

Surface Mount Frequency Mixer

ADE-5+ ADE-5

Level 7 (LO Power +7 dBm) 5 to 1500 MHz



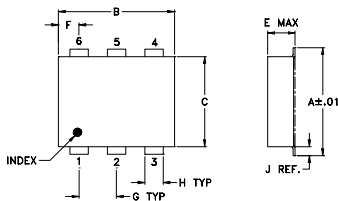
Maximum Ratings

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

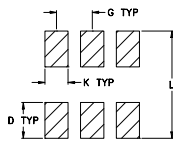
Pin Connections

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

Outline Drawing



PCB Land Pattern

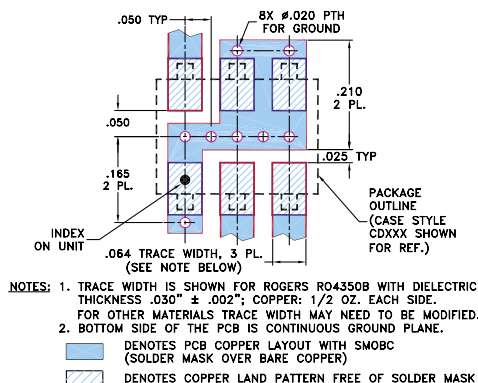


Suggested Layout,
Tolerance to be within ±.002

Outline Dimensions (inch)

| A | B | C | D | E | F | G |
|------|------|------|------|-------|------|------|
| .272 | .310 | .220 | .100 | .112 | .055 | .100 |
| 6.91 | 7.87 | 5.59 | 2.54 | 2.84 | 1.40 | 2.54 |
| H | J | K | L | wt | | |
| .030 | .026 | .065 | .300 | grams | | |
| 0.76 | 0.66 | 1.65 | 7.62 | 0.20 | | |

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



Features

- low conversion loss, 6.6 dB typ.
- excellent L-R isolation, 40 dB typ.
- excellent IP3, 15 dBm
- aqueous washable
- protected by U.S. Patent 6,133,525

Applications

- cellular
- PCS

CASE STYLE: CD542

PRICE: \$3.45 ea. QTY (10-49)

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

The +Suffix identifies 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) | | | | |
|-----------------|-------------------------|----------------------|------|-----|----------------------|-----------|-----------|--------------------------|-------|-------|-------|----|
| | | L | M | U | L | M | U | | | | | |
| LO/RF | Mid-Band | | | | | | | | | | | |
| f_L - f_U | \bar{X} σ Max. | Total Range Max. | | | Typ. Min. | Typ. Min. | Typ. Min. | Typ. | | | | |
| 5-1500 | DC-1000 | 6.6 | 0.10 | 7.5 | 9.3 | 50 40 | 40 25 | 33 23 | 50 40 | 30 20 | 20 10 | 15 |

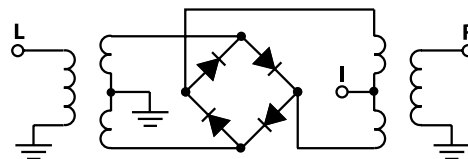
1 dB COMP.: +1 dBm typ.
Phase detection, positive polarity

L = low range [f_L to 10 f_L] M = mid range [10 f_L to $f_U/2$] U = upper range [$f_U/2$ to f_U]
m = mid band [2 f_L to $f_U/2$]

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 +7dBm | LO +7dBm | LO +7dBm | LO +7dBm | LO +7dBm |
| 5.0 | 35.0 | 7.0 | 63.9 | 53.6 | 1.59 | 1.91 |
| 10.0 | 40.0 | 6.6 | 63.2 | 52.2 | 1.51 | 1.94 |
| 50.0 | 80.0 | 6.5 | 56.7 | 46.6 | 1.39 | 1.91 |
| 100.0 | 130.0 | 6.6 | 52.7 | 41.7 | 1.38 | 1.91 |
| 197.1 | 227.1 | 6.7 | 49.0 | 36.3 | 1.41 | 1.94 |
| 295.6 | 325.6 | 6.6 | 47.3 | 33.5 | 1.40 | 2.01 |
| 394.1 | 424.1 | 6.7 | 43.7 | 32.0 | 1.39 | 2.20 |
| 492.6 | 522.6 | 6.5 | 42.4 | 30.7 | 1.35 | 2.40 |
| 500.0 | 530.0 | 6.6 | 41.9 | 30.5 | 1.34 | 2.37 |
| 591.1 | 621.1 | 6.6 | 39.7 | 29.9 | 1.35 | 2.40 |
| 689.6 | 719.6 | 6.6 | 36.8 | 28.5 | 1.28 | 2.32 |
| 788.1 | 818.1 | 6.6 | 35.2 | 26.0 | 1.23 | 2.30 |
| 886.6 | 916.6 | 6.5 | 33.4 | 23.5 | 1.14 | 2.32 |
| 985.1 | 1015.1 | 6.4 | 33.2 | 21.8 | 1.09 | 2.49 |
| 1000.0 | 1030.0 | 6.5 | 33.5 | 21.5 | 1.11 | 2.58 |
| 1182.0 | 1212.0 | 6.6 | 35.6 | 20.4 | 1.50 | 2.88 |
| 1280.5 | 1310.5 | 7.1 | 36.3 | 19.2 | 1.81 | 2.92 |
| 1379.0 | 1409.0 | 7.6 | 34.3 | 17.9 | 2.10 | 2.92 |
| 1477.5 | 1507.5 | 8.2 | 31.2 | 17.1 | 2.37 | 2.88 |
| 1500.0 | 1530.0 | 8.2 | 30.5 | 16.8 | 2.46 | 2.96 |

Electrical Schematic



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RF/IF MICROWAVE COMPONENTS

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Performance Charts

ADE-5+ ADE-5

