

Frequency Mixer WIDE BAND

SIM-14H+

Level 17 (LO Power +17 dBm) 3700 to 10000 MHz



Generic photo used for illustration purposes only

CASE STYLE: HV1195

Maximum Ratings

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

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 |

Features

- wide bandwidth, 3700 to 10000 MHz
- low conversion loss, 7.0 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

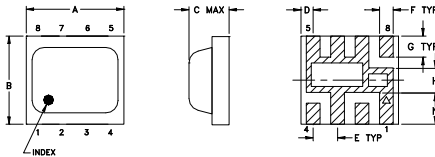
+RoHS Compliant

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

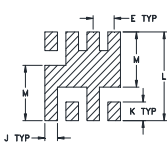
Available Tape and Reel at no extra cost

| Reel Size | Devices/Reel |
|-----------|---------------------------|
| 7" | 10, 20, 50, 100, 200, 500 |

Outline Drawing



PCB Metal Land Pattern



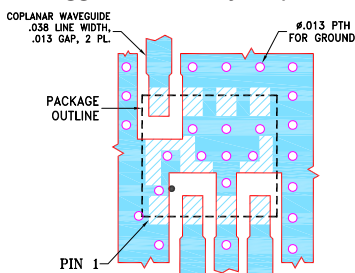
Suggested Layout, Tolerance to be within ±0.02

Outline Dimensions (inch/mm)

| A | B | C | D | E | F | G |
|------|------|--------|------|------|------|------|
| .200 | .180 | .087 | .025 | .050 | .028 | .043 |
| 5.08 | 4.57 | 2.2098 | 0.64 | 1.27 | 0.71 | 1.09 |

| H | J | K | L | M | N | wt |
|------|------|------|------|------|-------|-------|
| .050 | .030 | .043 | .204 | .127 | 0.065 | grams |
| 1.27 | 0.76 | 1.09 | 5.18 | 3.23 | 1.65 | 0.08 |

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



- NOTES:
1. TRACE WIDTH AND GAP ARE SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .020"±.0015"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH AND GAP 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.

Electrical Specifications

| FREQUENCY (MHz) | CONVERSION LOSS* (dB) | | | LO-RF ISOLATION (dB) | | LO-IF ISOLATION (dB) | | IP3 (dBm) |
|-----------------|-----------------------|-----|---------|----------------------|------|----------------------|------|-----------|
| | LO/RF $f_c - f_u$ | IF | DC-4000 | Typ. | Min. | Typ. | Min. | |
| 3700-10000 | 7.0 | 0.3 | 9.3 | 38 | 29 | 16 | 9 | 25 |
| 3700-6200 | 7.0 | 0.3 | 10.5 | 35 | 24 | 17 | 8 | 25 |

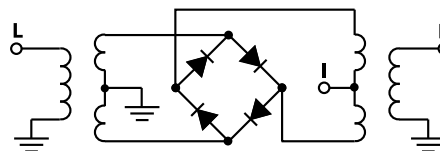
1 dB Compression: +14 dBm typ.

* 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 | LO | LO | LO | LO | LO | LO | LO | LO | |
| | +17dBm | +17dBm | +17dBm | +17dBm | +17dBm | +17dBm | +17dBm | +17dBm | +17dBm | |
| RF | LO | LO | LO | LO | LO | LO | LO | LO | LO | |
| 3560.00 | 3590.00 | 7.51 | 37.51 | 16.92 | 2.55 | 7.97 | | | | |
| 3720.00 | 3750.00 | 8.17 | 42.81 | 18.98 | 3.05 | 3.95 | | | | |
| 3880.00 | 3910.00 | 7.17 | 40.82 | 17.17 | 3.17 | 6.58 | | | | |
| 4040.00 | 4070.00 | 7.62 | 43.86 | 18.91 | 3.51 | 7.34 | | | | |
| 4200.00 | 4230.00 | 7.48 | 38.33 | 16.97 | 3.29 | 4.29 | | | | |
| 4520.00 | 4550.00 | 7.00 | 37.71 | 16.17 | 3.56 | 1.94 | | | | |
| 4840.00 | 4870.00 | 6.57 | 37.94 | 16.15 | 3.28 | 2.16 | | | | |
| 5100.00 | 5130.00 | 7.10 | 39.65 | 16.32 | 3.40 | 1.59 | | | | |
| 5880.00 | 5910.00 | 7.55 | 39.57 | 13.91 | 5.48 | 1.36 | | | | |
| 6270.00 | 6300.00 | 7.79 | 35.34 | 13.12 | 4.81 | 2.46 | | | | |
| 6660.00 | 6690.00 | 7.56 | 29.49 | 12.32 | 3.01 | 2.34 | | | | |
| 7050.00 | 7080.00 | 6.71 | 31.34 | 12.85 | 2.24 | 3.16 | | | | |
| 7830.00 | 7860.00 | 6.80 | 33.03 | 14.74 | 1.54 | 3.97 | | | | |
| 8220.00 | 8250.00 | 6.99 | 32.05 | 15.28 | 1.90 | 3.32 | | | | |
| 8610.00 | 8640.00 | 7.19 | 39.29 | 15.05 | 2.77 | 2.30 | | | | |
| 9000.00 | 9030.00 | 7.96 | 37.33 | 15.47 | 3.79 | 1.54 | | | | |
| 9100.00 | 9130.00 | 7.93 | 37.82 | 16.00 | 3.99 | 1.45 | | | | |
| 9450.00 | 9480.00 | 8.29 | 41.23 | 18.02 | 4.17 | 1.54 | | | | |
| 9800.00 | 9830.00 | 8.39 | 42.86 | 19.43 | 4.83 | 2.02 | | | | |
| 10150.00 | 10180.00 | 8.92 | 42.41 | 21.36 | 5.20 | 2.60 | | | | |

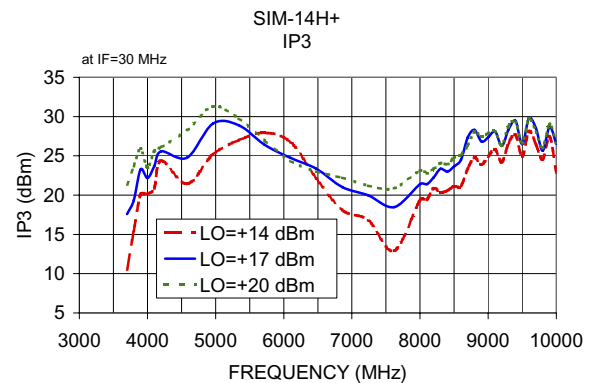
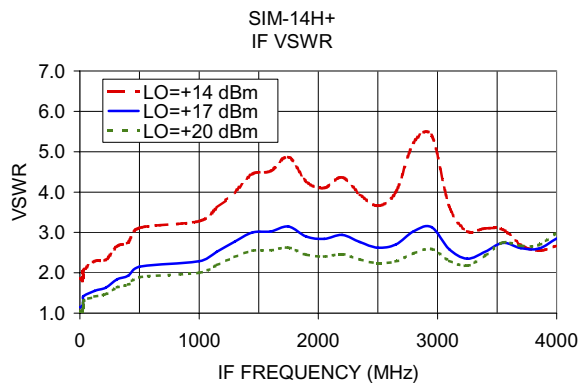
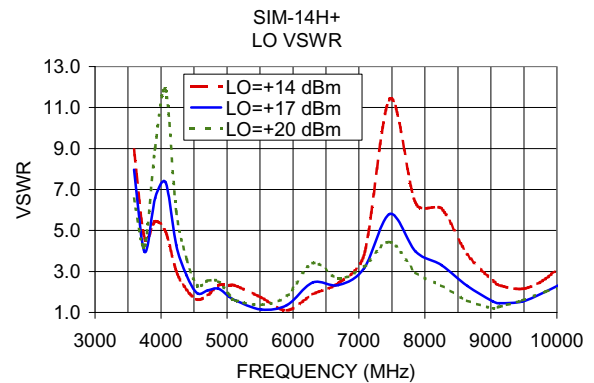
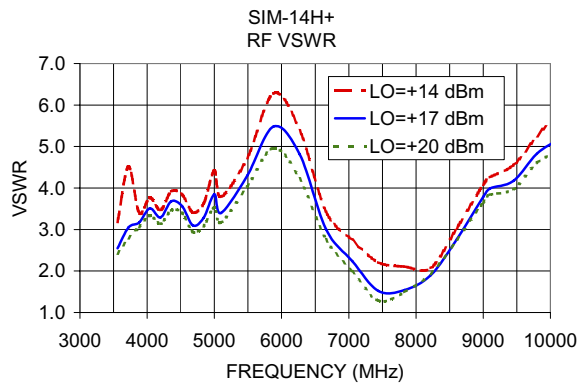
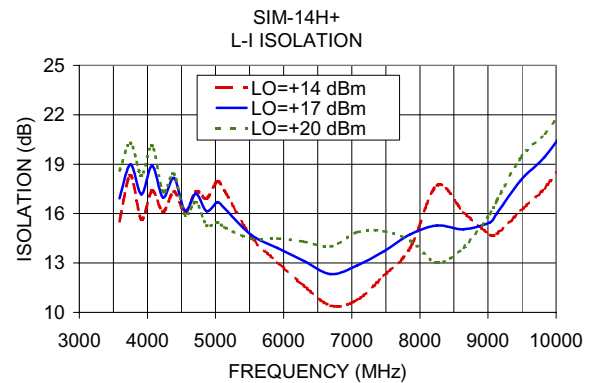
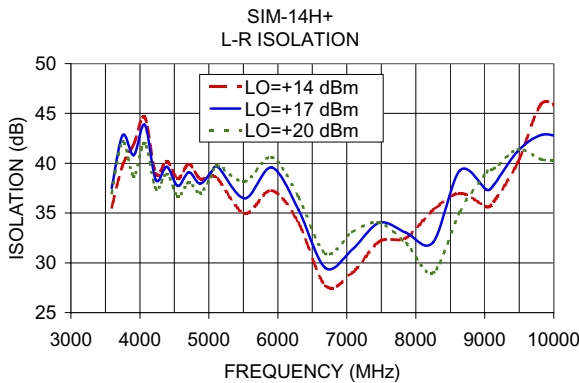
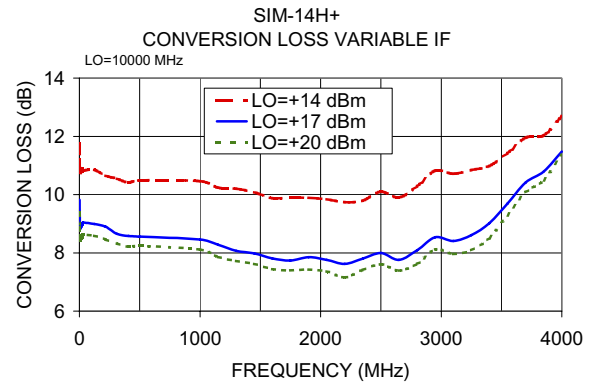
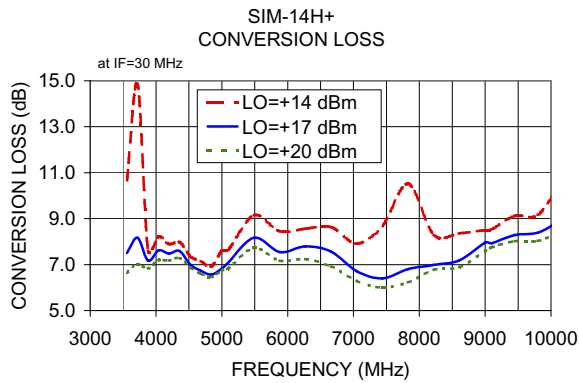
Electrical Schematic



Notes

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