

# High IP3 Frequency Mixer

## ADE-10H+

### Level 17 (LO Power +17 dBm) 400 to 1000 MHz

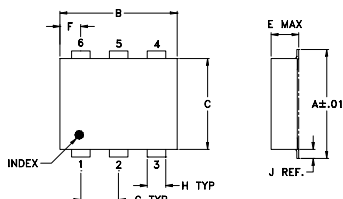
#### Maximum Ratings

|                                                                 |                |
|-----------------------------------------------------------------|----------------|
| Operating Temperature                                           | -40°C to 85°C  |
| Storage Temperature                                             | -55°C to 100°C |
| RF Power                                                        | 200mW          |
| IF Current                                                      | 40mA           |
| Permanent damage may occur if any of these limits are exceeded. |                |

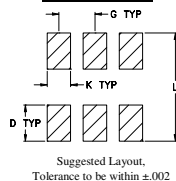
#### Pin Connections

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

#### Outline Drawing



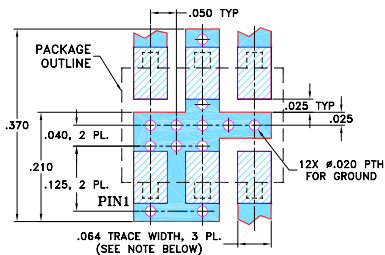
#### PCB Land Pattern



#### 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-02 Suggested PCB Layout (PL-051)



- 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.
3. DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
4. 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, 7.0 dB typ.
- good L-R isolation, 39 dB typ.
- high IP3, 30 dBm typ.
- excellent solderability
- aqueous washable
- protected by U.S. Patent 6,133,525

#### Applications

- cellular
- UHF



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        |

#### Electrical Specifications

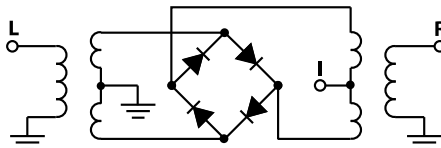
| FREQUENCY (MHz) |        | CONVERSION LOSS (dB) |          |      | LO-RF ISOLATION (dB) |      | LO-IF ISOLATION (dB) |      | IP3 at center band (dBm) |
|-----------------|--------|----------------------|----------|------|----------------------|------|----------------------|------|--------------------------|
| LO/RF           | IF     | $\bar{X}$            | $\sigma$ | Max. | Typ.                 | Min. | Typ.                 | Min. |                          |
| 400-1000        | DC-500 | 7.0                  | 0.10     | 8.5  | 39                   | 29   | 25                   | 17   | 30                       |

1 dB COMP.: +14 dBm typ.

#### 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         |
| 400.00          | 430.00  | 6.43                 | 39.60              | 29.90              | 2.25              | 2.68              |
| 442.86          | 472.86  | 6.26                 | 39.50              | 28.80              | 2.68              | 2.25              |
| 485.71          | 515.71  | 6.23                 | 38.80              | 28.70              | 2.32              | 2.01              |
| 500.00          | 530.00  | 6.33                 | 39.00              | 28.70              | 2.01              | 2.32              |
| 528.57          | 558.57  | 6.44                 | 38.90              | 28.20              | 2.37              | 2.35              |
| 571.43          | 601.43  | 6.60                 | 37.50              | 26.60              | 2.35              | 2.37              |
| 600.00          | 630.00  | 6.77                 | 37.30              | 26.10              | 2.08              | 2.35              |
| 614.29          | 644.29  | 6.66                 | 37.30              | 25.80              | 2.35              | 2.08              |
| 657.14          | 687.14  | 6.62                 | 36.70              | 25.20              | 1.80              | 2.37              |
| 700.00          | 730.00  | 6.81                 | 38.00              | 25.50              | 2.37              | 1.80              |
| 742.86          | 772.86  | 6.52                 | 37.70              | 25.00              | 2.27              | 2.55              |
| 750.00          | 780.00  | 6.59                 | 37.90              | 25.10              | 2.55              | 2.27              |
| 785.71          | 815.71  | 6.45                 | 37.70              | 25.70              | 1.87              | 2.65              |
| 800.00          | 830.00  | 6.52                 | 37.70              | 25.80              | 2.65              | 1.87              |
| 828.57          | 858.57  | 6.47                 | 36.70              | 25.50              | 2.65              | 1.78              |
| 871.43          | 901.43  | 6.91                 | 36.70              | 25.20              | 1.78              | 2.65              |
| 900.00          | 930.00  | 7.26                 | 35.60              | 24.30              | 2.55              | 2.27              |
| 914.29          | 944.29  | 7.17                 | 35.50              | 24.10              | 2.27              | 2.55              |
| 957.14          | 987.14  | 7.74                 | 35.20              | 23.50              | 2.65              | 1.82              |
| 1000.00         | 1030.00 | 7.66                 | 34.20              | 22.90              | 1.82              | 2.65              |

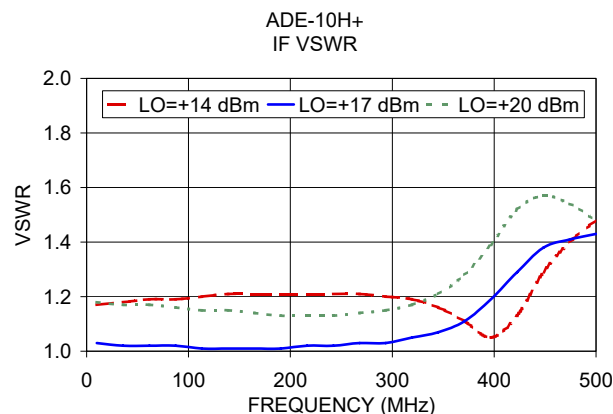
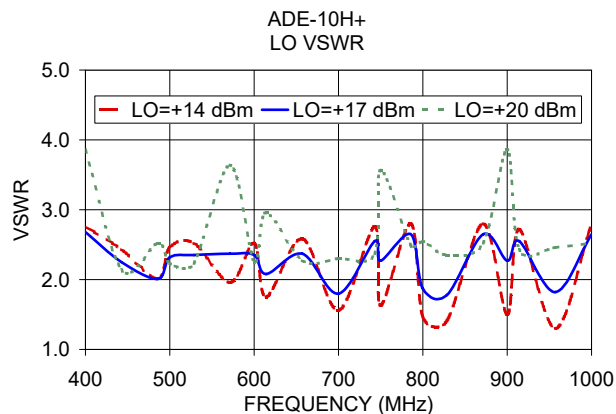
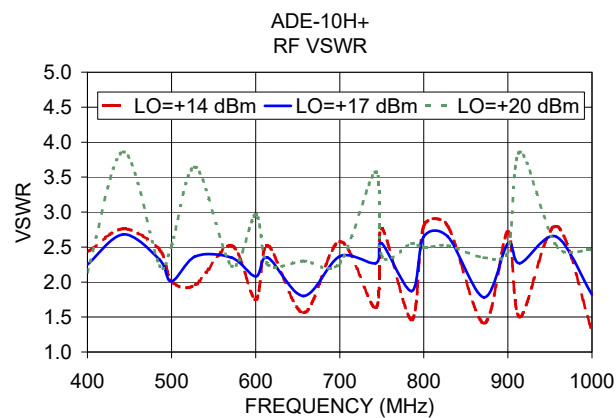
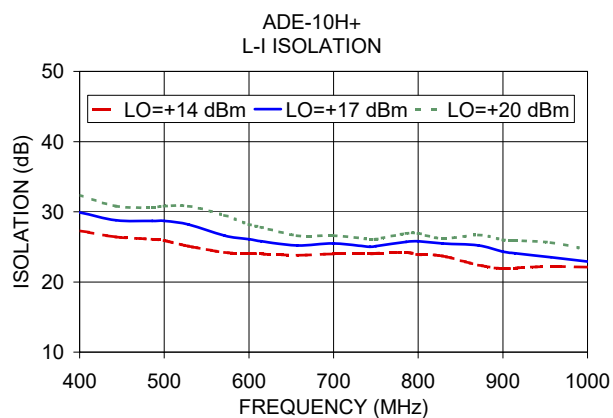
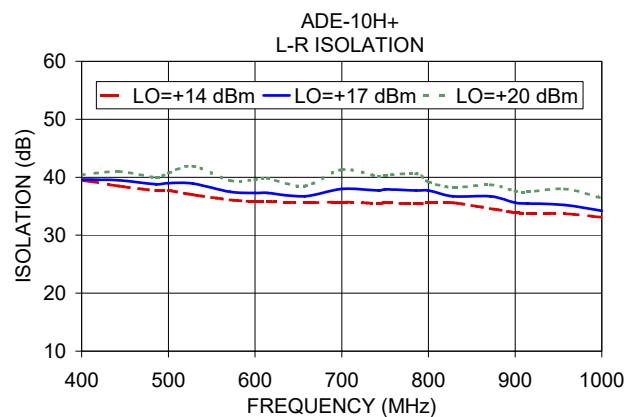
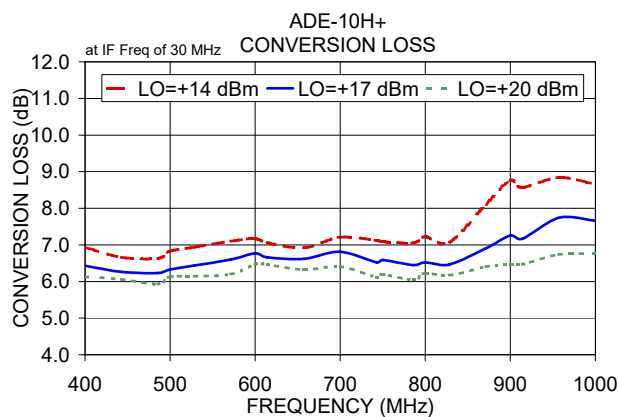
#### Electrical Schematic



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