

# Frequency Mixer

## ADE-2ASK+

Level 7 (LO Power +7 dBm) 1 to 1000 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

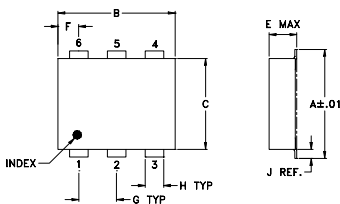
|                       |                |
|-----------------------|----------------|
| Operating Temperature | -40°C to 85°C  |
| Storage Temperature   | -55°C to 100°C |
| RF Power              | 50mW           |
| IF Current            | 40mA           |

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

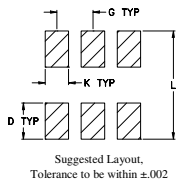
### Pin Connections

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

### Outline Drawing



### PCB Land Pattern



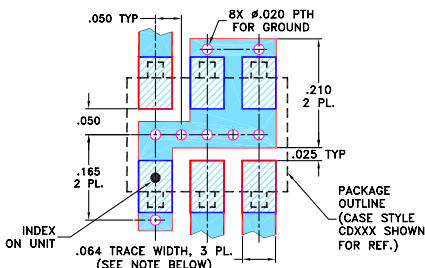
### Outline Dimensions (inch/mm)

| 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 R04350B 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.  
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### Features

- low conversion loss, 5.4 dB typ.
- excellent L-R isolation, 45 dB typ.
- low profile package
- aqueous washable
- protected by U.S. Patent 6,133,525

### Applications

- VSAT systems
- instrumentation
- cellular

### 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  |                          |
| 1-1000          | DC-1000              | 55                   | 45 | 36 | 50                   | 40 | 22 | 12                       |

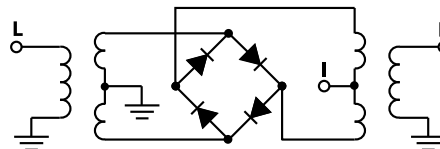
1 dB COMP.: +1 dBm typ.  
Phase detection, positive polarity

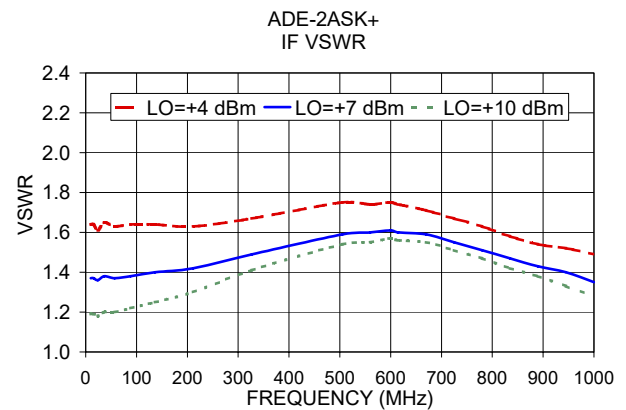
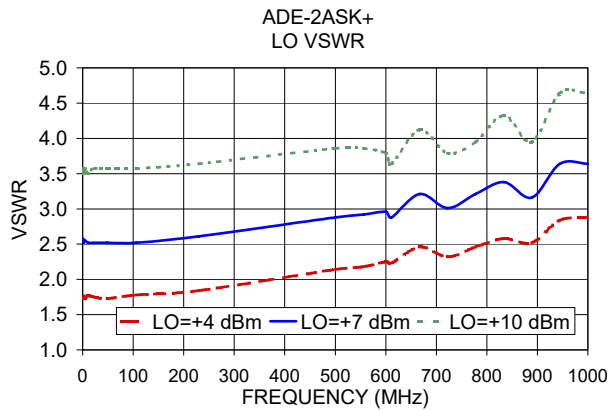
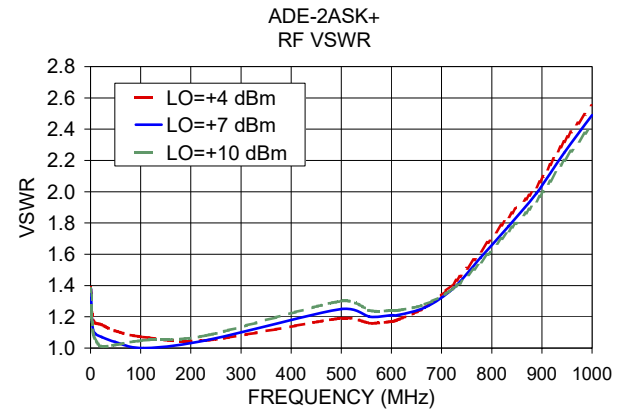
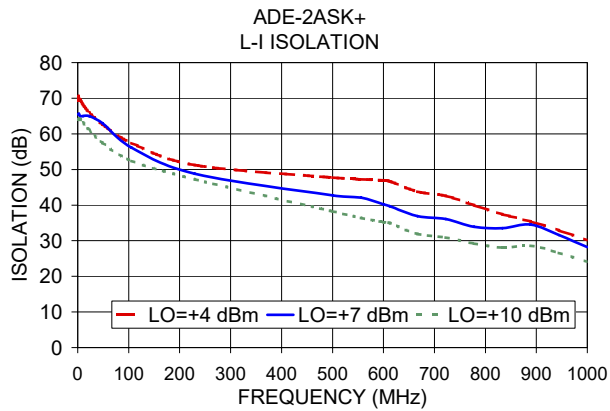
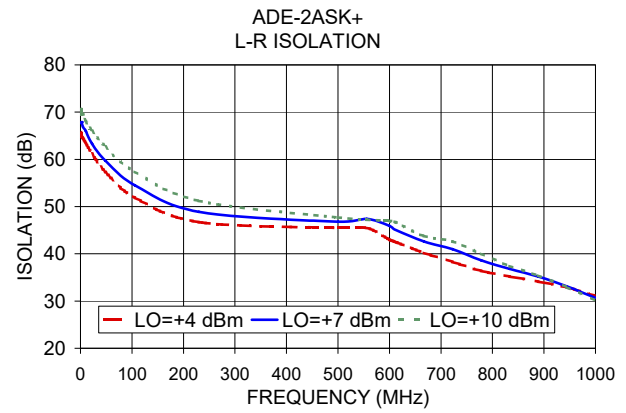
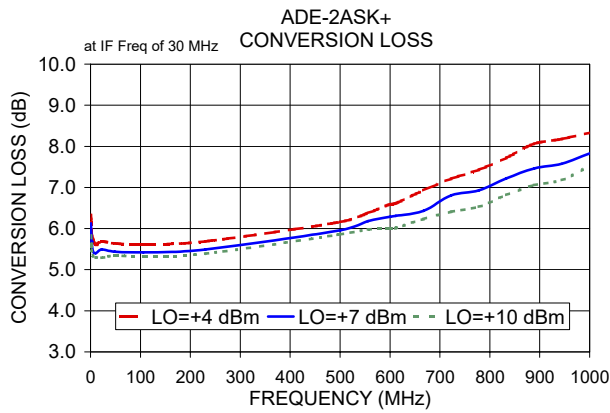
L = low range [ $f_L$  to  $10 f_L$ ] M = mid range [ $10 f_L$  to  $f_U/2$ ] U = upper range [ $f_U/2$  to  $f_U$ ]  
m = mid band [ $2f_L$  to  $f_U/2$ ]

### Typical Performance Data

| Frequency (MHz) | Conversion Loss (dB) | Isolation L-R (dB) | Isolation L-I (dB) | VSWR RF Port (:1) | VSWR LO Port (:1) |
|-----------------|----------------------|--------------------|--------------------|-------------------|-------------------|
|                 |                      |                    |                    |                   |                   |
| 1.00            | 31.00                | 6.13               | 67.70              | 1.38              | 2.58              |
| 2.00            | 32.00                | 5.68               | 67.90              | 1.22              | 2.55              |
| 2.18            | 32.18                | 5.68               | 67.90              | 1.21              | 2.52              |
| 4.73            | 34.73                | 5.45               | 66.90              | 1.12              | 2.55              |
| 10.29           | 40.29                | 5.40               | 66.00              | 1.09              | 2.52              |
| 22.37           | 52.37                | 5.49               | 63.30              | 1.07              | 2.52              |
| 48.66           | 78.66                | 5.44               | 59.70              | 1.04              | 2.52              |
| 105.82          | 135.82               | 5.42               | 54.50              | 1.00              | 2.52              |
| 230.13          | 260.13               | 5.49               | 48.90              | 1.05              | 2.61              |
| 500.50          | 530.50               | 5.96               | 46.80              | 1.25              | 2.88              |
| 556.00          | 586.00               | 6.18               | 47.40              | 1.20              | 2.92              |
| 600.00          | 630.00               | 6.29               | 45.90              | 1.21              | 2.96              |
| 611.50          | 641.50               | 6.31               | 45.10              | 1.21              | 2.88              |
| 667.00          | 697.00               | 6.43               | 42.60              | 1.26              | 3.21              |
| 722.50          | 752.50               | 6.81               | 41.00              | 1.38              | 3.01              |
| 778.00          | 808.00               | 6.93               | 38.60              | 1.58              | 3.21              |
| 833.50          | 863.50               | 7.22               | 36.80              | 1.78              | 3.38              |
| 889.00          | 919.00               | 7.46               | 35.20              | 1.99              | 3.16              |
| 944.50          | 974.50               | 7.58               | 33.10              | 2.25              | 3.64              |
| 1000.00         | 1030.00              | 7.83               | 30.70              | 2.49              | 3.64              |

### Electrical Schematic





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