

Frequency Mixer WIDE BAND

SIM-63LH+

Level 10 (LO Power +10 dBm) 750 to 6000 MHz

Maximum Ratings

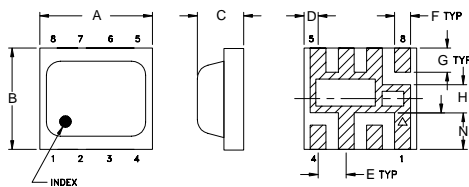
| | |
|-----------------------|----------------|
| Operating Temperature | -40°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| RF Power | 50mW |

For extended temperature range, consult factory.

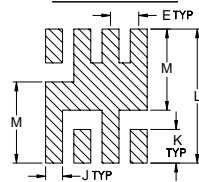
Pin Connections

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

Outline Drawing



PCB Land Pattern

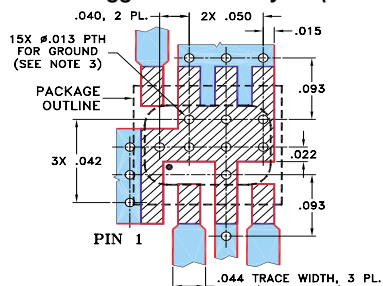
Suggested Layout,
Tolerance to be within ±.002

Outline Dimensions (inch)

| A | B | C | D | E | F | G |
|-------|-------|-------|-------|-------|-------|-------|
| 0.200 | 0.180 | 0.087 | 0.025 | 0.050 | 0.028 | 0.043 |
| 5.08 | 4.57 | 2.21 | 0.64 | 1.27 | 0.71 | 1.09 |
| H | J | K | L | M | N | wt |
| .0050 | .030 | 0.060 | 0.238 | 0.144 | 0.065 | grams |
| 0.13 | 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: 1. 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.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
3. THE PLATED THROUGH VIA HOLES IN THE PCB GROUND PAD SHALL BE PLUGGED. IF VIA HOLES CANNOT BE PLUGGED, IT IS RECOMMENDED TO CAP THE VIAS WITH SOLDER MASK ON THE BACK SIDE OF THE BOARD.
DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Features

- wide bandwidth, 750 to 6000 MHz
- low conversion loss, 6.2 dB typ.
- excellent L-R isolation, 34 dB typ.
- LTCC double balanced mixer
- low profile, 0.08"
- protected by US patent 7,027,795
- useable as up and down converter

Applications

- cellular
- defense & weather radar
- defense communications
- PCN
- WCDMA
- WIFI
- blue tooth
- VSAT
- ISM



CASE STYLE: HV1195

PRICE: \$8.95 ea. QTY (10-49)

+ RoHS compliant in accordance
with EU Directive (2002/95/EC)

The +Suffix has been added in order to identify RoHS
Compliance. See our web site for RoHS Compliance
methodologies and qualifications.

Electrical Specifications

| FREQUENCY (MHz) | | CONVERSION LOSS* (dB) | | | LO-RF ISOLATION (dB) | | LO-IF ISOLATION (dB) | | IP3 at center band (dBm) |
|----------------------|---------|-----------------------|----------|------|----------------------|------|----------------------|------|--------------------------|
| LO/RF $f_L - f_U$ | IF | Typ. | σ | Max. | Typ. | Min. | Typ. | Min. | Typ. |
| 750-6000 | DC-1500 | | | | | | | | |
| 750-1700 | | 6.3 | 0.1 | 7.3 | 37 | 31 | 30 | 20 | 12 |
| 1700-2000 | | 6.6 | 0.1 | 7.5 | 37 | 32 | 20 | 12 | 18 |
| 2000-3100 | | 5.8 | 0.1 | 7.2 | 32 | 25 | 22 | 12 | 12 |
| 3100-3800 | | 5.7 | 0.1 | 7.0 | 30 | 25 | 25 | 15 | 15 |
| 3800-6000 | | 8.0 | 0.2 | 9.3 | 30 | 22 | 20 | 13 | 15 |

1 dB COMPR. +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 |
| 740.00 | 771.00 | 6.12 | 39.29 | 26.22 | 1.99 | 7.05 |
| 850.00 | 881.00 | 5.79 | 36.91 | 27.35 | 1.51 | 4.55 |
| 1000.00 | 1031.00 | 6.24 | 40.47 | 28.20 | 2.63 | 2.78 |
| 1200.00 | 1231.00 | 6.27 | 42.51 | 30.04 | 3.21 | 1.54 |
| 1500.00 | 1531.00 | 6.05 | 36.17 | 42.37 | 2.94 | 2.15 |
| 1800.00 | 1831.00 | 6.53 | 37.46 | 21.72 | 3.22 | 2.96 |
| 2100.00 | 2131.00 | 6.29 | 36.76 | 17.14 | 3.00 | 2.64 |
| 2400.00 | 2431.00 | 5.47 | 35.23 | 21.65 | 2.01 | 2.45 |
| 2700.00 | 2731.00 | 5.11 | 31.43 | 23.85 | 1.75 | 1.87 |
| 3000.00 | 3031.00 | 5.05 | 30.30 | 26.15 | 1.34 | 1.30 |
| 3400.00 | 3431.00 | 5.53 | 30.24 | 23.55 | 1.44 | 1.45 |
| 3800.00 | 3831.00 | 6.01 | 28.84 | 20.37 | 2.40 | 2.23 |
| 4200.00 | 4231.00 | 7.01 | 30.59 | 18.41 | 3.57 | 3.00 |
| 4500.00 | 4531.00 | 8.08 | 32.32 | 17.66 | 4.84 | 3.45 |
| 4800.00 | 4831.00 | 8.28 | 31.53 | 21.57 | 5.04 | 3.96 |
| 5100.00 | 5131.00 | 7.96 | 28.60 | 26.68 | 3.55 | 3.05 |
| 5400.00 | 5431.00 | 7.36 | 28.72 | 23.26 | 3.65 | 3.13 |
| 5700.00 | 5731.00 | 7.43 | 28.75 | 20.86 | 2.99 | 3.26 |
| 5850.00 | 5881.00 | 7.75 | 27.90 | 20.28 | 2.82 | 2.87 |
| 6000.00 | 6031.00 | 7.66 | 27.87 | 21.39 | 2.48 | 2.13 |

Electrical Schematic

