

# Surface Mount Frequency Mixer

## RMS-5+

Level 7 (LO Power +7 dBm) 5 to 1500 MHz



CASE STYLE: TT240

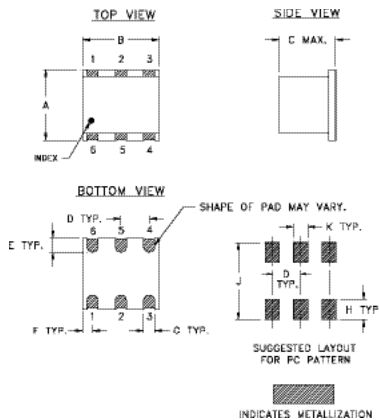
### Maximum Ratings

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	1
RF	4
IF	5
GROUND	2,3,6

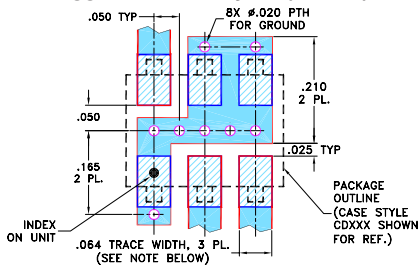
### Outline Drawing



### Outline Dimensions (inch/mm)

A	B	C	D	E	F
.250	.31	.20	.100	.050	.055
6.35	7.87	5.08	2.54	1.27	1.40
G	H	J	K	wt	
.040	.070	.270	.050	grams	
1.02	1.78	6.86	1.27	0.50	

### Demo Board MCL P/N: TB-03 Suggested PCB Layout (PL-052)



NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS .030" ± .002"; 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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### Features

- excellent L-R isolation, 40 dB typ.
- conversion loss, 5.92 dB typ.
- small size, 0.25"x0.31"x0.2"

### Applications

- cellular
- satellite distribution
- GPS

### Electrical Specifications

FREQUENCY (MHz)	CONVERSION LOSS (dB)	LO-RF ISOLATION (dB)						LO-IF ISOLATION (dB)						IP3 at center band (dBm)
		L		M		U		L		M		U		
$f_L - f_U$	$\bar{X}$ $\sigma$ Max.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.
5-1500 DC-1000	5.92 .34 7.5 9.5	60	40	40	20	30	18	55	30	30	18	15	8	13

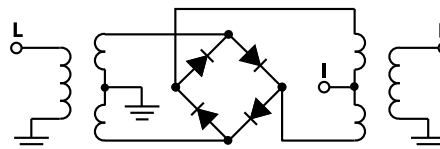
1 dB COMP: +1 dBm typ.  
For phase detection, DC output positive with in-phase RF & LO.

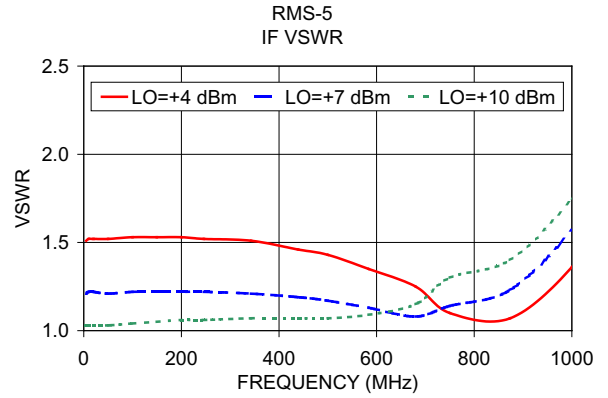
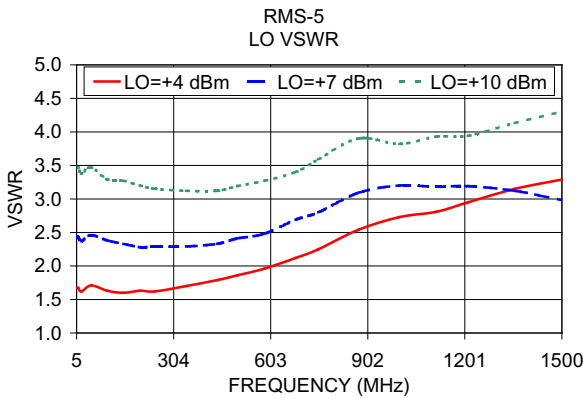
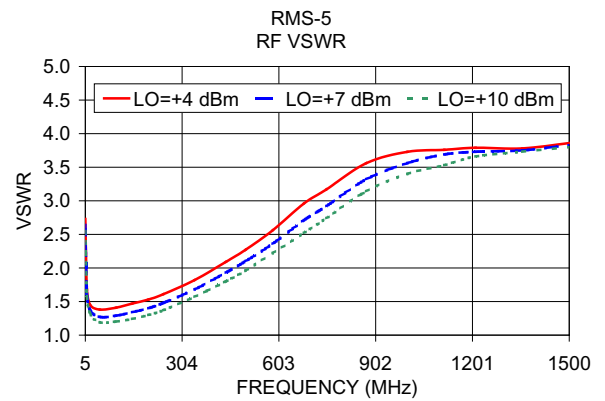
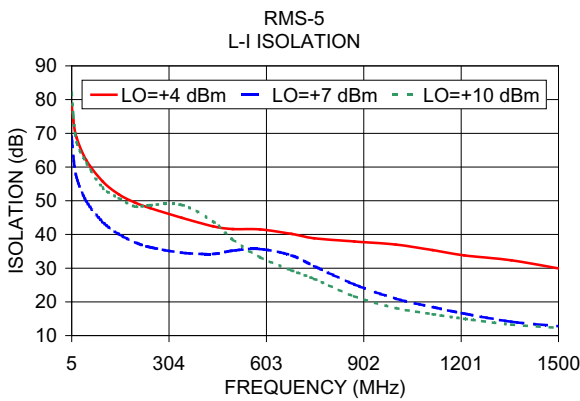
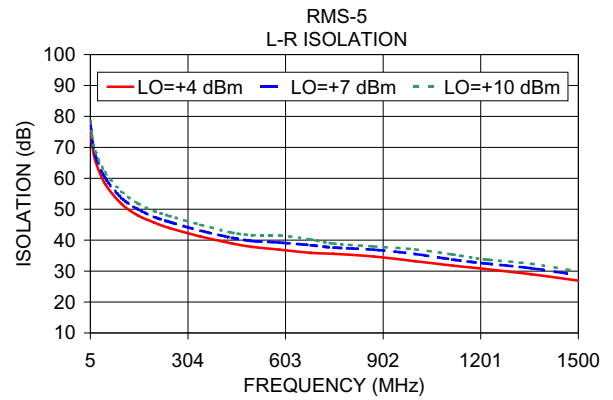
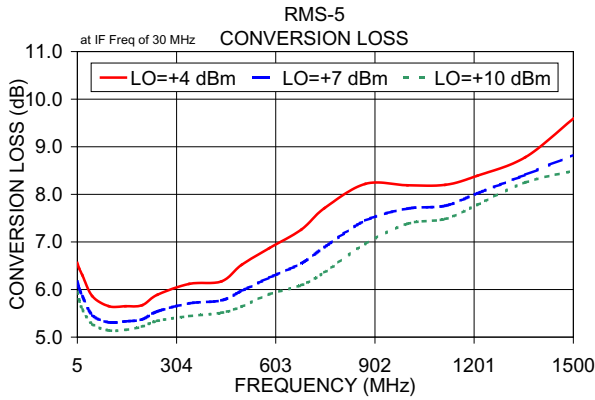
L = low range [ $f_L$  to 10  $f_U$ ]  
M = mid band [ $2f_L$  to  $f_U/2$ ]  
U = upper range [ $f_U/2$  to  $f_U$ ]

### 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	LO +7dBm	LO +7dBm	LO +7dBm
5.00	35.00	6.17	78.28	82.08	2.64	2.43				
10.00	40.00	6.03	73.09	75.39	1.62	2.43				
20.00	50.00	5.86	67.43	67.33	1.37	2.37				
50.00	80.00	5.46	60.16	61.16	1.27	2.46				
100.00	70.00	5.31	53.66	53.86	1.29	2.38				
149.68	119.68	5.33	50.07	50.77	1.34	2.33				
200.00	170.00	5.37	47.54	48.24	1.40	2.28				
246.13	216.13	5.54	45.92	48.66	1.48	2.29				
342.58	312.58	5.71	43.07	48.72	1.68	2.29				
439.03	409.03	5.77	40.76	43.78	1.93	2.33				
500.00	470.00	5.97	39.74	38.41	2.10	2.41				
583.71	553.71	6.25	39.21	33.19	2.36	2.48				
680.16	650.16	6.55	38.34	29.32	2.71	2.69				
750.00	720.00	6.89	37.60	26.77	2.92	2.80				
873.07	843.07	7.45	36.91	21.63	3.32	3.09				
1000.00	970.00	7.70	35.50	18.14	3.56	3.20				
1114.19	1084.19	7.76	33.72	16.32	3.69	3.18				
1210.65	1180.65	8.02	32.50	14.96	3.73	3.19				
1355.32	1325.32	8.41	30.92	13.25	3.75	3.12				
1500.00	1470.00	8.83	28.64	12.28	3.83	2.98				

### Electrical Schematic





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