

# Surface Mount Frequency Mixer

# RMS-2MH+ RMS-2MH

Level 13 (LO Power +13 dBm) 5 to 1000 MHz



## 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     | 1     |
| RF     | 4     |
| IF     | 5     |
| GROUND | 2,3,6 |

## Features

- excellent L-R isolation, 39 dB typ.
- conversion loss, 6.72 dB typ.
- small size, 0.25"x0.31"x0.2"

## Applications

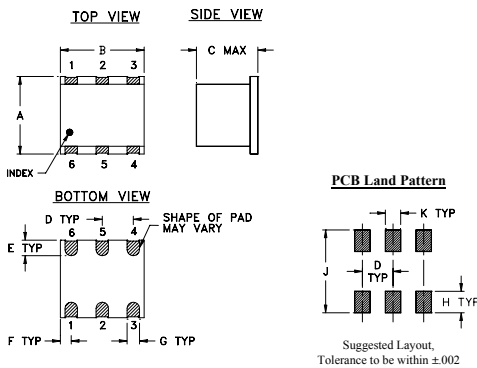
- UHF
- cellular/ISM/GSM

CASE STYLE: TT100  
PRICE: \$9.95 ea. QTY (1-9)

**+ 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.

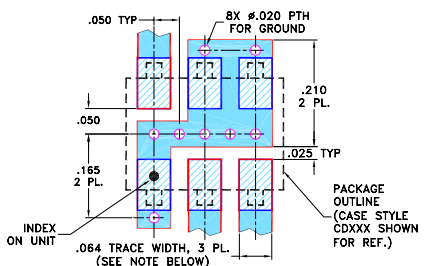
## Outline Drawing



## 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)



## Electrical Specifications

| FREQUENCY (MHz) | CONVERSION LOSS (dB) | LO-RF ISOLATION (dB) |     |     |     | LO-IF ISOLATION (dB) |    |    |    | IP3 at center band (dBm) |    |    |    |    |    |    |    |    |
|-----------------|----------------------|----------------------|-----|-----|-----|----------------------|----|----|----|--------------------------|----|----|----|----|----|----|----|----|
|                 |                      | L                    |     | M   |     | L                    |    | M  |    |                          |    |    |    |    |    |    |    |    |
| 5-1000          | DC-1000              | 6.72                 | .08 | 8.5 | 9.5 | 55                   | 40 | 39 | 20 | 22                       | 16 | 52 | 35 | 30 | 17 | 18 | 12 | 22 |

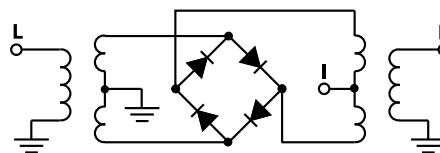
1 dB COMP: +9 dBm typ.  
For phase detection, DC output positive with in-phase RF & LO.

L = low range [ $f_i$  to  $10 f_i$ ]  
M = mid range [ $10 f_i$  to  $f_i/2$ ]  
U = upper range [ $f_i/2$  to  $f_i$ ]

## 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                | 6.87               | 67.46              | 60.42             | 1.26              | 2.23 |
| 10.00           | 40.00                | 6.71               | 61.14              | 54.89             | 1.16              | 2.14 |
| 20.00           | 50.00                | 6.81               | 55.36              | 49.28             | 1.12              | 2.06 |
| 35.15           | 65.15                | 6.82               | 50.90              | 44.75             | 1.13              | 2.13 |
| 50.00           | 80.00                | 6.86               | 48.33              | 42.38             | 1.13              | 2.09 |
| 65.30           | 95.30                | 6.76               | 46.42              | 40.39             | 1.13              | 2.04 |
| 100.00          | 70.00                | 6.73               | 44.03              | 37.91             | 1.14              | 2.02 |
| 155.76          | 125.76               | 6.54               | 43.58              | 37.14             | 1.15              | 1.97 |
| 200.00          | 170.00               | 6.54               | 42.48              | 36.16             | 1.16              | 1.95 |
| 246.21          | 216.21               | 6.62               | 40.92              | 34.54             | 1.19              | 1.98 |
| 306.52          | 276.52               | 6.76               | 38.19              | 31.82             | 1.23              | 1.93 |
| 366.82          | 336.82               | 6.79               | 34.91              | 28.84             | 1.29              | 2.04 |
| 427.12          | 397.12               | 6.59               | 32.18              | 26.69             | 1.35              | 2.09 |
| 500.00          | 470.00               | 6.52               | 29.15              | 24.87             | 1.44              | 2.11 |
| 577.88          | 547.88               | 6.74               | 26.48              | 22.60             | 1.54              | 2.15 |
| 668.33          | 638.33               | 7.07               | 24.41              | 20.55             | 1.68              | 2.21 |
| 758.79          | 728.79               | 7.37               | 22.47              | 18.54             | 1.82              | 2.31 |
| 849.24          | 819.24               | 7.86               | 20.85              | 16.52             | 1.98              | 2.47 |
| 909.55          | 879.55               | 8.30               | 19.83              | 15.54             | 2.18              | 2.56 |
| 1030.00         | 970.00               | 8.73               | 19.01              | 14.41             | 2.43              | 2.61 |

## 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

