

Surface Mount

# Frequency Mixer

# EM-1

Level 20 (LO Power +20 dBm) 100 kHz to 250 MHz

### Maximum Ratings

Operating Temperature	-20°C- 85°C
Storage Temperature	-55°C-100°C
LO Power	+22 dBm
RF Power	+20 dBm

Permanent damage may occur if any of these limits are exceeded.

### Pin Connections

LO	14
RF	7
IF	2
GROUND	1,3,4,5,6,8,9,10 11,12,13,15,16

### Features

- IP3 32 dBm typ
- wideband, 100 kHz to 250 MHz
- L-R isolation, 50 dB typ
- 1 dB compression, 18 dBm typ
- shield metal cover

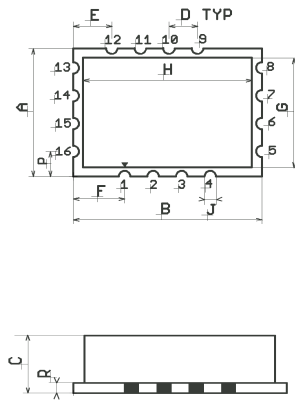
### Applications

- mobile radio
- cellular base stations
- VHF/UHF radios
- defence communications
- CATV

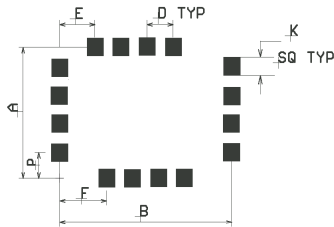
### Product Description

The EM-1 is a high dynamic range GaAs FET mixer. This active FET mixer realizes a typical third order intercept point of +32 dBm at an LO drive level of +20 dBm. Typical applications include frequency up/down conversion, modulation for receivers and transmitters used in communications systems.

### Outline Drawing



### PCB Land Pattern



### Electrical Specifications (Tamb= 25°C)

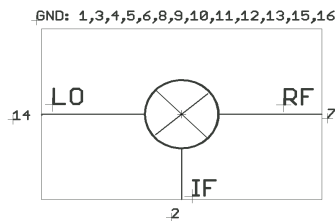
FREQUENCY (MHz)			CONVERSION LOSS (dB)		RF in at 1dB Compr (dBm)	IP3* (dBm)	LO-RF ISOLATION (dBm)		LO-IF ISOLATION (dBm)	
RF	LO	IF	Typ.	Typ.	Typ.	Typ.	Typ.	Min.	Typ.	Min.
0,1-250	0,1-250	0,1-250	5,0	7,5	18,0	32	60	52	65	35

\*Specified at RF=100MHz

### Typical Performance Data

FREQUENCY (MHz)		Conver. Loss (dB)	Isolat. R (dB)	L-Isolat. I (dB)	L- VSWR Port (-:1)	RF VSWR Port (-:1)	LO IP1 (dBm)	IF Freq. (MHz)	VSWR Port (-:1)
RF	LO	+20dBm	+20dBm	+20dBm	+17dBm	+17dBm	+20dBm		LO
0,1	30,1	5,6	77,9	98,0	2,06	1,79	19,0	0,1	1,91
0,2	30,2	5,5	77,4	95,0	1,68	1,79	18,7	0,5	1,26
0,3	30,3	5,0	76,2	93,0	1,50	1,80	18,5	1,0	1,17
0,5	30,5	5,0	75,0	90,0	1,37	1,80	18,5	5,0	1,10
1	31	5,0	72,3	85,0	1,21	1,80	18,5	10,0	1,10
5	35	5,0	68,9	80,0	1,10	1,82	18,5	50,0	1,13
10	40	4,8	66,2	65,9	1,05	1,84	18,5	100,0	1,17
20	50	5,0	64,2	62,0	1,06	1,75	18,5	150,0	1,31
50	80	5,1	62,6	51,5	1,06	1,74	19,0	200,0	1,56
100	130	5,3	59,6	45,2	1,15	1,74	19,0	250,0	1,92
200	230	5,5	54,7	39,0	1,51	1,91	19,0	300,0	2,21
300	330	6,3	51,9	35,6	2,49	2,57	18,5	350,0	2,76

### Functional Diagram



Function	Pin No.
LO	14
RF	7
IF	2
GND	All other pins

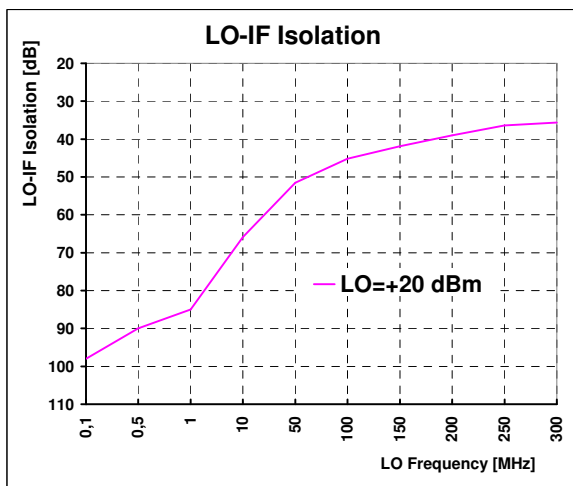
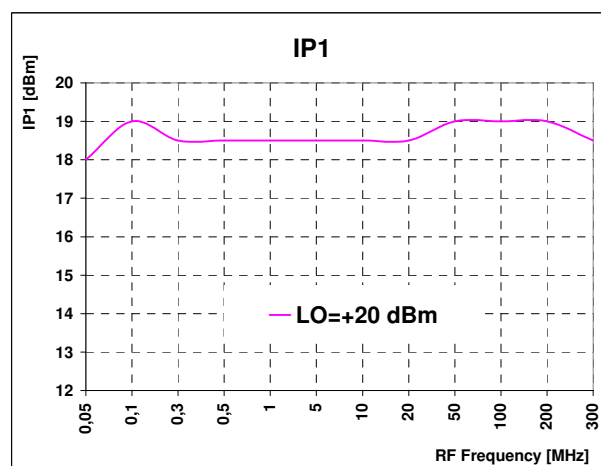
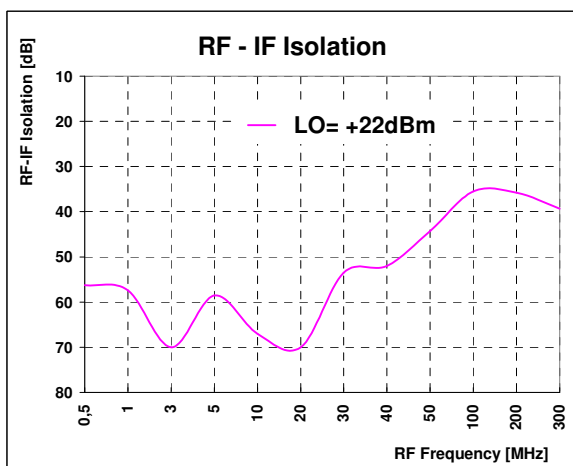
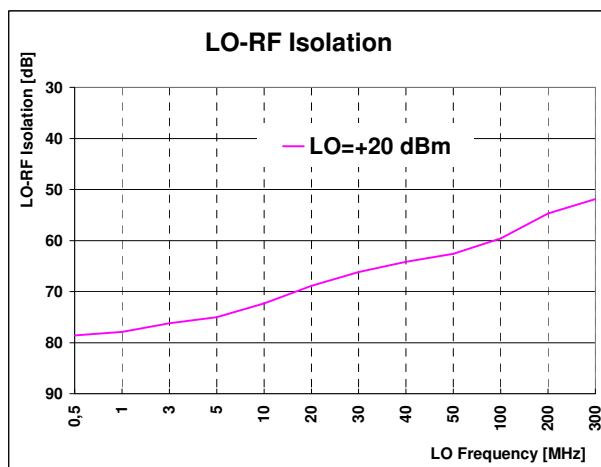
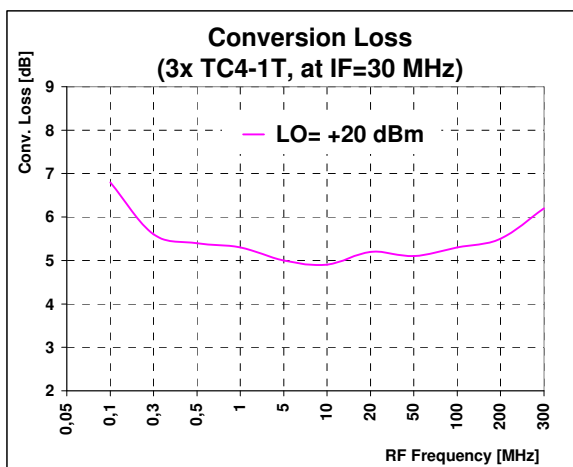
### Outline Dimensions

( mil mm )									
A	B	C	D	E	F	G	H	J	
460	660	220	100	135	180	413,39	807,09	40	
11,68	16,76	5,59	2,54	3,43	4,57	10,50	20,50	1,02	
K	P	R							
60	90	31,496							
1,52	2,29	0,80							

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# Performance Charts

# EM-1



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