

# Frequency Mixer

Level 13 (LO Power +13 dBm) 5 to 1500 MHz

## JMS-5MH+ JMS-5MH



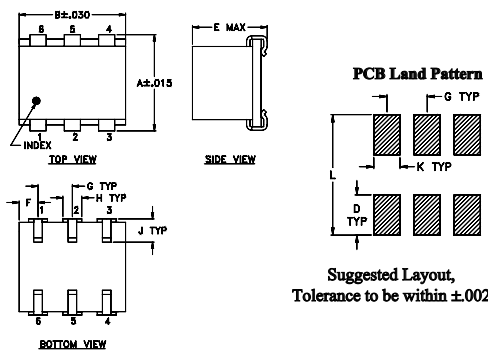
### Maximum Ratings

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

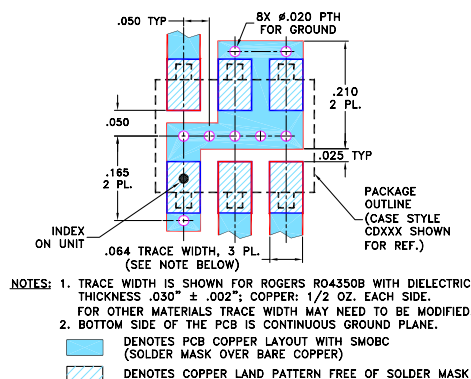
### Outline Drawing



### Outline Dimensions (inch)

| A    | B    | C  | D    | E    | F    | G    | H    | J    | K    | L    | wt    |
|------|------|----|------|------|------|------|------|------|------|------|-------|
| .280 | .310 | -- | .100 | .225 | .055 | .100 | .047 | .065 | .065 | .300 | grams |
| 7.11 | 7.87 | -- | 2.54 | 5.72 | 1.40 | 2.54 | 1.19 | 1.65 | 1.65 | 7.62 | 0.45  |

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



### Features

- low conversion loss, 5.7 dB typ.
- miniature surface mount
- J-leads for strain relief and excellent solderability

### Applications

- up & down converters for receivers & transmitters
- satellite distribution
- cellular/ISM/GSM

CASE STYLE: BH292

PRICE: \$11.95 ea. QTY (1-9)

**+RoHS Compliant**

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

### 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              | IF      | Mid-Band                |          | Total<br>Range<br>Max. |     | L                       |      | M    |      | U    |      | L                       |      | M    |      | U    |   |                                   |
|                    |         | $\bar{X}$               | $\sigma$ |                        |     | Max.                    | Typ. | Min. | Typ. | Min. | Typ. | Min.                    | Typ. | Min. | Typ. | Min. |   |                                   |
|                    |         | $f_L$ - $f_U$           |          |                        |     |                         |      |      |      |      |      |                         |      |      |      |      |   |                                   |
| 5-1500             | DC-1000 | 5.7                     | .10      | 8.0                    | 9.5 | 67                      | 40   | 57   | 25   | 35   | 20   | 60                      | 40   | 35   | 18   | 15   | 8 | 19                                |

1 dB COMP: +9 dBm typ.  
Phase detection, positive polarity

L = low range [ $f_L$  to 10  $f_L$ ]  
m = mid band [ $2f_L$  to  $f_U/2$ ]

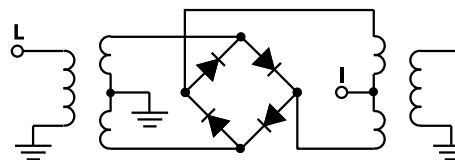
M = mid range [10  $f_L$  to  $f_U/2$ ]

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              | LO      | LO +13dBm            | LO +13dBm          | LO +13dBm          | LO +13dBm         | LO +13dBm         |
| 10.00           | 40.00   | 5.67                 | 72.72              | 71.62              | 1.72              | 2.09              |
| 20.00           | 50.00   | 5.34                 | 69.32              | 67.42              | 1.47              | 2.05              |
| 50.00           | 80.00   | 5.13                 | 64.80              | 61.00              | 1.39              | 2.09              |
| 100.00          | 70.00   | 4.84                 | 57.53              | 52.99              | 1.40              | 2.06              |
| 149.69          | 119.69  | 4.83                 | 51.47              | 47.61              | 1.43              | 1.99              |
| 200.00          | 170.00  | 4.84                 | 45.11              | 42.45              | 1.48              | 1.97              |
| 289.38          | 259.38  | 5.23                 | 42.74              | 40.45              | 1.59              | 1.97              |
| 382.50          | 352.50  | 5.65                 | 40.00              | 38.72              | 1.72              | 1.98              |
| 429.06          | 399.06  | 5.74                 | 38.30              | 38.06              | 1.79              | 2.07              |
| 500.00          | 470.00  | 5.96                 | 36.54              | 37.26              | 1.91              | 2.06              |
| 568.75          | 538.75  | 6.21                 | 36.02              | 36.79              | 2.02              | 2.11              |
| 661.88          | 631.88  | 6.31                 | 34.63              | 31.64              | 2.18              | 2.23              |
| 750.00          | 720.00  | 6.75                 | 32.69              | 27.81              | 2.32              | 2.32              |
| 801.56          | 771.56  | 7.02                 | 32.12              | 26.48              | 2.41              | 2.44              |
| 894.69          | 864.69  | 7.51                 | 31.35              | 22.10              | 2.56              | 2.61              |
| 1000.00         | 970.00  | 8.06                 | 29.45              | 18.64              | 2.72              | 2.70              |
| 1127.50         | 1097.50 | 8.09                 | 27.46              | 16.61              | 2.85              | 2.90              |
| 1267.19         | 1237.19 | 8.18                 | 26.47              | 13.75              | 3.03              | 3.14              |
| 1406.88         | 1376.88 | 8.33                 | 26.08              | 12.44              | 3.25              | 3.52              |
| 1500.00         | 1470.00 | 8.59                 | 25.44              | 11.30              | 3.40              | 3.82              |

### Electrical Schematic



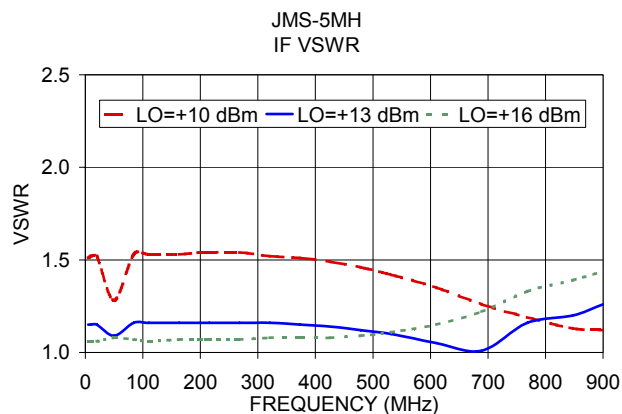
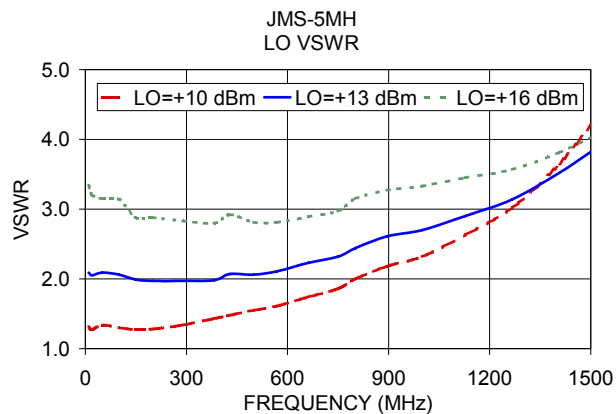
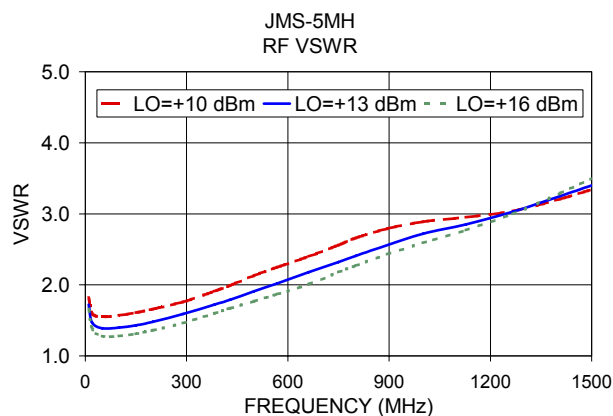
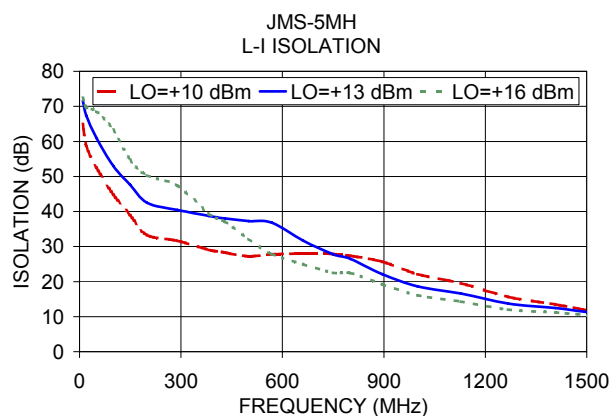
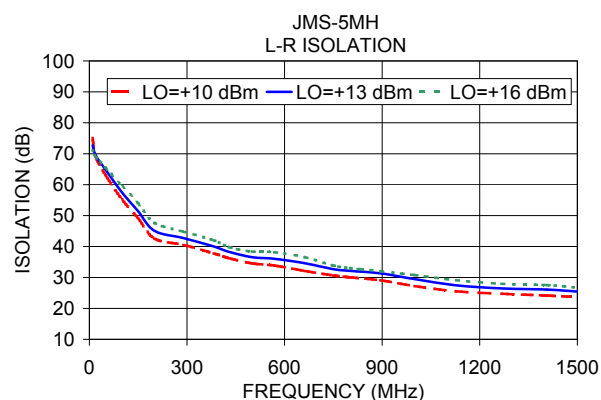
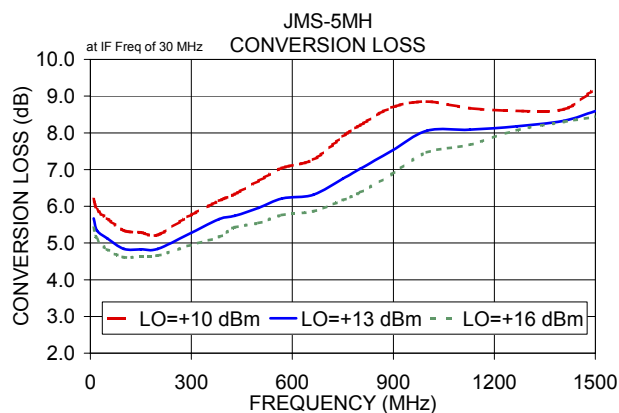
#### Notes

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# Performance Charts

# JMS-5MH+ JMS-5MH



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