*Ceramic Surface Mount*

# Frequency Mixer WIDE BAND

# SIM-762H+

## Level 17 (LO Power +17 dBm) 2300 to 7600 MHz

*Generic photo used for illustration purposes only*

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 | 200mW |

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 |

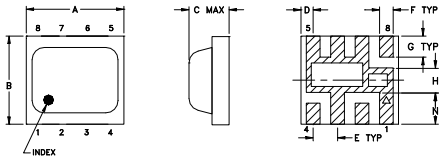
### Features

- wide bandwidth, 2300 to 7600 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

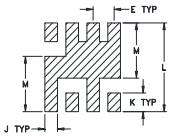
### Applications

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

### Outline Drawing




PCB Metal Land Pattern



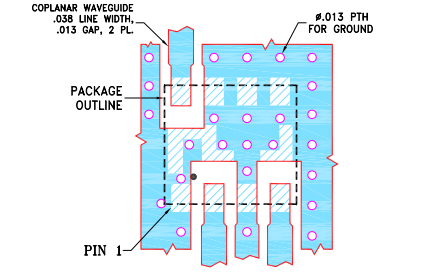

Suggested Layout,
Tolerance to be within±.002

### Outline Dimensions ( inch / mm )

| A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|
| .200 | .180 | .087 | .025 | .050 | .028 | .043 |
| 5.08 | 4.57 | 2.2098 | 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 $f_L$-$f_U$ | IF | Typ. | σ | Max. | Typ. | Min. | Typ. | Min. | Typ. |
| **2300-7600** | **DC-3000** | | | | | | | | |
| 2300-3200 | | 6.0 | 0.1 | 9.0 | 35 | 27 | 21 | 13 | 25 |
| 3200-3700 | | 5.8 | 0.1 | 7.0 | 31 | 26 | 23 | 18 | 25 |
| 3700-4200 | | 5.9 | 0.2 | 7.4 | 32 | 26 | 25 | 19 | 25 |
| 4200-7600 | | 6.0 | 0.2 | 8.9 | 23 | 17 | 18 | 11 | 25 |

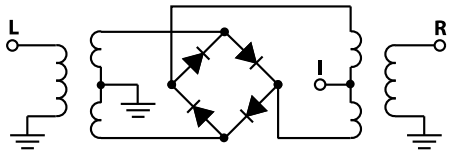
1 dB Compression: +14 dBm typ.

* 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) |
|---|---|---|---|---|---|---|
| RF | LO | LO +17dBm | LO +17dBm | LO +17dBm | LO +17dBm | LO +17dBm |
| 2300.10 | 2331.00 | 7.04 | 32.18 | 16.80 | 2.29 | 4.30 |
| 2500.10 | 2531.00 | 6.55 | 36.45 | 18.89 | 2.44 | 2.74 |
| 2700.10 | 2731.00 | 5.82 | 38.79 | 20.72 | 2.48 | 2.03 |
| 3000.10 | 3031.00 | 5.95 | 34.64 | 21.82 | 2.46 | 1.83 |
| 3300.10 | 3331.00 | 5.70 | 31.60 | 23.91 | 2.48 | 1.55 |
| 3600.10 | 3631.00 | 5.95 | 32.01 | 24.07 | 2.23 | 1.63 |
| 3900.10 | 3931.00 | 5.81 | 32.07 | 25.84 | 2.35 | 1.63 |
| 4200.10 | 4231.00 | 6.33 | 30.84 | 30.80 | 2.46 | 1.65 |
| 4500.10 | 4531.00 | 6.06 | 31.88 | 25.52 | 2.91 | 1.99 |
| 4800.10 | 4831.00 | 7.18 | 29.30 | 17.07 | 3.12 | 2.30 |
| 5100.10 | 5131.00 | 7.07 | 27.98 | 14.86 | 2.96 | 2.73 |
| 5400.10 | 5431.00 | 6.87 | 27.26 | 15.51 | 2.93 | 3.30 |
| 5700.10 | 5731.00 | 6.76 | 26.29 | 16.61 | 2.36 | 3.24 |
| 6000.10 | 6031.00 | 6.08 | 24.89 | 17.89 | 1.84 | 3.24 |
| 6500.10 | 6531.00 | 6.20 | 24.21 | 23.70 | 1.85 | 1.60 |
| 6900.10 | 6931.00 | 6.41 | 23.06 | 25.91 | 2.27 | 1.26 |
| 7300.10 | 7331.00 | 6.84 | 21.77 | 19.06 | 2.54 | 2.18 |
| 7600.10 | 7631.00 | 8.11 | 24.39 | 15.26 | 3.34 | 3.79 |
| 7800.10 | 7831.00 | 9.11 | 26.69 | 13.72 | 3.73 | 3.95 |
| 8000.10 | 8031.00 | 10.13 | 27.17 | 11.55 | 4.03 | 5.28 |

### Electrical Schematic




Notes

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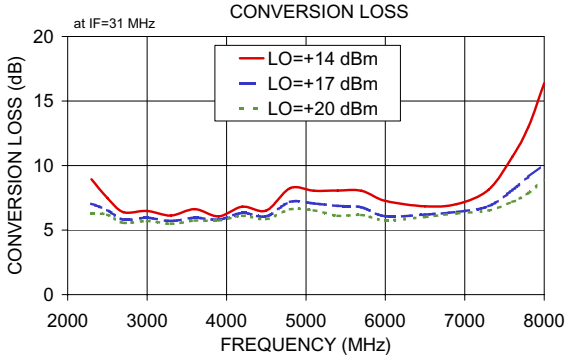
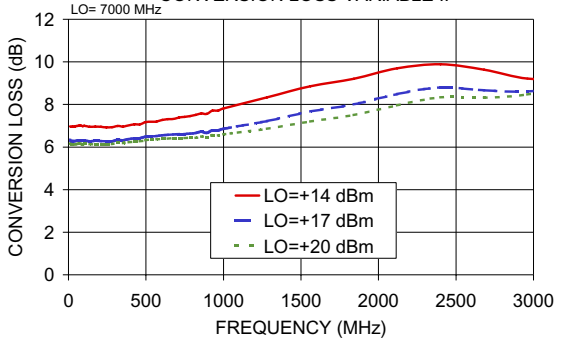
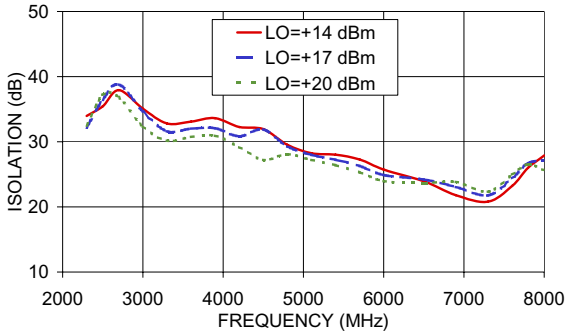
SIM-762H+
CONVERSION LOSS



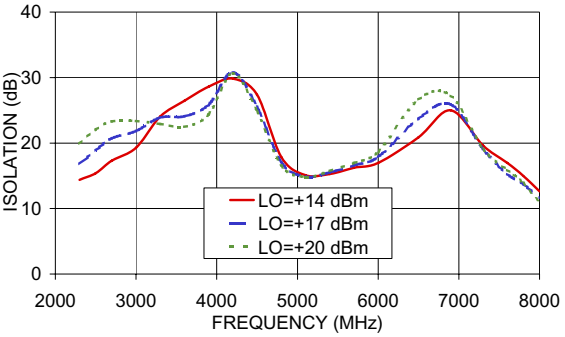

SIM-762H+
CONVERSION LOSS VARIABLE IF



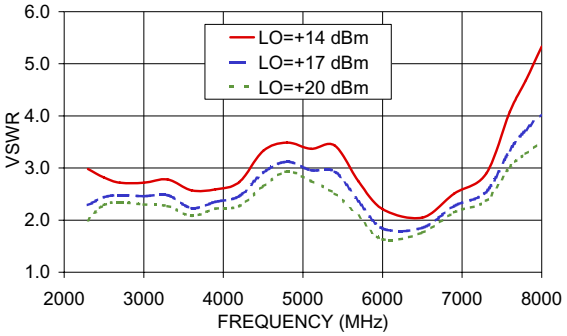

SIM-762H+
L-R ISOLATION



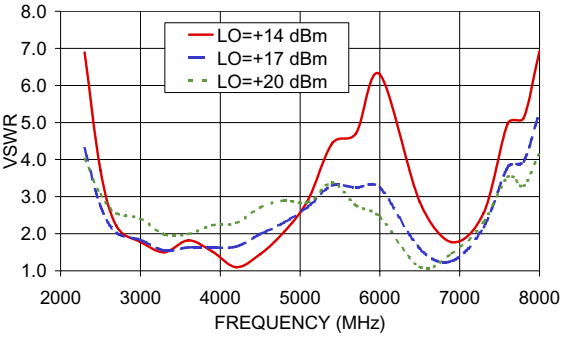

SIM-762H+
L-I ISOLATION



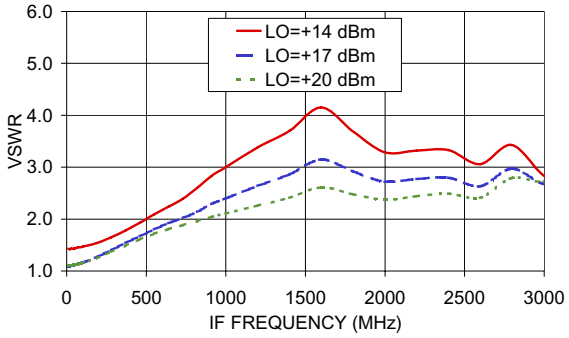

SIM-762H+
RF VSWR



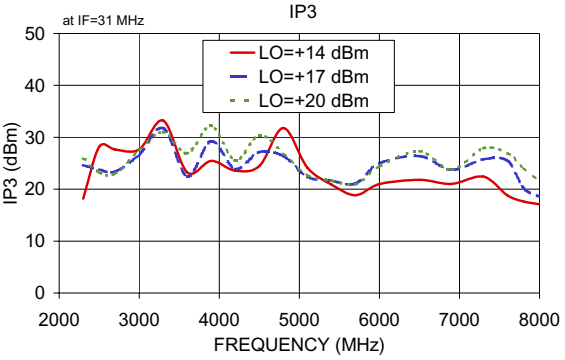

SIM-762H+
LO VSWR




SIM-762H+
IF VSWR




SIM-762H+
IP3

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