

Frequency Mixer WIDE BAND

SIM-14LH+

Level 10 (LO Power +10 dBm) 3700 to 10000 MHz



CASE STYLE: HV1195

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

Available Tape and Reel at no extra cost
Reel Size Devices/Reel
7" 10, 20, 50, 100, 200, 500

Maximum Ratings

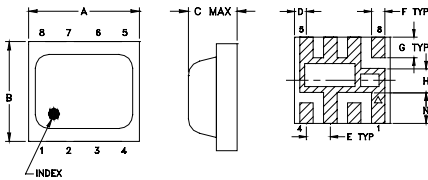
| | |
|-----------------------|----------------|
| Operating Temperature | -40°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| RF Power | 50mW |

For extended temperature range, consult factory.
Permanent damage may occur if any of these limits are exceeded.

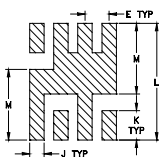
Pin Connections

| | |
|--------|-----------|
| LO | 8 |
| RF | 4 |
| IF | 2 |
| GROUND | 1,3,5,6,7 |

Outline Drawing



PCB Land Pattern

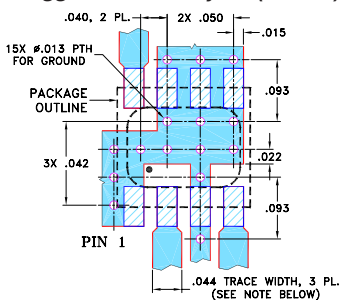


Suggested Layout,
Tolerance to be within ±.002

Outline Dimensions (inch/mm)

| A | B | C | D | E | F | G |
|------|------|------|-------|-------|-------|-------|
| .200 | .180 | .087 | .025 | .050 | .028 | .043 |
| 5.08 | 4.57 | 2.21 | 0.64 | 1.27 | 0.71 | 1.09 |
| H | J | K | L | M | N | wt |
| .050 | .030 | .060 | 0.238 | 0.144 | 0.065 | grams |
| 1.27 | 0.76 | 1.52 | 6.05 | 3.66 | 1.65 | 0.08 |

Demo Board MCL P/N: TB-382 Suggested PCB Layout (PL-239)



NOTES:

- TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .020" ± .0015"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
- 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

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- The parts covered by this specification document are subject to Mini-Circuits 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-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp

Features

- wide bandwidth, 3700 to 10000 MHz
- low conversion loss, 6.7 dB typ.
- high L-R isolation, 38 dB typ.
- excellent IF BW, DC to 4000 MHz
- LTCC double balanced mixer
- tiny size, low profile, 0.08"
- useable as up and down converter
- aqueous washable
- protected by US patent 7,027,795

Applications

- satellite up and down converters
- defense radar and communications
- line of sight links
- federal fixed service
- WIFI
- blue tooth
- VSAT
- ISM

Electrical Specifications

| FREQUENCY (MHz) | CONVERSION LOSS* (dB) | | | LO-RF ISOLATION (dB) | | LO-IF ISOLATION (dB) | | IP3 at center band (dBm) |
|-----------------|-----------------------|----|--------------------|----------------------|-----------|----------------------|--|--------------------------|
| | LO/RF $f_c - f_u$ | IF | Typ. σ Max. | Typ. Min. | Typ. Min. | Typ. Min. | | |
| 3700-10000 | DC-4000 | | | | | | | |
| 3700-6200 | | | 6.7 0.3 8.3 | 38 29 | | 17 11 | | 19 |
| 6200-10000 | | | 6.7 0.2 8.9 | 35 21 | | 17 10 | | 12 |

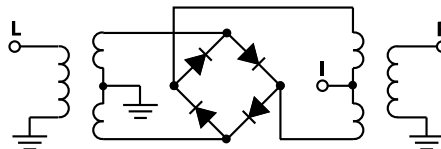
1 dB Compression: +5 dBm typ.

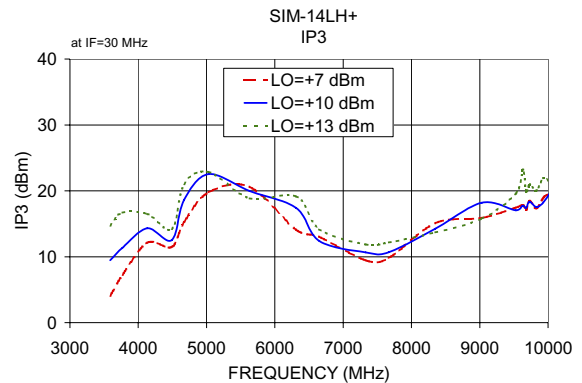
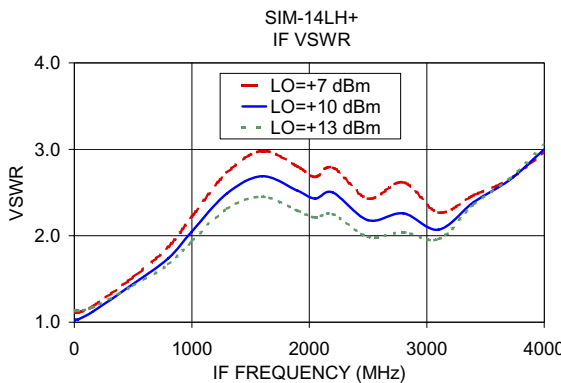
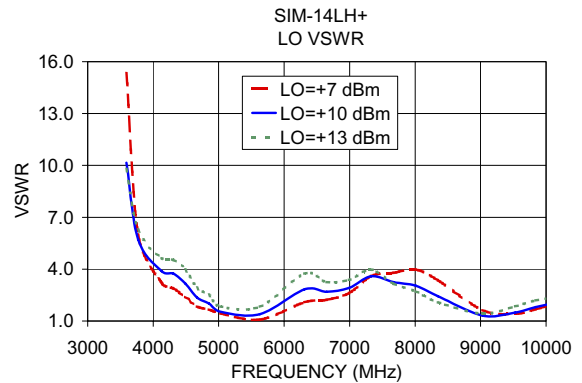
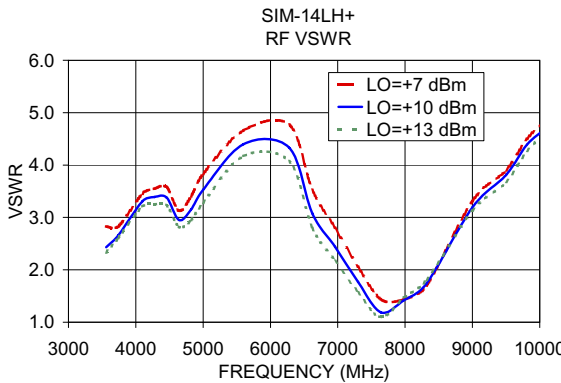
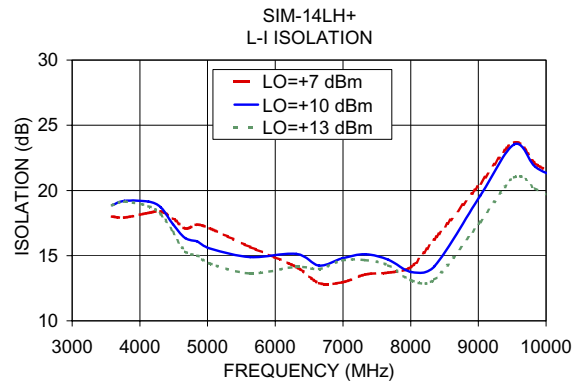
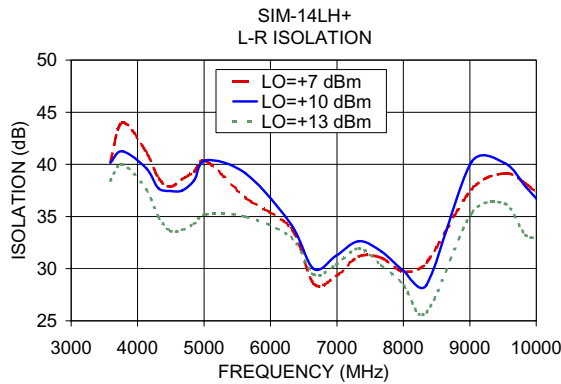
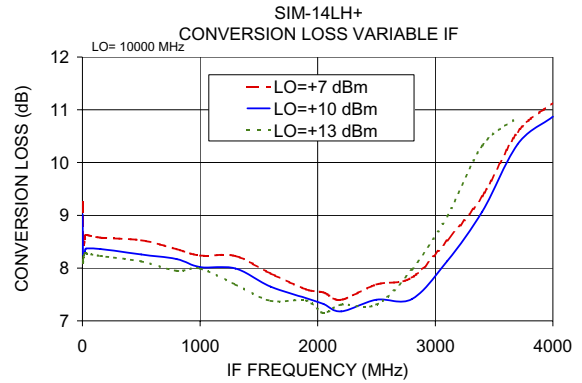
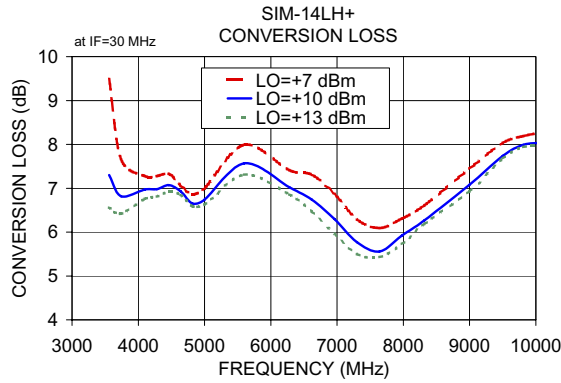
* Conversion loss at 30 MHz IF. σ is a measure of repeatability from unit to unit.

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 +10dBm | RF +10dBm | LO +10dBm | RF +10dBm | LO +10dBm | RF +10dBm | LO +10dBm | RF +10dBm | LO +10dBm | RF +10dBm |
| 3560.00 | 3590.00 | 7.30 | 40.15 | 18.87 | 2.43 | 10.16 | | | | |
| 3740.00 | 3770.00 | 6.82 | 41.27 | 19.21 | 2.66 | 5.72 | | | | |
| 4100.00 | 4130.00 | 6.97 | 39.63 | 19.14 | 3.31 | 3.88 | | | | |
| 4280.00 | 4310.00 | 6.98 | 37.73 | 18.69 | 3.39 | 3.74 | | | | |
| 4460.00 | 4490.00 | 7.07 | 37.45 | 17.41 | 3.38 | 3.17 | | | | |
| 4640.00 | 4670.00 | 6.93 | 37.50 | 16.34 | 2.95 | 2.36 | | | | |
| 4820.00 | 4850.00 | 6.65 | 38.46 | 16.08 | 3.15 | 2.02 | | | | |
| 5000.00 | 5030.00 | 6.74 | 40.39 | 15.55 | 3.53 | 1.54 | | | | |
| 5600.00 | 5630.00 | 7.57 | 39.12 | 14.89 | 4.40 | 1.40 | | | | |
| 6280.00 | 6310.00 | 7.02 | 34.27 | 15.14 | 4.33 | 2.83 | | | | |
| 6620.00 | 6650.00 | 6.74 | 29.98 | 14.24 | 3.08 | 2.69 | | | | |
| 6960.00 | 6990.00 | 6.30 | 31.24 | 14.80 | 2.44 | 2.91 | | | | |
| 7300.00 | 7330.00 | 5.77 | 32.63 | 15.10 | 1.77 | 3.59 | | | | |
| 7640.00 | 7670.00 | 5.56 | 31.66 | 14.68 | 1.19 | 3.25 | | | | |
| 7980.00 | 8010.00 | 5.92 | 29.76 | 13.75 | 1.42 | 3.04 | | | | |
| 8320.00 | 8350.00 | 6.27 | 28.44 | 14.18 | 1.74 | 2.43 | | | | |
| 9000.00 | 9030.00 | 7.08 | 40.25 | 19.61 | 3.19 | 1.31 | | | | |
| 9500.00 | 9530.00 | 7.74 | 40.11 | 23.53 | 3.81 | 1.49 | | | | |
| 9810.00 | 9840.00 | 7.99 | 37.87 | 21.82 | 4.39 | 1.80 | | | | |
| 10120.00 | 10150.00 | 8.04 | 35.70 | 21.02 | 4.73 | 2.05 | | | | |

Electrical Schematic





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