

# Surface Mount Frequency Mixer

Level 10 (LO Power +10 dBm) 2 to 500 MHz

JMS-1LH+  
JMS-1LH



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

## Features

- low conversion loss, 5.75 dB typ.
- miniature surface mount
- J-leads for strain relief and excellent solderability

## Applications

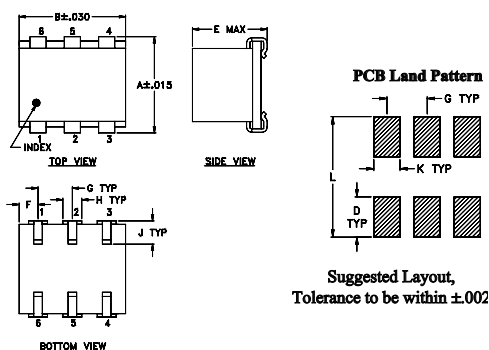
- up & down converters for receivers & transmitters
- VHF/UHF

CASE STYLE: BH292  
PRICE: \$8.45 ea. QTY (1-9)

### +RoHS Compliant

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

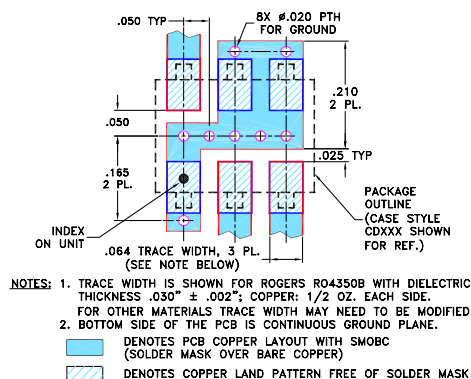
## Outline Drawing



## Outline Dimensions (inch)

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

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



### Notes

- 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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuits' applicable established test performance criteria and measurement instructions.
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## 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. |    |    |                                   |
|                    |        | $f_L$ - $f_U$           |          |      |                        |                         |      |      |      |      |      |                         |      |      |      |    |    |                                   |
| 2-500              | DC-500 | 5.75                    | .10      | 7.0  | 8.0                    | 55                      | 50   | 45   | 30   | 40   | 25   | 55                      | 45   | 45   | 25   | 30 | 20 | 16                                |

1 dB COMP: +5 dBm typ.

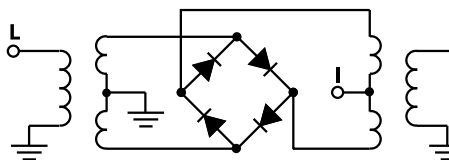
L = low range [ $f_L$  to 10  $f_L$ ]  
m = mid band [ $2f_L$  to  $f_U/2$ ]

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

## Typical Performance Data

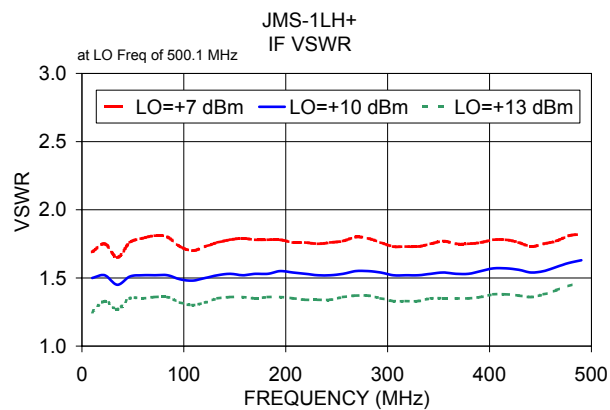
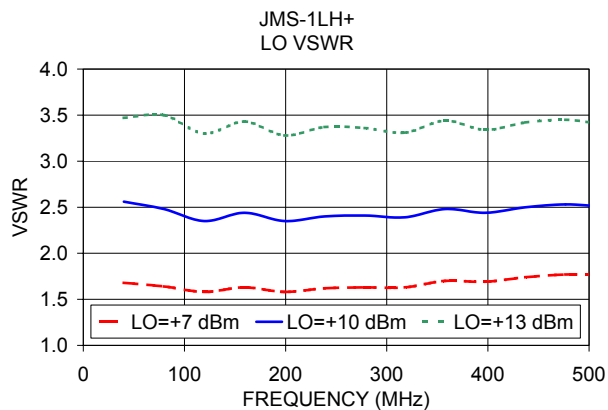
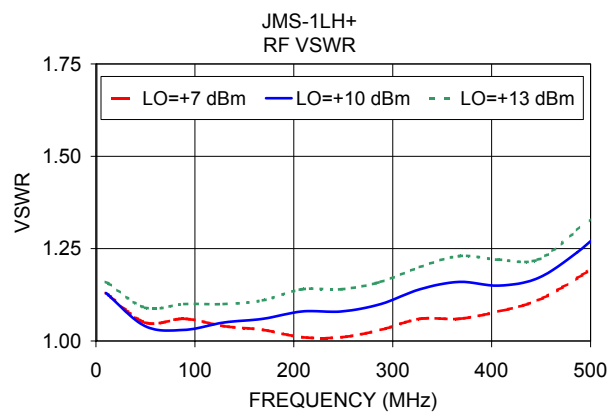
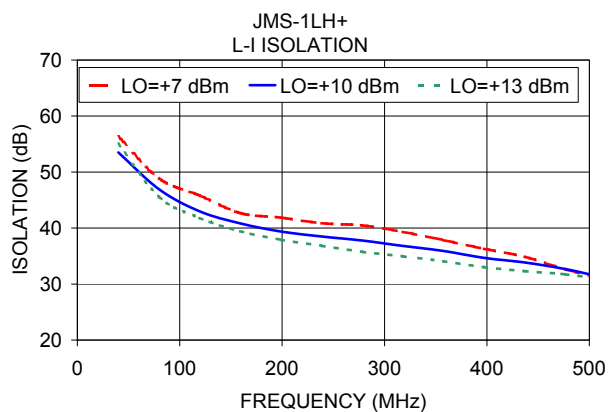
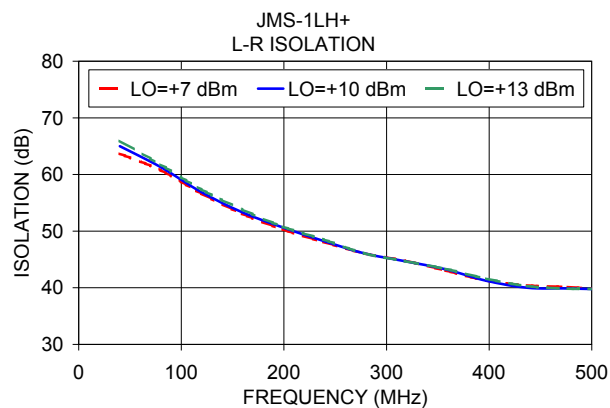
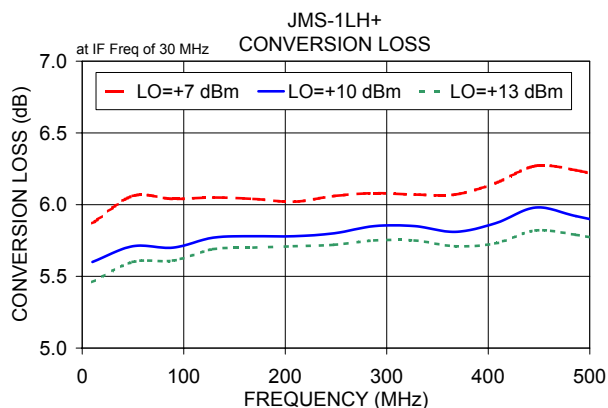
| Frequency (MHz) |        | Conversion Loss (dB) | Isolation L-R (dB) | Isolation L-I (dB) | VSWR RF Port (:1) | VSWR LO Port (:1) |
|-----------------|--------|----------------------|--------------------|--------------------|-------------------|-------------------|
| RF              | LO     | LO +10dBm            | LO +10dBm          | LO +10dBm          | LO +10dBm         | LO +10dBm         |
| 10.10           | 40.10  | 5.60                 | 65.00              | 53.51              | 1.13              | 2.56              |
| 49.80           | 79.80  | 5.71                 | 61.31              | 46.92              | 1.04              | 2.48              |
| 89.50           | 119.50 | 5.70                 | 56.90              | 42.98              | 1.03              | 2.35              |
| 129.20          | 159.20 | 5.77                 | 53.33              | 40.82              | 1.05              | 2.44              |
| 168.90          | 198.90 | 5.78                 | 50.64              | 39.38              | 1.06              | 2.35              |
| 208.60          | 238.60 | 5.78                 | 48.27              | 38.49              | 1.08              | 2.40              |
| 248.30          | 278.30 | 5.80                 | 46.07              | 37.77              | 1.08              | 2.41              |
| 287.90          | 317.90 | 5.85                 | 44.70              | 36.82              | 1.10              | 2.39              |
| 327.60          | 357.60 | 5.85                 | 43.25              | 35.90              | 1.14              | 2.48              |
| 367.30          | 397.30 | 5.81                 | 41.23              | 34.68              | 1.16              | 2.44              |
| 407.00          | 437.00 | 5.87                 | 40.00              | 33.85              | 1.15              | 2.50              |
| 446.70          | 476.70 | 5.98                 | 39.88              | 32.68              | 1.17              | 2.53              |
| 486.40          | 516.40 | 5.92                 | 39.70              | 31.09              | 1.24              | 2.51              |
| 526.10          | 556.10 | 5.87                 | 39.38              | 29.76              | 1.33              | 2.54              |
| 565.80          | 595.80 | 5.90                 | 38.47              | 28.55              | 1.40              | 2.56              |

## Electrical Schematic



# Performance Charts

# JMS-1LH+ JMS-1LH



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