Surface Mount **Frequency Mixer**

Level 10 (LO Power +10 dBm) 2 to 600 MHz

Maximum Ratings

| Operating Temperature | -55°C to 100°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 | 4 |
|-------------|---|
| RF | 1 |
| IF | 2 |
| GROUND | 3 |
| CASE GROUND | 3 |





Tolerance to be within ±.002

Outline Dimensions (inch)

| | • | | | | | |
|-------|------|------|------|------|-------|-------|
| G | F | E | D | С | В | Α |
| .06 | .21 | .23 | .240 | .255 | .48 | .50 |
| 1.52 | 5.33 | 5.84 | 6.10 | 6.48 | 12.19 | 12.70 |
| | | | | | | |
| wt | N | M | L | K | J | н |
| grams | .005 | .09 | .020 | .16 | .09 | .100 |
| 1.9 | 0.13 | 2.29 | 0.51 | 4.06 | 2.29 | 2.54 |
| | | | | | | |

Demo Board MCL PIN: TB-201 Suggested PCB Layout (PL-081)



NOTES: 1.TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS 0.030" ± 0.002"; COPPER: 1/2 02. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED. 2.BOITOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE. DENOTES FOB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Features

- low conversion loss, 6.0 dB typ.
- high L-R & L-I isolation, 50 dB typ.
- rugged welded construction

Applications

• VHF/UHF

defense & federal communications





Generic photo used for illustration purposes only CASE STYLE: NNN150

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

Electrical Specifications

| | FREQU (MI | JENCY Hz) | CONVERSION LOSS (dB) | | | LO-RF ISOLATION (dB) | | | | | LO-IF ISOLATION (dB) | | | | | IP3 @ CENTER BAND (dBm) | | | |
|-------------------------|--------------|--------------|-------------------------|--------------------|------------|-------------------------|-----------|-----------|-----------|-----------|-------------------------|-----------|-----------|-----------|-----------|-------------------------------|-----------|-----------|--------------------|
| | LO/RF | IF | x | /lid-Bar m σ | nd Max. | Total Range Max | l Tvp. | - Min. | N Tvp. | M Min. | l Tvp. | J Min. | I Tvp. | - Min. | N Tvp. | /I Min. | L Tvp. | J Min. | Τνρ. |
| | | | | | | max | | | | 0 | | | | | | | | | ,, |
| | 2-600 | DC-600 | 6.0 | 0.17 | 7.0 | 8.0 | 70 | 50 | 50 | 30 | 42 | 25 | 65 | 45 | 50 | 30 | 41 | 22 | 17 |
| 1 dB COMP.: +5 dBm tvp. | | | | | | | L = 1 | ow rar | nae (f. | to 10 | f. 1 | M = m | nid ran | ae [10 | f. to f | /21 | U = 1 | loper | range [f./2 to f.] |

m= mid band [2f, to f,/2]

Typical Performance Data

| uency Hz) | Conversion Loss (dB) | Isolation L-R (dB) | Isolation L-I (dB) | VSWR RF Port (:1) | VSWR LO Port (:1) | |
|--|---|--|--|--|--|--|
| LO | LO +10dBm | LO +10dBm | LO +10dBm | LO +10dBm | LO +10dBm | |
| 32.00 34.00 35.00 40.00 50.00 80.00 89.87 70.00 87.74 145.61 | 6.28 5.95 5.89 5.80 5.82 5.82 5.78 5.78 5.77 5.79 5.60 | 67.01 65.93 65.47 63.93 61.72 56.12 54.83 51.13 50.12 47.32 | 84.01 80.03 78.57 73.13 68.22 60.69 59.50 55.91 55.10 52.30 | 1.47 1.27 1.23 1.14 1.12 1.11 1.11 1.12 1.15 1.18 | 2.80 2.68 2.65 2.48 2.53 2.47 2.35 2.37 2.32 2.32 2.32 | |
| 143.81 170.00 203.48 261.36 270.00 319.23 337.10 434.97 492.84 550.71 570.00 | 5.69 5.73 5.70 5.69 5.68 5.71 5.70 5.72 5.72 5.77 5.84 5.87 | 47.52 46.57 45.24 43.94 43.65 42.63 41.85 40.61 39.23 38.82 38.82 | 52.30 51.26 49.36 46.68 46.00 43.46 41.86 39.52 37.60 36.92 36.44 | 1.16 1.21 1.25 1.27 1.31 1.35 1.40 1.45 1.49 1.51 1.53 | 2.20 2.33 2.27 2.24 2.29 2.28 2.28 2.29 2.33 2.33 2.33 | |
| | LO 32.00 34.00 35.00 40.00 50.00 80.00 89.87 70.00 87.74 145.61 170.00 203.48 261.36 270.00 319.23 337.10 434.97 492.84 550.71 570.00 | Lency Hz) Conversion Loss (dB) LO LO LO +10dBm 32.00 6.28 34.00 5.95 35.00 5.89 40.00 5.80 50.00 5.82 80.00 5.82 89.87 5.78 70.00 5.77 87.74 5.79 145.61 5.69 170.00 5.73 203.48 5.70 261.36 5.69 270.00 5.68 319.23 5.71 337.10 5.70 434.97 5.72 492.84 5.77 550.71 5.84 570.00 5.87 | $\begin{array}{c c} \mbox{uency}\\ \mbox{Hz} , \mbox{Hz} , \mbo$ | $\begin{array}{c c c c c c c c c c c c c c c c c c c $ | $\begin{array}{c c c c c c c c c c c c c c c c c c c $ | |

Electrical Schematic



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 Nini-Circuit's applicable established test performance criteria and measurement instructions. C. The parts covered by this specification document are subject to Mini-Circuit's standard limited warranty and terms and conditions (collectively, "Standard Terms"), Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuit's website at www.minicircuits.com/MCLStore/terms.jsp

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Performance Charts

TUF-1LHSM+



Notes

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