

# Frequency Mixer

## ADE-30+

Level 7 (LO Power +7 dBm) 200 to 3000 MHz



Generic photo used for illustration purposes only

CASE STYLE: CD542

**+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        |

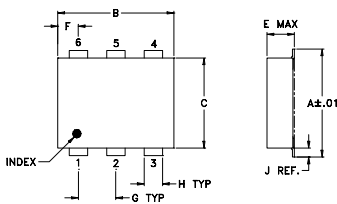
### Maximum Ratings

|   |                |
|---|----------------|
| 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. |                |

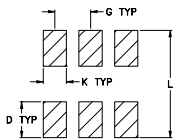
### Pin Connections

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

### Outline Drawing



#### PCB Land Pattern

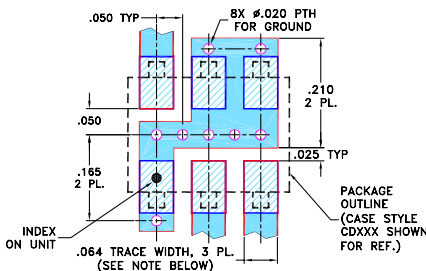


Suggested Layout. Tolerance to be within ±.002

### Outline Dimensions (inch/mm)

| A    | B    | C    | D    | E     | F    | G    |
|------|------|------|------|-------|------|------|
| .272 | .310 | .220 | .100 | .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)



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, 4.5 dB typ.
- excellent L-R isolation, 35 dB typ.
- low profile package
- aqueous washable
- protected by U.S. Patent 6,133,525

### Applications

- cellular
- PCN
- instrumentation
- ISM

### Electrical Specifications

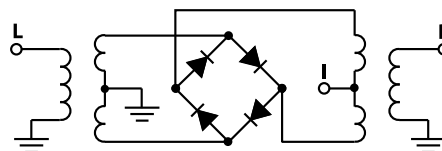
| FREQUENCY (MHz) |           | CONVERSION LOSS (dB) |      |            |      | LO-RF ISOLATION (dB) |      | LO-IF ISOLATION (dB) |      | IP3 at center band (dBm) |
|-----------------|-----------|----------------------|------|------------|------|----------------------|------|----------------------|------|--------------------------|
| LO/RF           | IF        | Mid-Band             |      | Total      | Typ. |                      | Typ. |                      | Typ. |                          |
| $f_L$ - $f_U$   | $\bar{X}$ | $\sigma$             | Max. | Range Max. |      |                      |      |                      |      |                          |
| 200-3000        | DC-1000   | 4.5                  | .20  | 9.0        | 9.8  | 35                   | 20   | 20                   | 7    | 14                       |

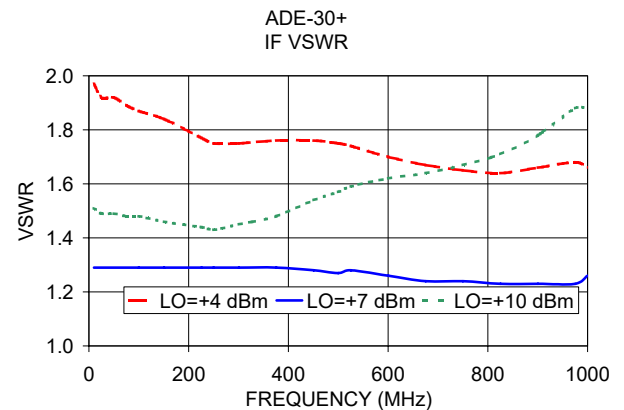
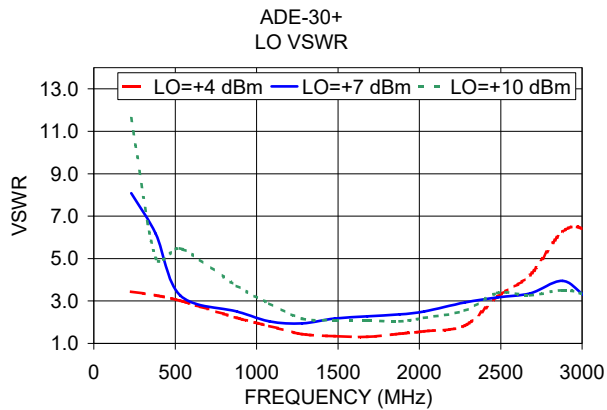
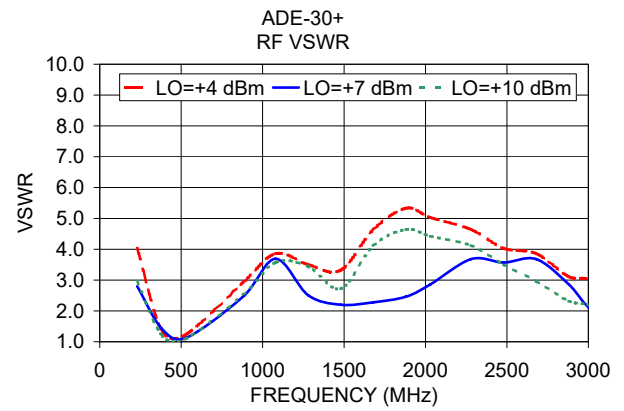
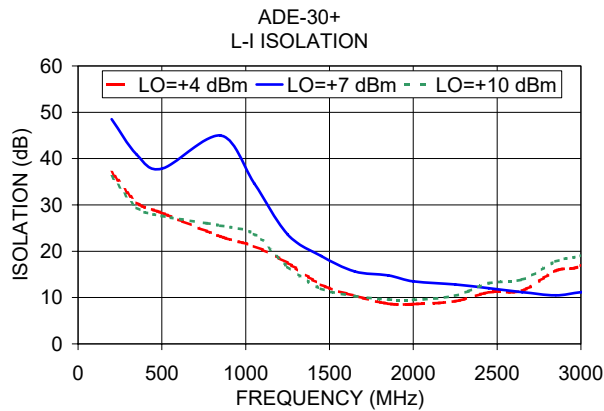
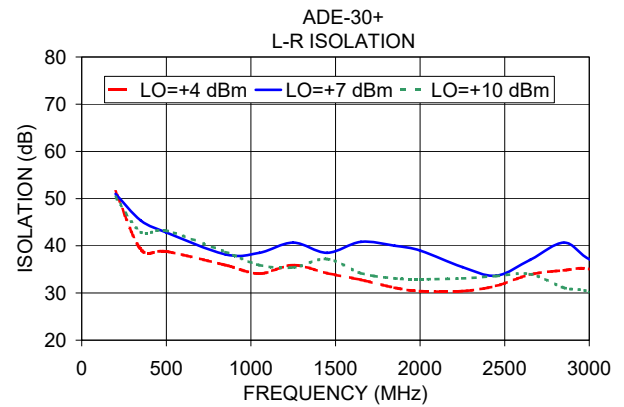
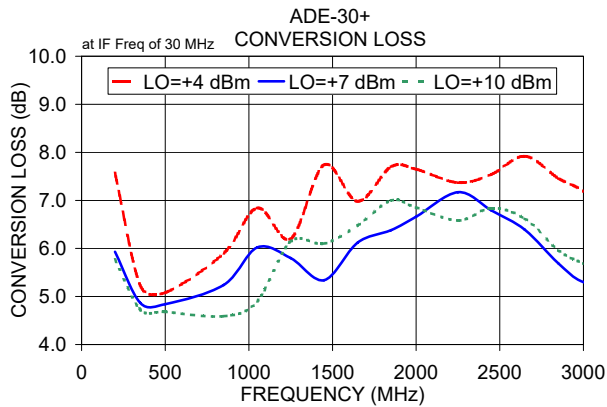
1 dB COMP.: +1 dBm typ.  
m=mid band [ $2f_L$  to  $f_U/2$ ]

### 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          |
| 200.00          | 230.00  | 5.93                 | 51.00              | 48.50              | 2.80              | 8.08              |
| 350.00          | 380.00  | 4.87                 | 45.33              | 40.83              | 1.43              | 6.17              |
| 500.00          | 530.00  | 4.84                 | 42.83              | 37.83              | 1.13              | 3.26              |
| 850.00          | 880.00  | 5.24                 | 38.17              | 45.00              | 2.46              | 2.51              |
| 1050.00         | 1080.00 | 6.02                 | 38.50              | 34.67              | 3.69              | 2.04              |
| 1250.00         | 1280.00 | 5.80                 | 40.67              | 23.67              | 2.51              | 1.95              |
| 1450.00         | 1480.00 | 5.34                 | 38.50              | 19.00              | 2.20              | 2.17              |
| 1650.00         | 1680.00 | 6.12                 | 40.83              | 15.66              | 2.28              | 2.28              |
| 1850.00         | 1880.00 | 6.38                 | 40.00              | 14.77              | 2.46              | 2.37              |
| 2000.00         | 2030.00 | 6.66                 | 39.00              | 13.50              | 2.86              | 2.51              |
| 2250.00         | 2280.00 | 7.17                 | 35.50              | 12.83              | 3.68              | 2.93              |
| 2450.00         | 2480.00 | 6.79                 | 33.67              | 12.00              | 3.57              | 3.17              |
| 2650.00         | 2680.00 | 6.39                 | 37.00              | 11.16              | 3.68              | 3.36              |
| 2850.00         | 2880.00 | 5.69                 | 40.67              | 10.50              | 2.86              | 3.95              |
| 3000.00         | 3030.00 | 5.30                 | 37.17              | 11.17              | 2.01              | 3.17              |

### Electrical Schematic





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