

# Surface Mount Frequency Mixer

## MBA-591+ MBA-591

Level 7 (LO Power +7 dBm) 2800 to 5900 MHz



Generic photo used for illustration purposes only

CASE STYLE: SM2

### Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	50mW
IF Current	40mA

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

### Pin Connections

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

### 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

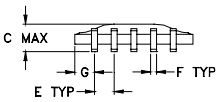
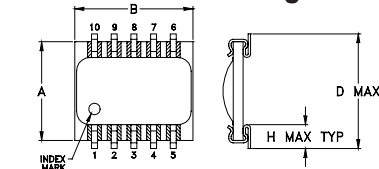
### Applications

- satellite communication
- ISM band
- PCMCIA

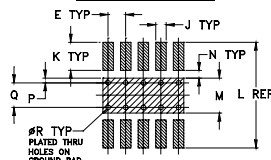
**+RoHS Compliant**

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

### Outline Drawing



### PCB Land Pattern

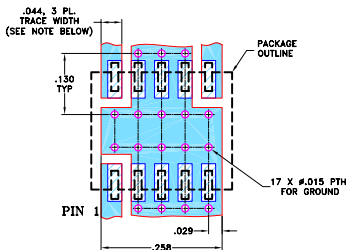


Suggested Layout,  
Tolerance to be within ±.002  
ADJACENT GROUND PINS SHALL BE CONNECTED  
TO EACH OTHER AND TO GROUND PAD

### 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-74 Suggested PCB Layout (PL-067)



- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B 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 Specifications

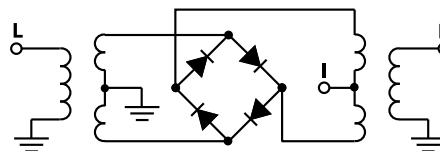
FREQUENCY (MHz)		CONVERSION LOSS (dB)			LO-RF ISOLATION (dB)		LO-IF ISOLATION (dB)		IP3 at center band (dBm)
LO/RF	IF	$\bar{X}$	$\sigma$	Max.	Typ.	Min.	Typ.	Min.	Typ.
2800-5900	DC-1000	6.5	0.1	9.0	36	20	26	17	10

1 dB COMP.: +1 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 +7dBm	LO +7dBm	LO +7dBm	LO +7dBm	LO +7dBm
2597.00	2627.00	6.11	33.16	23.57	3.25	7.31
2895.00	2925.00	5.11	31.10	23.98	1.88	5.83
3000.00	3030.00	4.90	31.11	23.73	1.61	5.23
3300.00	3330.00	4.58	31.80	23.98	1.28	4.61
3492.50	3522.50	4.70	33.07	24.97	1.61	4.78
3700.00	3730.00	4.92	33.70	26.25	2.10	4.21
3791.00	3821.00	5.01	34.34	26.80	2.31	3.90
4000.00	4030.00	5.32	36.66	27.71	2.84	2.86
4089.50	4119.50	5.45	37.63	27.98	2.97	2.58
4388.00	4418.00	5.93	38.33	28.33	3.16	1.70
4500.00	4530.00	6.11	39.03	28.13	3.22	1.49
4686.50	4716.50	6.33	39.88	27.54	3.43	1.25
4985.00	5015.00	6.08	40.18	26.99	4.02	1.31
5000.00	5030.00	6.10	40.38	27.03	4.07	1.33
5283.50	5313.50	6.13	39.86	27.04	3.90	1.81
5400.00	5430.00	6.57	38.38	26.96	4.09	2.08
5500.00	5530.00	7.20	38.33	26.75	4.95	2.32
5582.00	5612.00	7.42	38.54	26.53	5.13	2.45
5880.50	5910.50	8.01	38.73	25.90	4.56	2.44
6000.00	6030.00	8.02	38.49	25.53	4.39	2.75

### Electrical Schematic



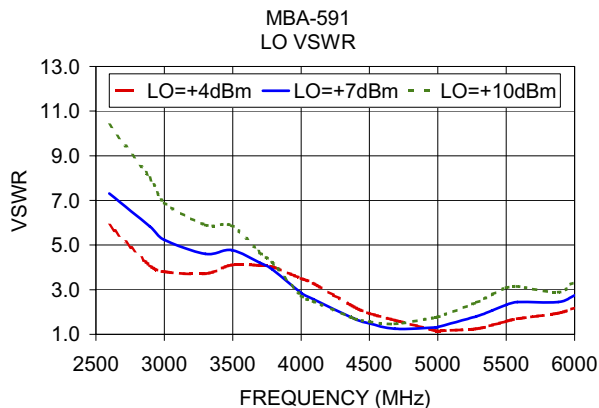
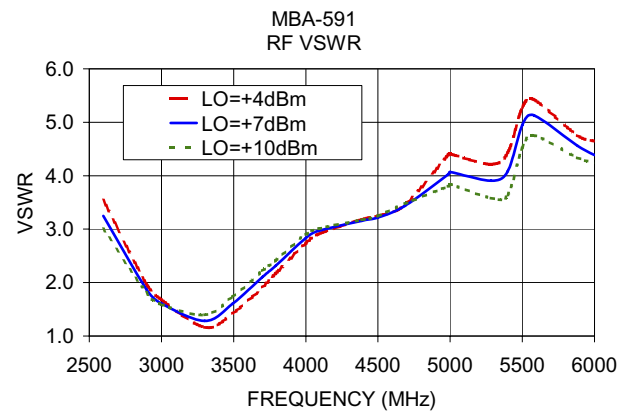
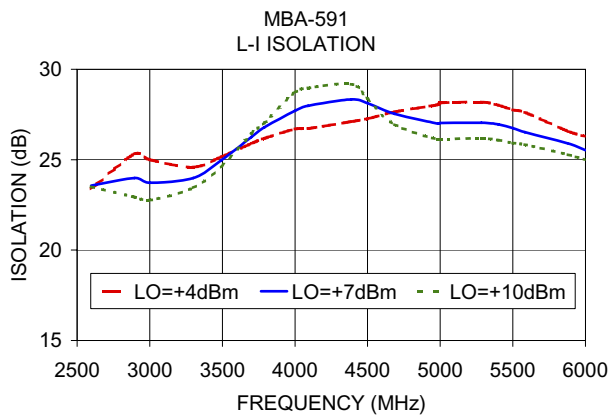
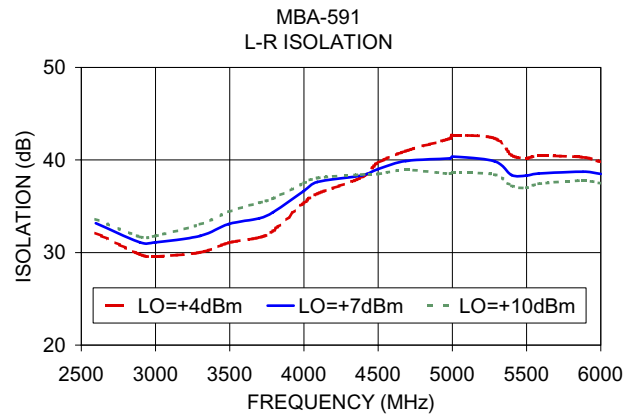
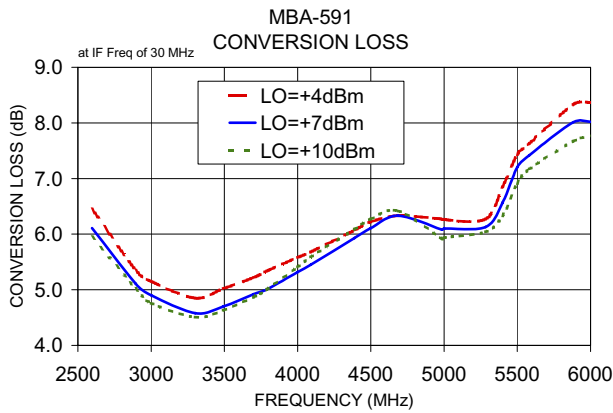
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# Performance Charts

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