

Frequency Mixer WIDE BAND

SIM-83LH+

Level 10 (LO Power +10 dBm) 1700 to 8000 MHz



Generic photo used for illustration purposes only

CASE STYLE: HV1195

Maximum Ratings

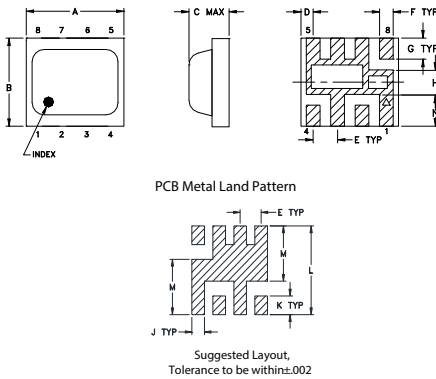
| | |
|-----------------------|----------------|
| Operating Temperature | -40°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| RF Power | 50mW |

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 |

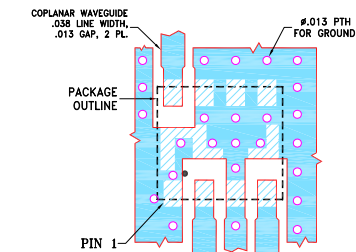
Outline Drawing



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.

Features

- wide bandwidth, 1700 to 8000 MHz
- low conversion loss, 6.0 dB typ.
- excellent IF BW, DC to 3000 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
- 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) | | | |
|-----------------|-----------------------|----------------------|------|----------------------|------|--------------------------|----|----|----|
| | | Typ. | Min. | Typ. | Min. | | | | |
| 1700-8000 | DC-3000 | | | | | | | | |
| 1700-3200 | | 6.0 | 0.1 | 7.9 | 33 | 25 | 23 | 17 | 10 |
| 3200-3700 | | 5.7 | 0.1 | 6.7 | 30 | 24 | 23 | 18 | 15 |
| 3700-4200 | | 5.8 | 0.1 | 7.2 | 31 | 24 | 28 | 18 | 18 |
| 4200-8000 | | 6.0 | 0.2 | 8.9 | 23 | 16 | 18 | 8 | 11 |

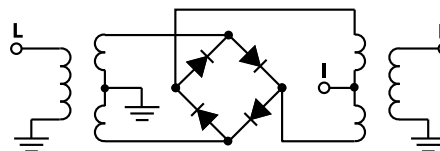
1 dB Compression: +3 dBm typ.

* 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) | |
|-----------------|----------------------|------|--------------------|-----------|--------------------|-----------|-------------------|-----------|-------------------|-----------|
| | RF | LO | LO +10dBm | LO +10dBm | LO +10dBm | LO +10dBm | LO +10dBm | LO +10dBm | LO +10dBm | LO +10dBm |
| 1700.00 | 1731.00 | 6.53 | 33.97 | 21.16 | 1.75 | 10.50 | | | | |
| 1800.00 | 1831.00 | 6.50 | 32.41 | 21.09 | 1.66 | 10.19 | | | | |
| 2000.00 | 2031.00 | 6.59 | 30.98 | 22.21 | 1.89 | 4.97 | | | | |
| 2300.00 | 2331.00 | 6.20 | 33.66 | 20.60 | 2.13 | 3.59 | | | | |
| 2600.00 | 2631.00 | 5.93 | 39.44 | 22.21 | 2.66 | 2.64 | | | | |
| 3000.00 | 3031.00 | 5.53 | 30.63 | 25.11 | 2.49 | 2.45 | | | | |
| 3400.00 | 3431.00 | 5.67 | 29.29 | 23.49 | 2.27 | 2.21 | | | | |
| 3800.00 | 3831.00 | 5.86 | 29.82 | 27.10 | 2.11 | 2.66 | | | | |
| 4200.00 | 4231.00 | 6.03 | 30.69 | 28.64 | 2.91 | 3.30 | | | | |
| 4600.00 | 4631.00 | 6.09 | 29.09 | 16.45 | 2.43 | 3.74 | | | | |
| 5000.00 | 5031.00 | 6.31 | 27.35 | 15.06 | 3.42 | 2.77 | | | | |
| 5400.00 | 5431.00 | 5.72 | 25.94 | 19.10 | 2.68 | 3.51 | | | | |
| 5800.00 | 5831.00 | 5.46 | 22.31 | 22.64 | 2.03 | 3.08 | | | | |
| 6200.00 | 6231.00 | 5.18 | 20.81 | 32.72 | 1.29 | 1.91 | | | | |
| 6600.00 | 6631.00 | 5.35 | 21.56 | 25.01 | 1.33 | 1.26 | | | | |
| 7000.00 | 7031.00 | 5.49 | 21.93 | 27.31 | 1.36 | 1.68 | | | | |
| 7400.00 | 7431.00 | 5.77 | 22.35 | 17.70 | 1.65 | 2.26 | | | | |
| 7700.00 | 7731.00 | 6.35 | 23.66 | 15.04 | 2.10 | 2.86 | | | | |
| 7900.00 | 7931.00 | 7.18 | 25.31 | 12.78 | 2.24 | 3.29 | | | | |
| 8000.00 | 8031.00 | 8.25 | 26.35 | 11.07 | 2.55 | 3.12 | | | | |

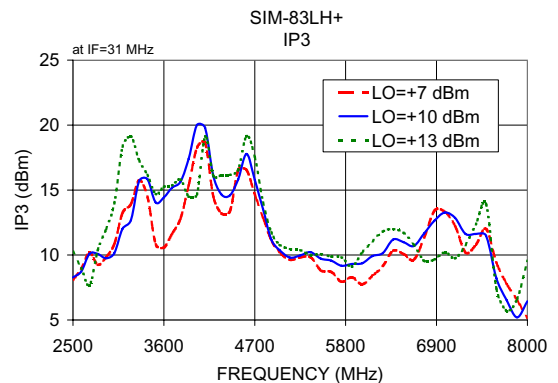
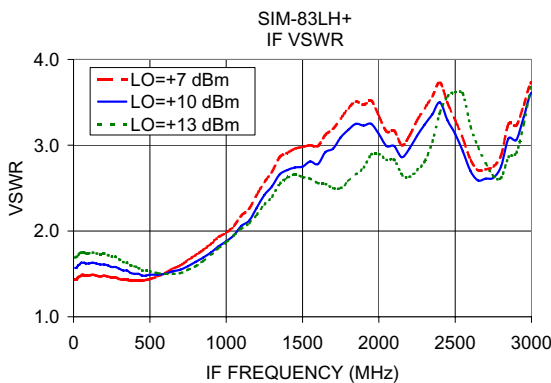
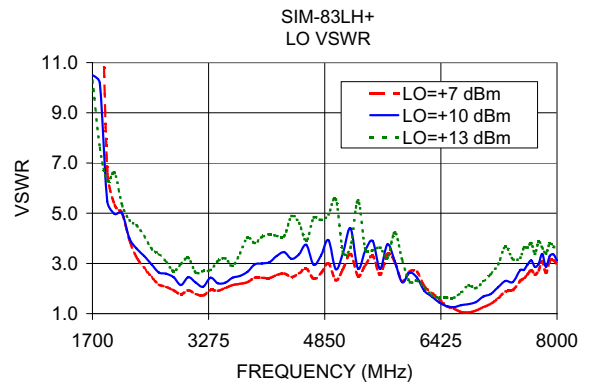
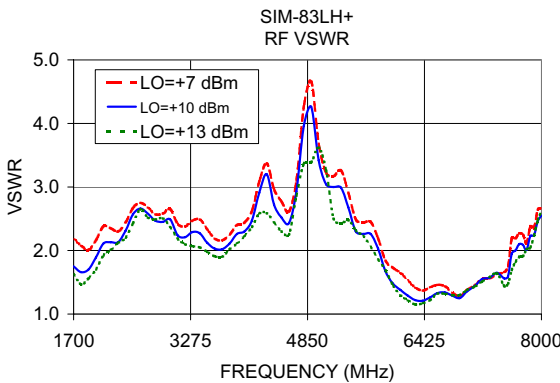
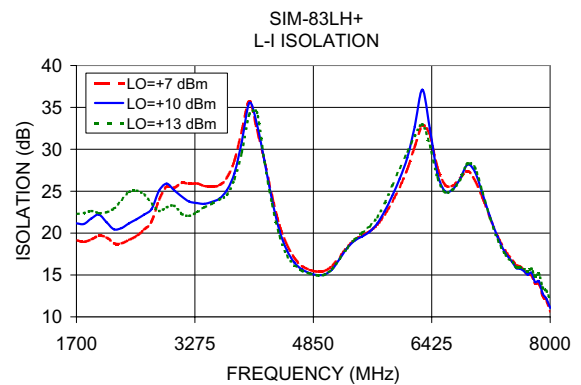
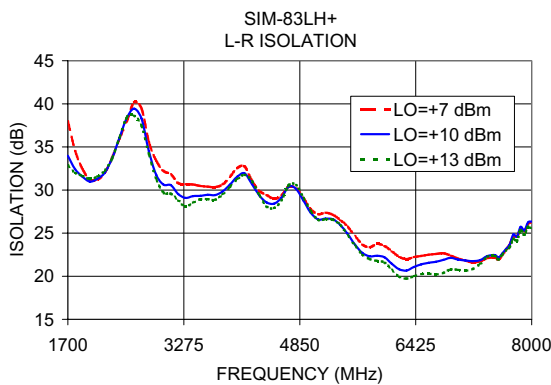
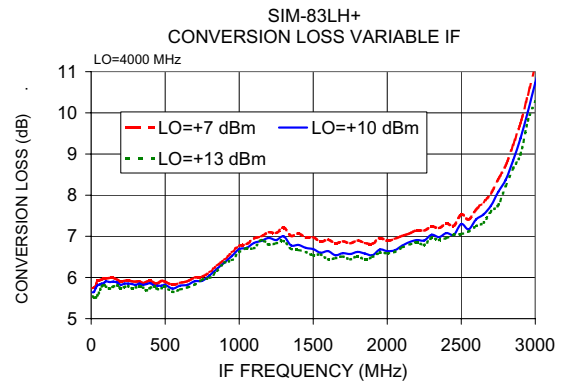
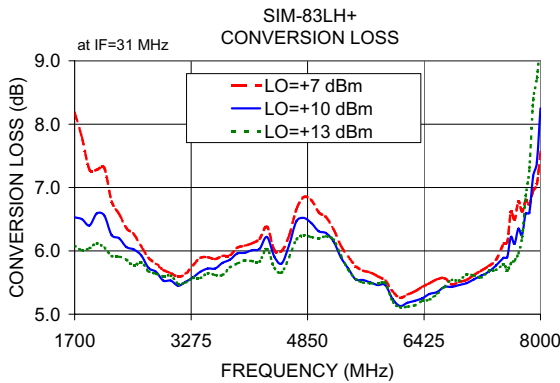
Electrical Schematic



Notes

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