

# Surface Mount Frequency Mixer

## MBA-15MH+

Level 13 (LO Power +13 dBm) 1400 to 2400 MHz



CASE STYLE: SM2

### Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	200mW
IF Current	40mA
Permanent damage may occur if any of these limits are exceeded.	

### Pin Connections

LO	10
RF	5
IF	3
GROUND	1,2,4,6,7,8,9

### Features

- excellent temperature stability
- excellent performance repeatability
- leads with strain relief
- very low cost
- ultra low height, 0.07"
- aqueous washable
- protected by US Patent 5,534,830

### Applications

- PCN/PCS/wideband CDMA
- satellite communication
- GPS
- PCMCIA

### +RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

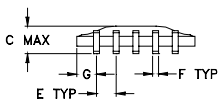
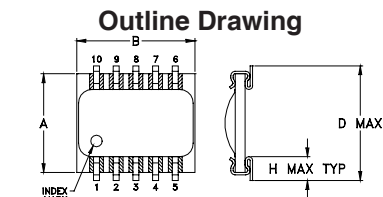
### Electrical Specifications

FREQUENCY (MHz)		CONVERSION LOSS (dB)			LO-RF ISOLATION (dB)		LO-IF ISOLATION (dB)		IP3 at center band (dBm)
LO/RF	IF	$\bar{X}$	$\sigma$	Max.	Typ.	Min.	Typ.	Min.	Typ.
1400-2400	DC-600	5.5	0.1	8.5	28	16	16	8	18

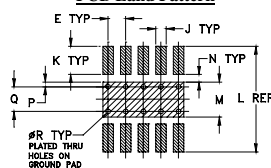
1 dB COMP.: +8 dBm typ.

### Typical Performance Data

Frequency (MHz)		Conversion Loss (dB)	Isolation L-R (dB)	Isolation L-I (dB)	VSWR RF Port (:1)	VSWR LO Port (:1)
RF	LO	LO +13dBm	LO +13dBm	LO +13dBm	LO +13dBm	LO +13dBm
1200.00	1230.00	6.70	34.90	14.30	3.38	3.44
1230.00	1260.00	6.82	35.70	14.20	3.11	3.64
1300.00	1330.00	5.98	35.10	15.10	2.61	3.06
1400.00	1430.00	5.29	34.50	15.80	2.30	2.96
1412.50	1442.50	5.36	35.00	15.40	2.23	2.92
1500.00	1530.00	5.40	34.40	16.20	1.96	2.68
1600.00	1630.00	5.37	34.30	17.60	1.67	2.35
1700.00	1730.00	5.54	32.90	19.30	1.52	1.84
1777.50	1807.50	5.65	32.00	20.10	1.38	1.85
1800.00	1830.00	5.44	31.80	20.50	1.35	1.60
1900.00	1930.00	5.62	30.00	21.20	1.19	1.50
1960.00	1990.00	5.52	29.30	21.30	1.13	1.63
2000.00	2030.00	5.58	28.80	21.10	1.12	1.55
2100.00	2130.00	5.73	26.10	20.10	1.15	1.57
2142.50	2172.50	5.74	25.60	19.80	1.16	1.54
2200.00	2230.00	6.02	25.00	19.10	1.20	1.61
2300.00	2330.00	6.33	25.30	18.00	1.48	1.66
2325.00	2355.00	6.35	25.40	17.50	1.55	1.61
2400.00	2430.00	6.71	25.00	16.70	1.73	1.64
2507.50	2537.50	6.61	24.20	15.20	1.91	1.60



### PCB Land Pattern

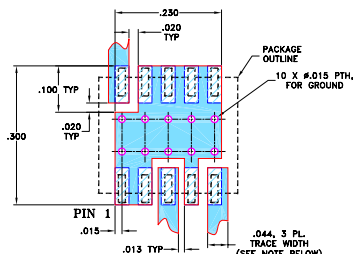


Suggested Layout,  
Tolerance to be within ±.002  
ADJACENT GROUND PINS SHALL BE CONNECTED TO EACH OTHER AND TO GROUND PAD

### Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H	
.250	.300	.095	.290	.050	.015	.050	.060	
6.35	7.62	2.41	7.37	1.27	0.38	1.27	1.52	
J	K	L	M	N	P	Q	R	wt
.030	.080	.300	.100	.020	.015	.070	.014	grams
0.76	2.03	7.62	2.54	0.51	0.38	1.78	0.36	0.3

### Demo Board MCL P/N: TB-99 Suggested PCB Layout (PL-066)

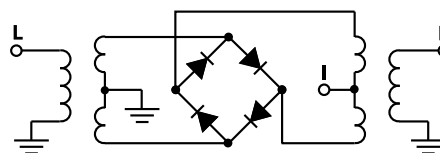


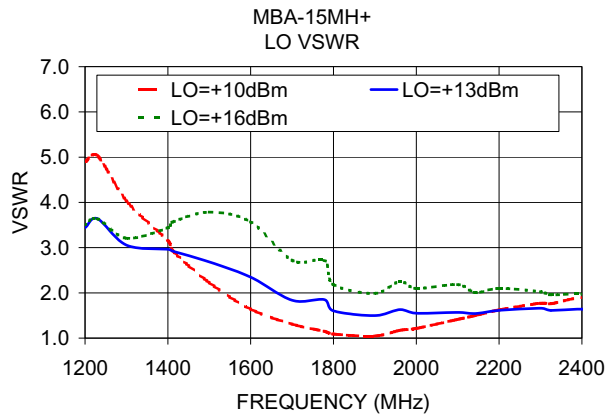
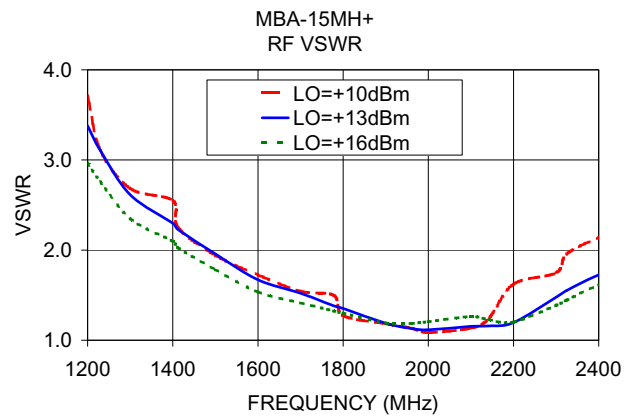
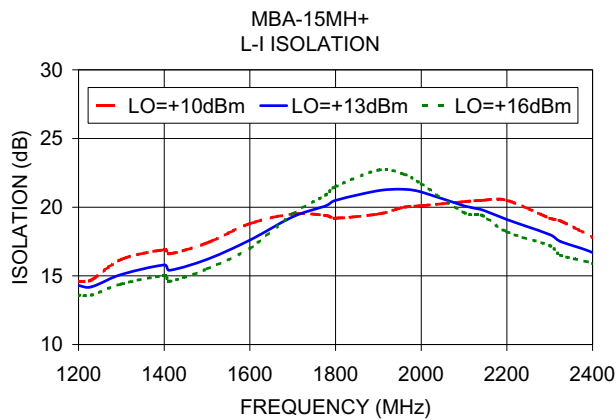
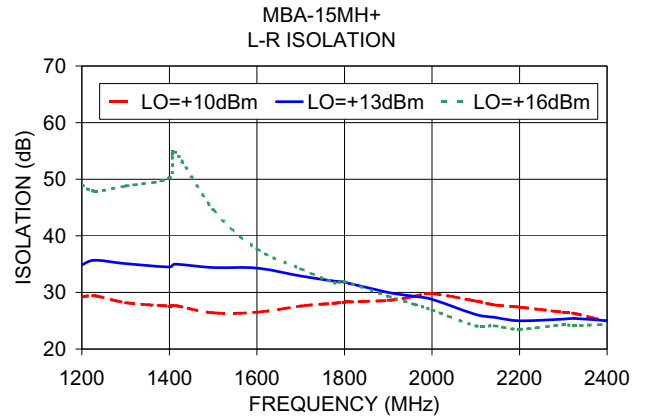
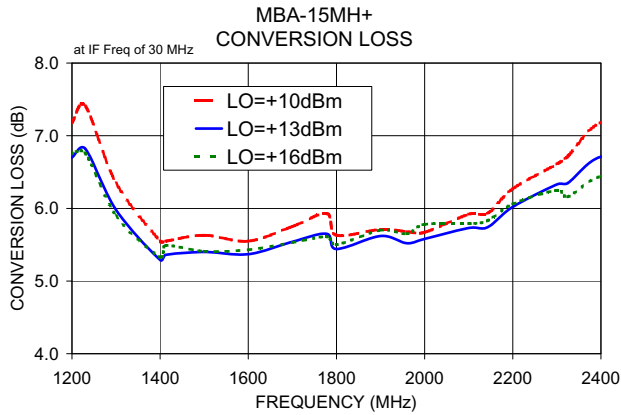
- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS 0.020" ± 0.0015". COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.  
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.  
■ DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)  
□ DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

### Notes

- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.  
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.  
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### Electrical Schematic





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