

# Surface Mount Frequency Mixer

## JMS-5H+

Level 17 (LO Power +17 dBm) 5 to 1500 MHz



CASE STYLE: BH292

### 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 |

### Features

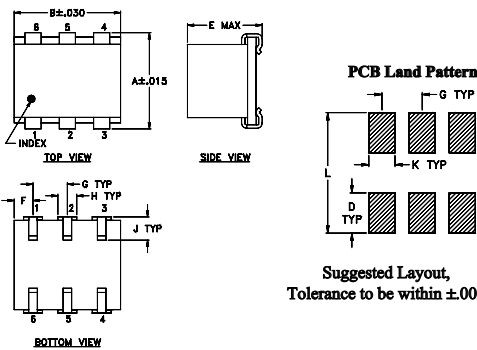
- low conversion loss, 5.9 dB typ.
- miniature surface mount
- J-leads for strain relief and excellent solderability

### Applications

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

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

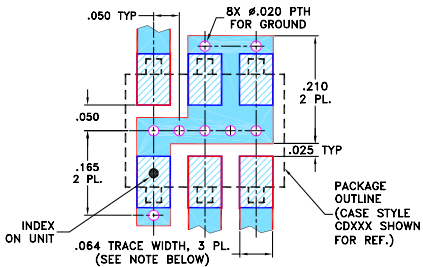
### Outline Drawing



### Outline Dimensions (inch/mm)

| A    | B    | C  | D    | E    | F    | 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)



### 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.
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### 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<br>$f_L - f_U$ | Mid-Band<br>$m$<br>Total Range<br>Max. | Typ.                 | Min. | Typ. | Min.                 | Typ. | Min. | Typ.                     |    |    |    |    |    |    |    |    |   |    |
| 5-1500               | DC-1000                                | 5.9                  | .10  | 8.0  | 9.5                  | 70   | 50   | 50                       | 25 | 35 | 20 | 60 | 40 | 35 | 18 | 20 | 8 | 22 |

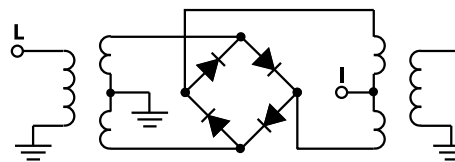
1 dB COMP: +14 dBm typ.  
Phase detection, positive polarity

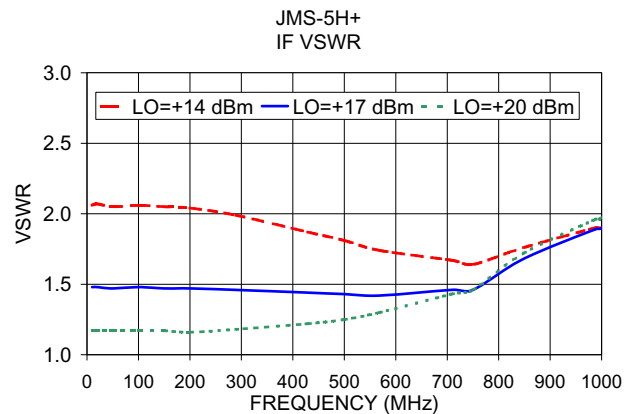
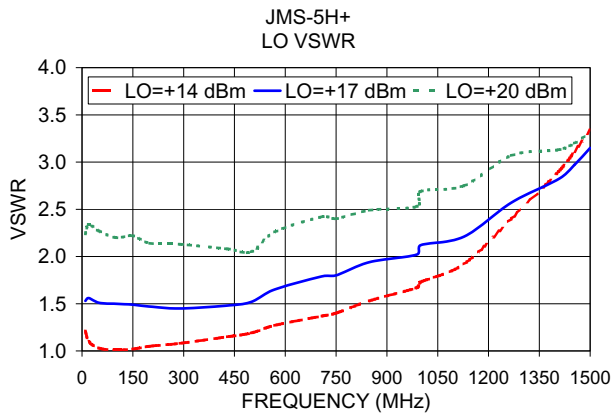
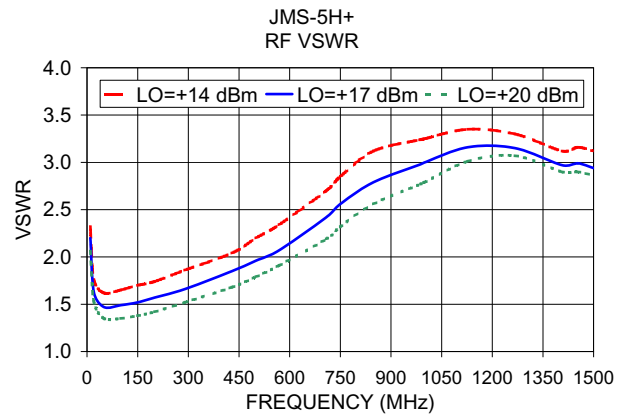
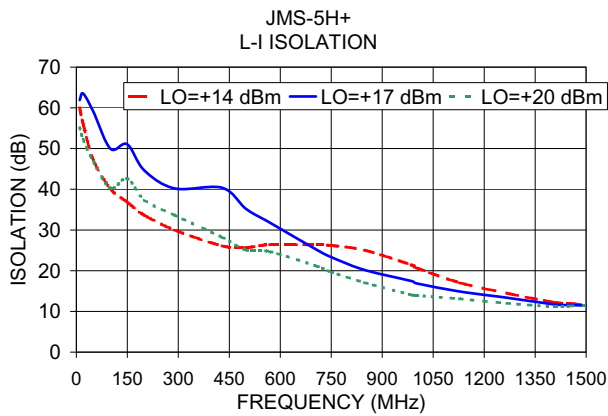
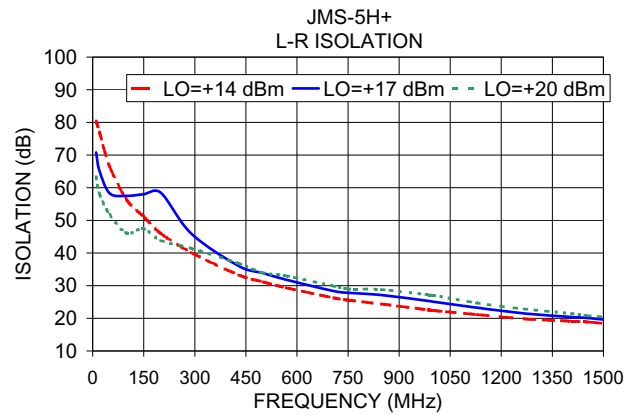
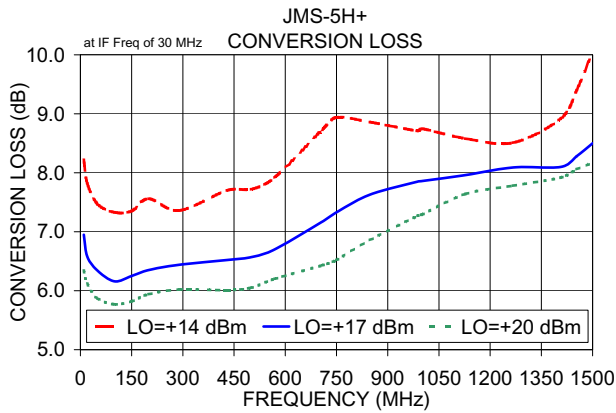
L = low range [ $f_L$  to  $10 f_L$ ]  
M = mid range [ $10 f_L$  to  $f_U/2$ ]  
U = upper range [ $f_U/2$  to  $f_U$ ]

### 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              | LO      | LO +17dBm            | LO +17dBm          | LO +17dBm          | LO +17dBm         | LO +17dBm         |
| 10.00           | 40.00   | 6.95                 | 70.78              | 61.92              | 2.20              | 1.53              |
| 20.00           | 50.00   | 6.58                 | 65.19              | 63.52              | 1.63              | 1.56              |
| 50.00           | 80.00   | 6.34                 | 58.27              | 59.11              | 1.47              | 1.51              |
| 100.00          | 70.00   | 6.16                 | 57.50              | 49.97              | 1.49              | 1.50              |
| 149.69          | 119.69  | 6.25                 | 57.97              | 51.05              | 1.52              | 1.49              |
| 200.00          | 170.00  | 6.35                 | 58.46              | 44.60              | 1.57              | 1.47              |
| 289.38          | 259.38  | 6.44                 | 45.97              | 40.19              | 1.66              | 1.45              |
| 429.06          | 399.06  | 6.52                 | 35.99              | 40.36              | 1.85              | 1.48              |
| 500.00          | 470.00  | 6.57                 | 33.86              | 35.13              | 1.96              | 1.52              |
| 568.75          | 538.75  | 6.70                 | 31.80              | 31.81              | 2.07              | 1.65              |
| 708.44          | 678.44  | 7.17                 | 28.34              | 25.09              | 2.42              | 1.79              |
| 750.00          | 720.00  | 7.33                 | 27.82              | 23.34              | 2.56              | 1.80              |
| 848.13          | 818.13  | 7.63                 | 27.14              | 20.18              | 2.79              | 1.94              |
| 987.81          | 957.81  | 7.85                 | 25.28              | 17.43              | 2.98              | 2.02              |
| 1000.00         | 970.00  | 7.86                 | 25.09              | 16.91              | 3.00              | 2.12              |
| 1127.50         | 1097.50 | 7.96                 | 23.28              | 14.89              | 3.16              | 2.21              |
| 1267.19         | 1237.19 | 8.09                 | 21.51              | 13.36              | 3.15              | 2.57              |
| 1406.88         | 1376.88 | 8.10                 | 20.40              | 11.73              | 2.97              | 2.82              |
| 1453.44         | 1423.44 | 8.28                 | 20.09              | 11.57              | 2.99              | 2.97              |
| 1500.00         | 1470.00 | 8.50                 | 19.62              | 11.46              | 2.94              | 3.15              |

### Electrical Schematic





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