Isolation	1650-2070 MHz	dB	10.0	16.0	—
L- I Isolation	1650-2070 MHz	dB	20.0	25.0	—
R-I Isolation	2110-2170 MHz	dB	25	35	—
LO VSWR	1650-2070 MHz	—	—	2.5	—
RF VSWR	2110-2170 MHz	—	—	2.8	—
IF VSWR	100-500 MHz	—	—	1.8	—
Input IIP3	Up Converting	dBm	30.0	34.0	—
Input IIP3	Down Converting	dBm	30.0	34.0	—
Input IdB Compression	—	dBm	—	+22.0	—

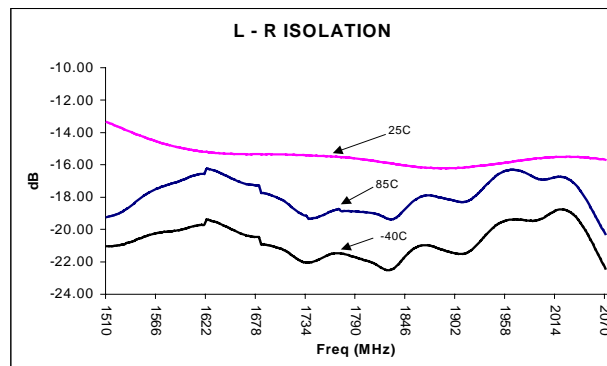
Note: Specifications subject to change without notice.

Typical Performance over Operating Temperatures

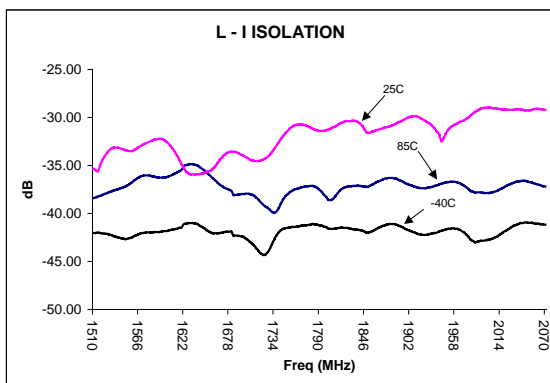
Conversion Loss



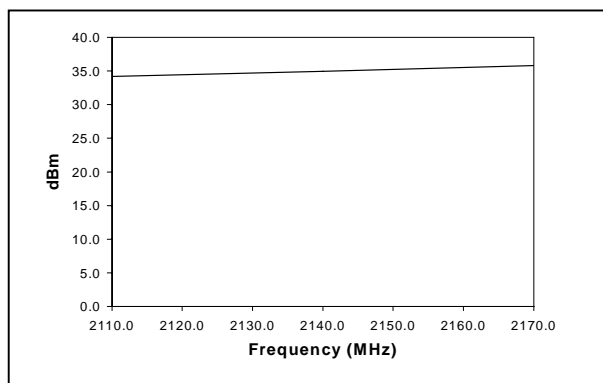
L - R Isolation



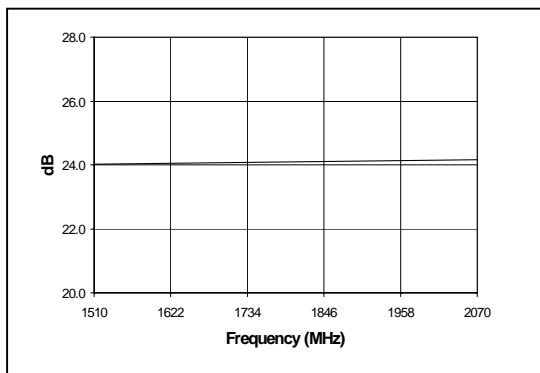
L - I Isolation



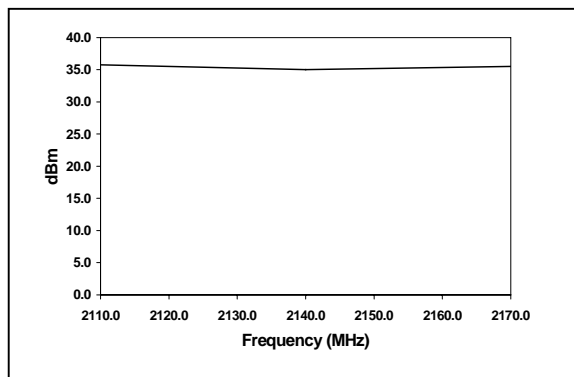
IIP3 Up- Converting



1dB compression Point



IIP3 Down-Converting



V1.01

Specifications subject to change without notice.

■ North America: Tel. (800) 366-2266, Fax (800) 618-8883  
 ■ Asia/Pacific: Tel.+81-44-844-8296, Fax +81-44-844-8298  
 ■ Europe: Tel. +44 (1344) 869 595, Fax+44 (1344) 300 020

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### Absolute Maximum Ratings

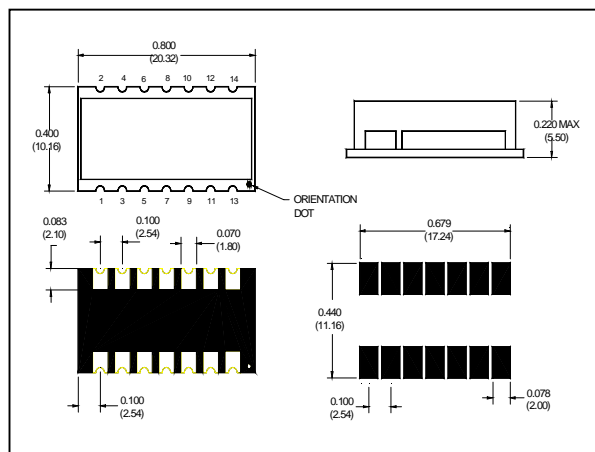
Parameter	Absolute Maximum
RF Power	200 mW
Peak IF Current	40 mA
Storage Temperature	-40 ° C to +85 ° C
Operating Temperature	-40 ° C to +85 ° C
ESD Rating	Zero

### Functional Configuration

Function	Pin No.
LO	9
RF	2
IF	14
Ground	1,3,4,5,6,7,8,10,11,12
Case Ground	-
Bias	13

### SM-106 Package

Note: Non Hermetic Package



V1.01

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**Spurious Table: 2100MHz**

(In dBc below IF, assuming down conversion)

		n <sub>f<sub>LO</sub></sub> - m <sub>f<sub>RF</sub></sub>				
	0	X	9	17	22	30
	1	35	0	37	57	45
RF	2	77	77	56	77	77
(n)	3	77	77	77	70	77
	4	77	77	77	77	77
		0	1	2	3	4

LO (m)

RF = 2110 MHz, 0dBm  
 LO = 2010 MHz, +13dBm  
 IF = 100 MHz

**Spurious Table: 2100MHz**

(In dBc below IF, assuming down conversion)

		n <sub>f<sub>LO</sub></sub> - m <sub>f<sub>RF</sub></sub>				
	0	X	8	12	10	23
	1	25	0	28	59	61
RF	2	77	77	62	52	77
(n)	3	77	77	77	77	70
	4	77	77	77	77	77
		0	1	2	3	4

LO (m)

RF = 2100 MHz, 0dBm  
 LO = 1610 MHz, +13dBm  
 IF = 500 MHz

**Spurious Table: 2170MHz**

(In dBc below IF, assuming down conversion)

		n <sub>f<sub>LO</sub></sub> - m <sub>f<sub>RF</sub></sub>				
	0	X	10	13	22	32
	1	33	0	45	59	47
RF	2	70	77	48	74	69
(n)	3	71	77	77	66	77
	4	77	77	77	77	77
		0	1	2	3	4

LO (m)

RF = 2170 MHz, 0dBm  
 LO = 2070 MHz, +13dBm  
 IF = 100 MHz

**Spurious Table: 2170MHz**

(In dBc below IF, assuming down conversion)

		n <sub>f<sub>LO</sub></sub> - m <sub>f<sub>RF</sub></sub>				
	0	X	10	12	16	17
	1	34	0	39	54	65
RF	2	73	77	65	60	77
(n)	3	77	77	77	77	77
	4	77	77	77	77	77
		0	1	2	3	4

LO (m)

RF = 2170 MHz, 0dBm  
 LO = 1670 MHz, +13dBm  
 IF = 500 MHz

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