

# Frequency Mixer

Level 7 (LO Power +7 dBm) 2 to 750 MHz

## RMS-1W+



### 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, 45 dB typ.
- conversion loss, 5.83 dB typ.
- small size, 0.25"x0.31"x0.2"

### Applications

- HF & VHF communications
- UHF

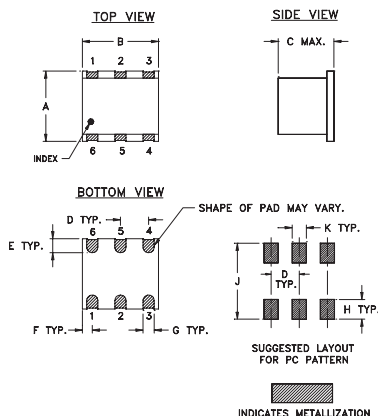
CASE STYLE: TT240

PRICE: \$6.75 ea. QTY (1-9)

**+RoHS Compliant**

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

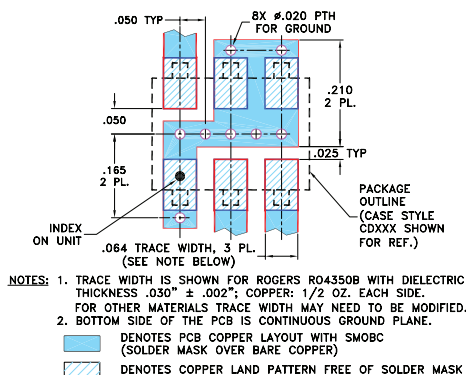
### Outline Drawing



### Outline Dimensions (inch)

| 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)



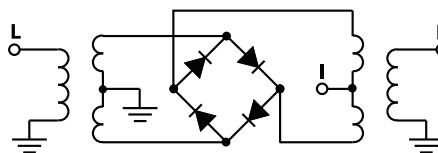
### Electrical Specifications

| FREQUENCY<br>(MHz)                                                                                                |        | CONVERSION LOSS<br>(dB) |          |      |                        | LO-RF ISOLATION<br>(dB) |      |      |      |      |      | LO-IF ISOLATION<br>(dB) |      |      |      |      |      | IP3<br>at center<br>band<br>(dBm) |
|-------------------------------------------------------------------------------------------------------------------|--------|-------------------------|----------|------|------------------------|-------------------------|------|------|------|------|------|-------------------------|------|------|------|------|------|-----------------------------------|
| LO                                                                                                                | RF     |                         |          |      |                        | L                       |      | M    |      | U    |      | L                       |      | M    |      | U    |      |                                   |
| $f_L$ - $f_U$                                                                                                     |        | $\bar{X}$               | $\sigma$ | Max. | Total<br>Range<br>Max. | Typ.                    | Min. | Typ. | Min. | Typ. | Min. | Typ.                    | Min. | Typ. | Min. | Typ. | Min. | Typ.                              |
| 2-750                                                                                                             | DC-750 | 5.83                    | .21      | 7.5  | 8.5                    | 70                      | 45   | 45   | 28   | 38   | 22   | 60                      | 45   | 40   | 25   | 30   | 20   | 1.0                               |
| 1 dB COMP.: +1 dBm typ.<br>For phase detection, DC output positive with in-phase RF & LO.                         |        |                         |          |      |                        |                         |      |      |      |      |      |                         |      |      |      |      |      |                                   |
| L = low range [ $f_L$ to 10 $f_L$ ]<br>M = mid band [ $2f_L$ to $f_U/2$ ]<br>U = upper range [ $f_U/2$ to $f_U$ ] |        |                         |          |      |                        |                         |      |      |      |      |      |                         |      |      |      |      |      |                                   |

### Typical Performance Data

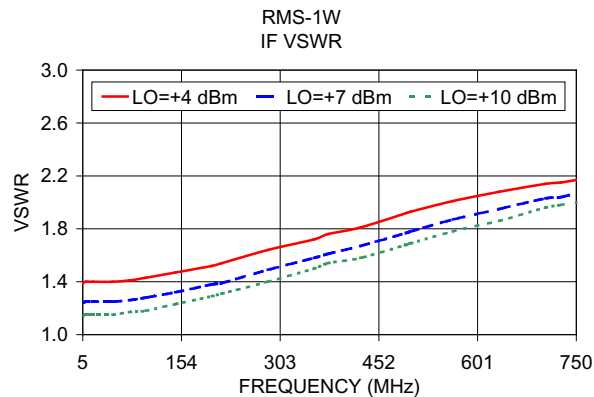
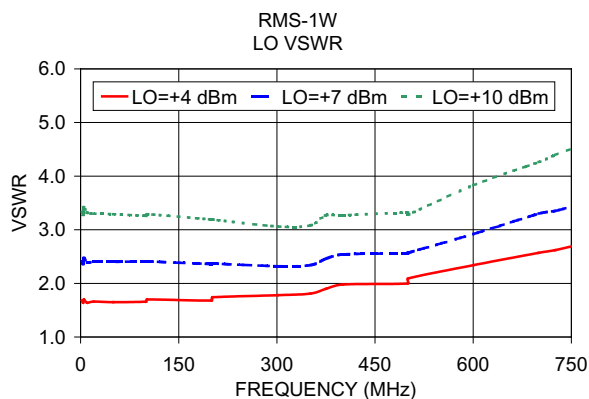
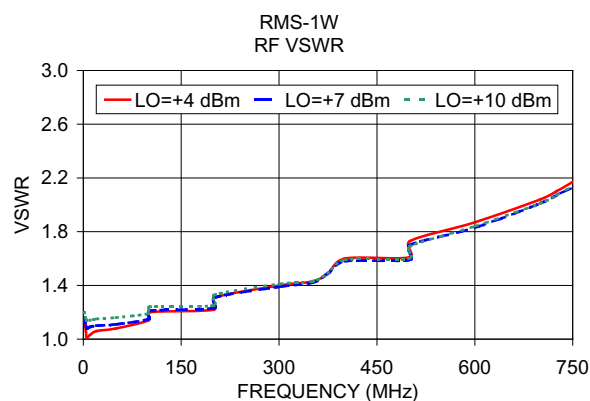
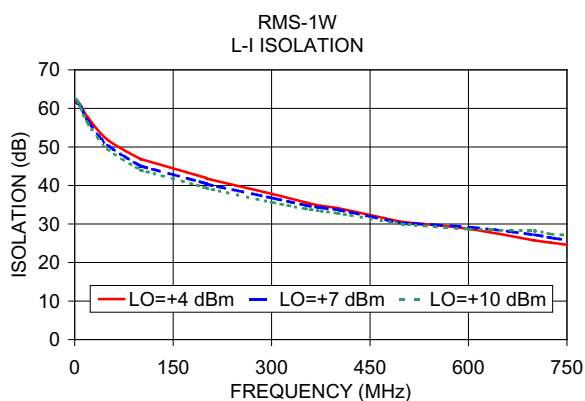
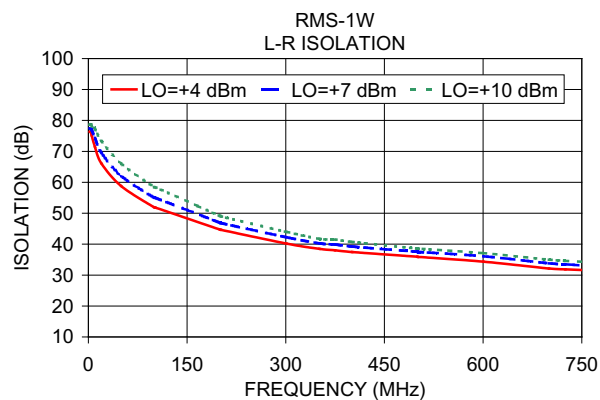
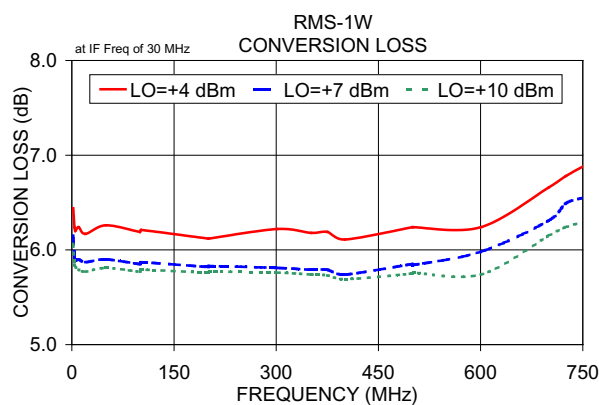
| Frequency (MHz) |        | Conversion Loss (dB) | Isolation L-R (dB) | Isolation L-I (dB) | VSWR RF Port (:1) | VSWR LO Port (:1) |
|-----------------|--------|----------------------|--------------------|--------------------|-------------------|-------------------|
| RF              | LO     | LO +7dBm             | LO +7dBm           | LO +7dBm           | LO +7dBm          | LO +7dBm          |
| 2.00            | 32.00  | 6.15                 | 77.45              | 62.05              | 1.16              | 2.41              |
| 4.00            | 34.00  | 5.93                 | 77.30              | 61.60              | 1.10              | 2.36              |
| 5.00            | 35.00  | 5.89                 | 76.89              | 61.49              | 1.08              | 2.47              |
| 10.00           | 40.00  | 5.90                 | 74.36              | 60.26              | 1.09              | 2.39              |
| 20.00           | 50.00  | 5.87                 | 69.48              | 56.77              | 1.10              | 2.40              |
| 50.00           | 80.00  | 5.90                 | 62.05              | 50.51              | 1.11              | 2.40              |
| 100.00          | 70.00  | 5.85                 | 55.01              | 45.08              | 1.15              | 2.41              |
| 101.73          | 71.73  | 5.87                 | 55.00              | 44.99              | 1.21              | 2.41              |
| 200.00          | 170.00 | 5.82                 | 46.91              | 40.52              | 1.23              | 2.36              |
| 201.47          | 171.47 | 5.83                 | 46.83              | 40.31              | 1.31              | 2.37              |
| 301.20          | 271.20 | 5.81                 | 42.24              | 36.71              | 1.39              | 2.32              |
| 351.07          | 321.07 | 5.79                 | 40.24              | 34.89              | 1.42              | 2.34              |
| 375.00          | 345.00 | 5.79                 | 39.86              | 34.22              | 1.49              | 2.46              |
| 400.93          | 370.93 | 5.74                 | 39.23              | 33.67              | 1.58              | 2.54              |
| 500.00          | 470.00 | 5.85                 | 37.51              | 30.15              | 1.59              | 2.56              |
| 500.67          | 470.67 | 5.84                 | 37.49              | 30.16              | 1.70              | 2.57              |
| 600.40          | 570.40 | 5.98                 | 36.08              | 29.20              | 1.83              | 2.92              |
| 700.13          | 670.13 | 6.31                 | 33.78              | 27.21              | 2.01              | 3.30              |
| 725.07          | 695.07 | 6.49                 | 33.46              | 26.43              | 2.07              | 3.35              |
| 750.00          | 720.00 | 6.55                 | 33.11              | 25.85              | 2.13              | 3.43              |

### Electrical Schematic



#### 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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