

Surface Mount Frequency Mixer

ADE-1LH+

Level 10 (LO Power +10 dBm) 0.5 to 500 MHz



Generic photo used for illustration purposes only

CASE STYLE: CD636

+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" | 20, 50, 100, 200 |
| 13" | 500, 1000 |

Maximum Ratings

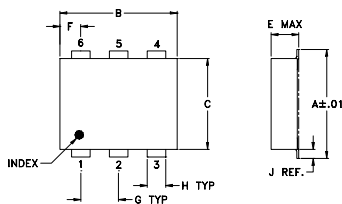
| | |
|-----------------------|----------------|
| Operating Temperature | -40°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| RF Power | 50mW |
| IF Current | 40mA |

Permanent damage may occur if any of these limits are exceeded.

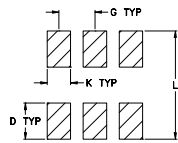
Pin Connections

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

Outline Drawing



PCB Land Pattern

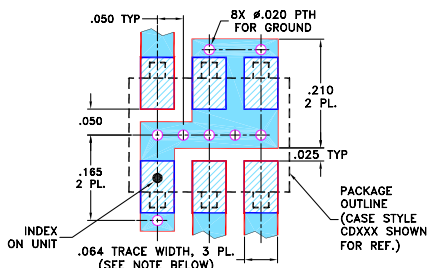


Suggested Layout, Tolerance to be within ±.002

Outline Dimensions (inch/mm)

| | | | | | | |
|------|------|------|------|------|-------|------|
| A | B | C | D | E | F | G |
| .272 | .310 | .220 | .100 | .162 | .055 | .100 |
| 6.91 | 7.87 | 5.59 | 2.54 | 4.11 | 1.40 | 2.54 |
| H | J | K | L | | wt | |
| .030 | .026 | .065 | .300 | | grams | |
| 0.76 | 0.66 | 1.65 | 7.62 | | 0.25 | |

Demo Board MCL P/N: TB-03 Suggested PCB Layout (PL-052)



- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .030" ± .002"; 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.
- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
 - DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Notes

- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
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Features

- low conversion loss, 5.0 dB typ.
- excellent L-R isolation, 55 dB typ. and L-I isolation, 45 dB typ.
- good IP3, 15 dBm typ.
- aqueous washable
- protected by US Patent 6,133,525

Applications

- VHF/UHF receivers

Electrical Specifications

| FREQUENCY (MHz) | CONVERSION LOSS (dB) | LO-RF ISOLATION (dB) | | | LO-IF ISOLATION (dB) | | | IP3 at center band (dBm) | | | | | | |
|-----------------|----------------------|----------------------|----|----|----------------------|----|----|--------------------------|----|----|----|----|----|----|
| | | L | M | U | L | M | U | | | | | | | |
| 0.5-500 | DC-500 | 65 | 50 | 55 | 35 | 47 | 26 | 52 | 40 | 45 | 22 | 34 | 20 | 15 |

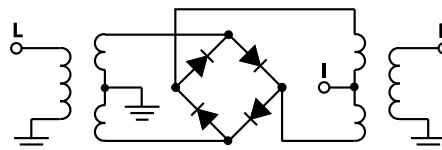
1 dB COMP.: +5 dBm typ.

L = low range [f_l to $10 f_l$]
M = mid band [$2f_l$ to $f_u/2$]
U = upper range [$f_u/2$ to f_u]

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 |
| 0.50 | 30.50 | 5.87 | 67.00 | 52.50 | 1.54 | 2.56 |
| 0.80 | 30.80 | 5.68 | 66.83 | 52.17 | 1.37 | 2.56 |
| 1.00 | 31.00 | 5.70 | 67.01 | 52.00 | 1.33 | 2.61 |
| 5.00 | 35.00 | 5.21 | 65.67 | 50.33 | 1.23 | 2.61 |
| 10.00 | 40.00 | 5.08 | 64.17 | 50.17 | 1.22 | 2.67 |
| 50.00 | 80.00 | 5.30 | 59.16 | 43.84 | 1.15 | 2.56 |
| 71.52 | 101.52 | 5.27 | 57.66 | 42.17 | 1.13 | 2.61 |
| 100.00 | 130.00 | 5.31 | 56.51 | 40.51 | 1.12 | 2.62 |
| 142.94 | 172.94 | 5.47 | 55.83 | 38.33 | 1.16 | 2.67 |
| 150.00 | 180.00 | 5.48 | 55.34 | 38.00 | 1.16 | 2.61 |
| 200.00 | 230.00 | 5.49 | 52.67 | 37.50 | 1.14 | 2.73 |
| 214.36 | 244.36 | 5.48 | 52.01 | 37.34 | 1.13 | 2.73 |
| 250.00 | 280.00 | 5.54 | 51.34 | 36.67 | 1.08 | 2.56 |
| 285.79 | 315.79 | 5.76 | 46.84 | 34.51 | 1.09 | 2.67 |
| 300.00 | 330.00 | 5.85 | 45.83 | 33.67 | 1.09 | 2.67 |
| 350.00 | 380.00 | 5.67 | 48.00 | 30.67 | 1.14 | 2.56 |
| 400.00 | 430.00 | 5.74 | 47.01 | 27.33 | 1.16 | 2.86 |
| 428.63 | 458.63 | 6.00 | 46.66 | 27.00 | 1.12 | 2.80 |
| 470.00 | 500.00 | 6.30 | 48.34 | 27.67 | 1.06 | 3.01 |
| 500.00 | 530.00 | 6.61 | 44.33 | 27.33 | 1.10 | 2.93 |

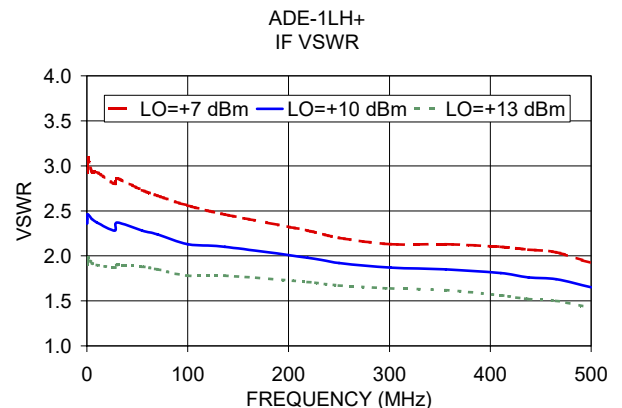
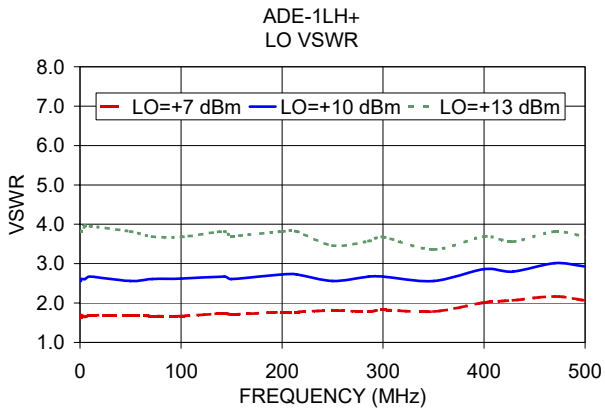
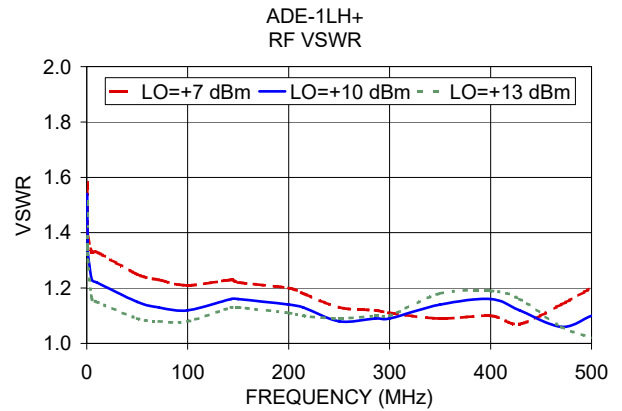
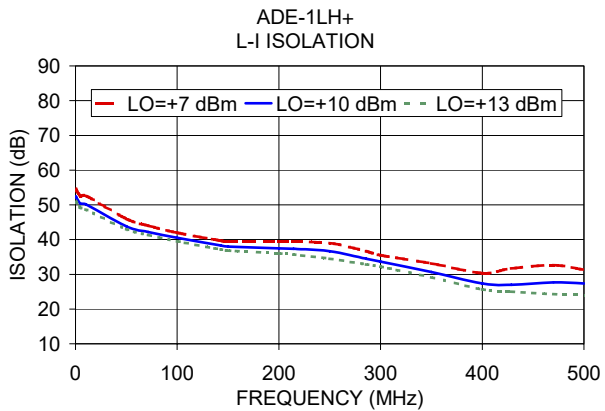
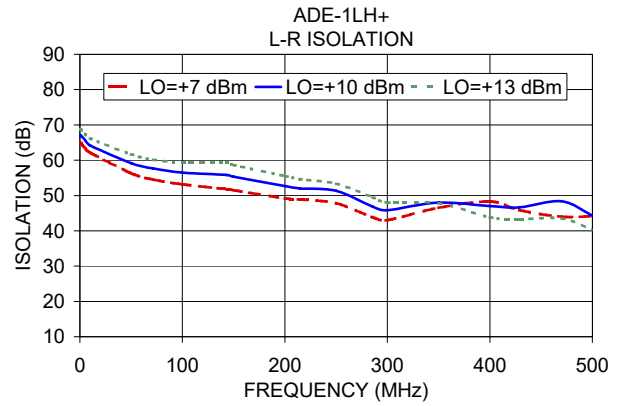
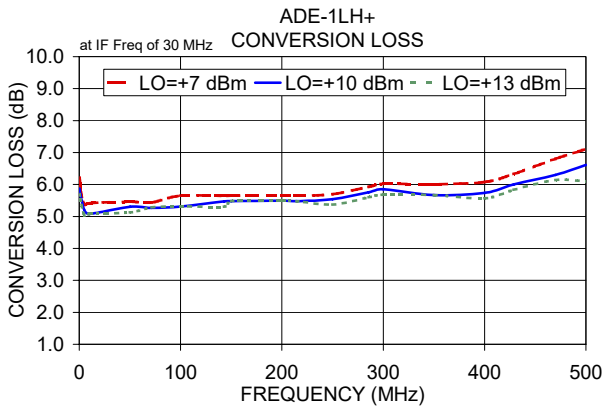
Electrical Schematic



Mini-Circuits

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