

# Surface Mount Frequency Mixer

## RMS-2+ RMS-2

Level 7 (LO Power +7 dBm) 5 to 1000 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

### Features

- excellent L-R isolation, 40 dB typ.
- conversion loss, 6.67 dB typ.
- small size, 0.25"x0.31"x0.2"

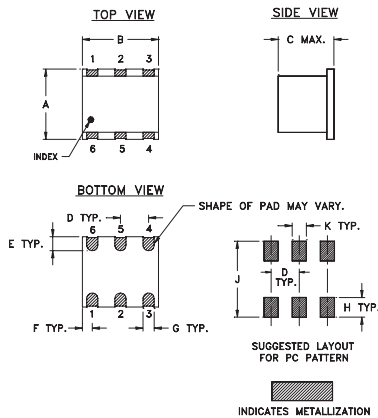
### Applications

- cellular
- GSM
- ISM

+ RoHS compliant in accordance with EU Directive (2002/95/EC)

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

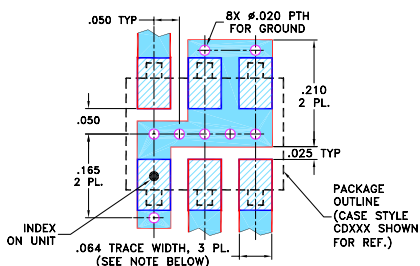
### Outline Drawing



### 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 RO4350B 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

### 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						
LO/RF	IF	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.				
5-1000	DC-1000	6.67	.26	8.0	9.5	60	40	40	20	25	18	55	30	30	20	20	12	17

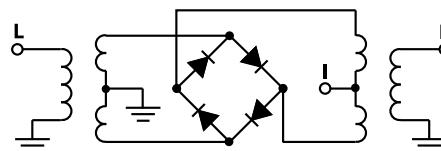
1 dB COMP: +1 dBm typ.  
For phase detection, DC output positive with in-phase RF & LO.

L = low range [ $f_L$  to  $10 f_L$ ]  
M = mid range [ $10 f_L$  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
5.00	35.00	6.93	67.42	57.23	1.35	2.44
10.00	40.00	7.00	66.49	56.87	1.25	2.37
20.00	50.00	6.97	65.94	56.78	1.22	2.52
35.15	65.15	6.92	62.92	55.59	1.22	2.57
50.00	80.00	6.86	60.51	53.87	1.23	2.54
65.30	95.30	6.89	58.52	52.15	1.23	2.49
100.00	70.00	6.84	55.07	48.85	1.22	2.44
155.76	125.76	6.72	52.10	46.19	1.22	2.43
200.00	170.00	6.70	49.75	44.71	1.23	2.36
246.21	216.21	6.75	48.10	43.71	1.23	2.37
306.52	276.52	6.96	45.81	41.99	1.25	2.40
366.82	336.82	6.97	44.49	39.66	1.27	2.39
427.12	397.12	6.99	42.09	37.81	1.30	2.44
500.00	470.00	7.03	39.89	35.06	1.36	2.58
577.88	547.88	7.29	38.51	32.59	1.44	2.74
668.33	638.33	7.63	36.87	29.46	1.56	2.95
758.79	728.79	7.68	34.71	26.72	1.72	3.17
849.24	819.24	7.98	33.07	23.71	1.95	3.58
909.55	879.55	8.51	32.47	22.35	2.13	3.70
1000.00	970.00	8.90	32.02	20.21	2.45	3.80

### Electrical Schematic



Mini-Circuits®  
ISO 9001 ISO 14001 AS 9100 CERTIFIED

For detailed performance specs & shopping online see web site

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IF/RF MICROWAVE COMPONENTS

Notes: 1. Performance and quality attributes and conditions not expressly stated in this specification sheet are intended to be excluded and do not form a part of this specification sheet. 2. Electrical specifications and performance data contained herein are based on Mini-Circuits' applicable established test performance criteria and measurement instructions. 3. The parts covered by this specification sheet are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at [www.minicircuits.com/MCLStore/terms.jsp](http://www.minicircuits.com/MCLStore/terms.jsp).

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## Performance Charts

