

Surface Mount Frequency Mixer

JMS-5MH+ JMS-5MH

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



CASE STYLE: BH292

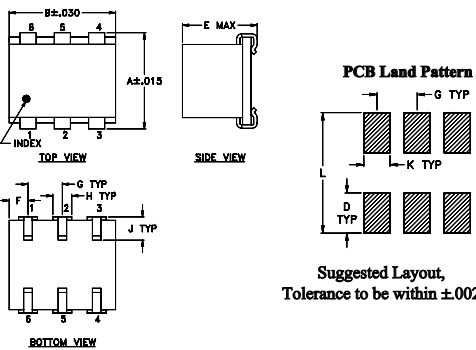
Maximum Ratings

| | |
|---|----------------|
| 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 |

Outline Drawing

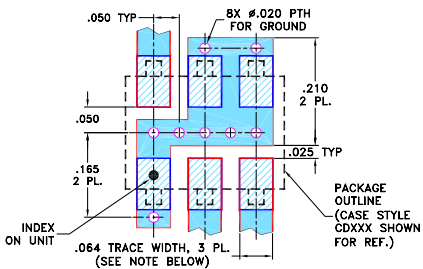


Outline Dimensions (inch/mm)

| 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: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .050" ± .002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
- DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

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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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

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 | | | | | | | |
| 5-1500 | DC-1000 | 67 | 40 | 57 | 25 | 35 | 20 | 60 | 40 | 35 | 18 | 15 | 8 | 19 |

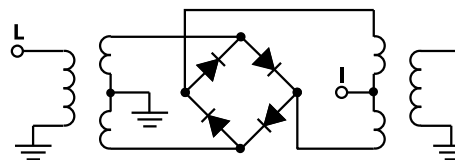
1 dB COMP: +9 dBm typ.
Phase detection, positive polarity

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

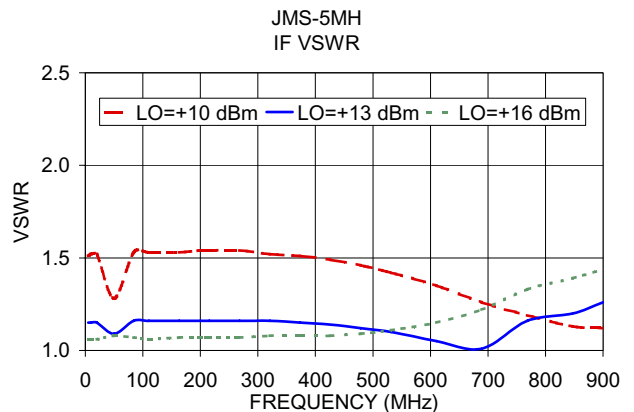
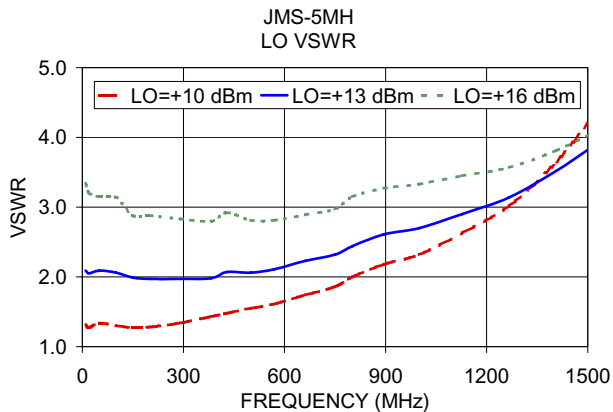
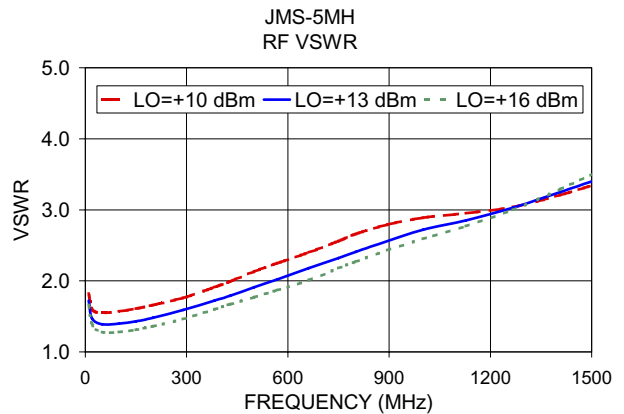
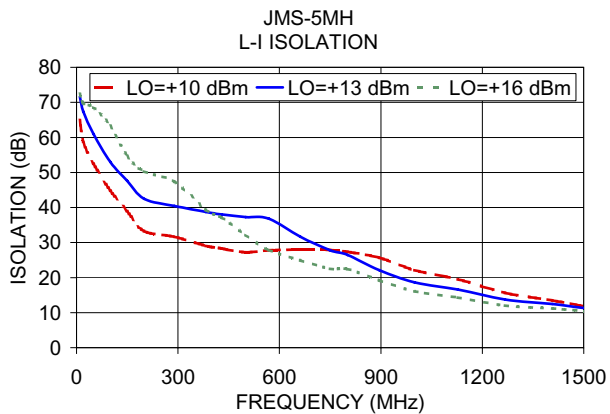
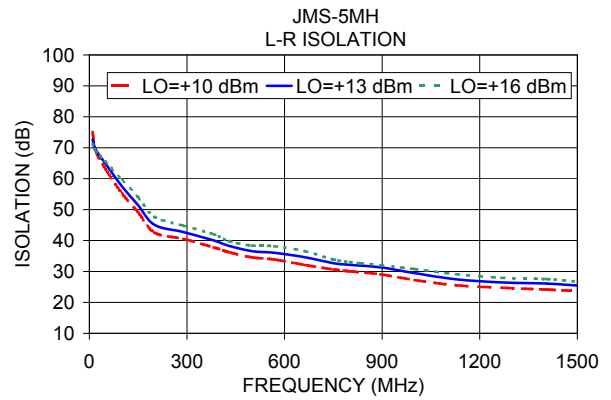
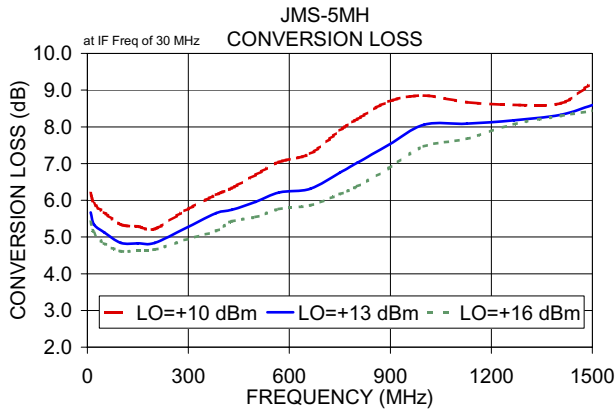
Typical Performance Data

| Frequency (MHz) | Conversion Loss (dB) | Isolation L-R (dB) | Isolation L-I (dB) | VSWR RF Port (:1) | VSWR LO Port (:1) | |
|-----------------|----------------------|--------------------|--------------------|-------------------|-------------------|-----------|
| | | | | | | 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



Performance Charts



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