

Surface Mount Frequency Mixer

Level 7 (LO Power +7 dBm) 10 to 1000 MHz

ADEX-10+



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, 500 |
| 13" | 500,1000 |

Maximum Ratings

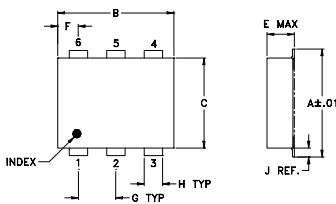
| | |
|-----------------------|----------------|
| Operating Temperature | -40°C to 85°C |
| Storage Temperature | -55°C to 100°C |
| RF Power | 50mW |
| IF Current | 40mA |

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

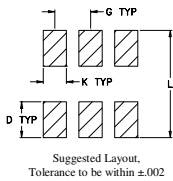
Pin Connections

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

Outline Drawing



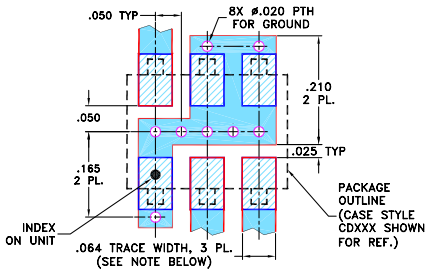
PCB Land Pattern



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 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

- excellent L-R isolation, 60 dB typ.
- flat conversion loss, ±0.2dB typ over entire band
- low conversion loss, 6.8 dB typ.
- good VSWR, 2:1 typ. for LO, 1.4:1 typ. for RF, 1.8:1 typ. for IF
- good performance to 1500 MHz
- aqueous washable
- protected by U.S. Patents 6,133,525 and 6,947,717

Applications

- cellular
- PCN

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 f_L - f_U | Mid-Band m \bar{X} σ Max. Total Range Max. | Typ. | Min. | Typ. | Min. | Typ. | Min. | Typ. | | | | | | | | | | |
| 10-1000 | DC-800 | 6.8 | 0.10 | 7.8 [†] | 8.3 [†] | 80 | 55 | 60 | 40 | 47 | 37 | 40 | 26 | 33 | 20 | 24 | 13 | 16 |

1 dB COMP: +1 dBm typ.

[†]Conversion loss increases 0.5 dB when IF is above 150 MHz

L = low range [f_L to $10 f_L$]

m = mid band [$2 f_L$ to $f_U/2$]

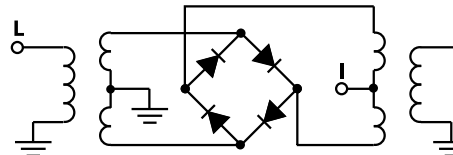
M = mid range [$10 f_L$ to $f_U/2$]

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 +7dBm | LO +7dBm | LO +7dBm | LO +7dBm | LO +7dBm |
| 10.00 | 40.00 | 6.86 | 80.91 | 62.86 | 1.43 | 1.59 |
| 25.00 | 55.00 | 6.73 | 80.18 | 55.33 | 1.43 | 1.62 |
| 40.00 | 70.00 | 6.78 | 78.88 | 51.04 | 1.41 | 1.56 |
| 55.00 | 85.00 | 6.77 | 77.53 | 47.55 | 1.40 | 1.55 |
| 70.00 | 100.00 | 6.72 | 77.00 | 45.78 | 1.41 | 1.61 |
| 85.00 | 115.00 | 6.74 | 75.52 | 44.15 | 1.40 | 1.62 |
| 100.00 | 130.00 | 6.76 | 75.63 | 42.50 | 1.39 | 1.61 |
| 200.00 | 230.00 | 6.72 | 76.11 | 36.93 | 1.36 | 1.61 |
| 300.00 | 330.00 | 6.69 | 77.57 | 34.10 | 1.35 | 1.64 |
| 400.00 | 430.00 | 6.64 | 62.74 | 33.06 | 1.35 | 1.66 |
| 500.00 | 530.00 | 6.65 | 56.43 | 32.02 | 1.35 | 1.72 |
| 600.00 | 630.00 | 6.71 | 53.73 | 30.71 | 1.34 | 1.77 |
| 700.00 | 730.00 | 6.89 | 50.35 | 29.89 | 1.36 | 1.91 |
| 800.00 | 830.00 | 6.68 | 47.01 | 28.37 | 1.34 | 1.83 |
| 900.00 | 930.00 | 6.59 | 48.15 | 26.00 | 1.23 | 2.02 |
| 1000.00 | 1030.00 | 6.66 | 52.10 | 23.48 | 1.11 | 2.09 |

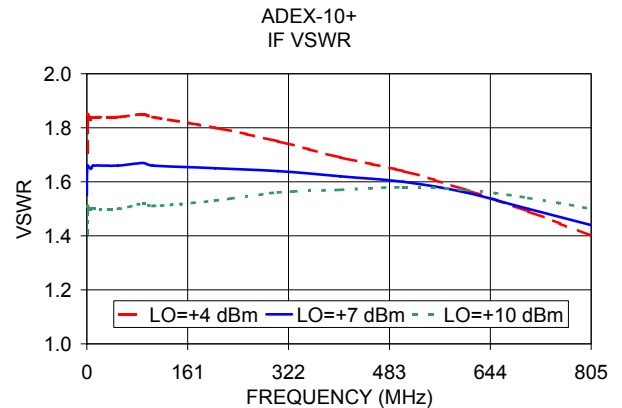
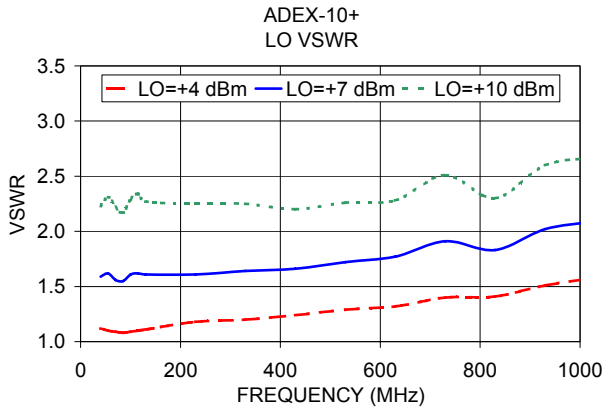
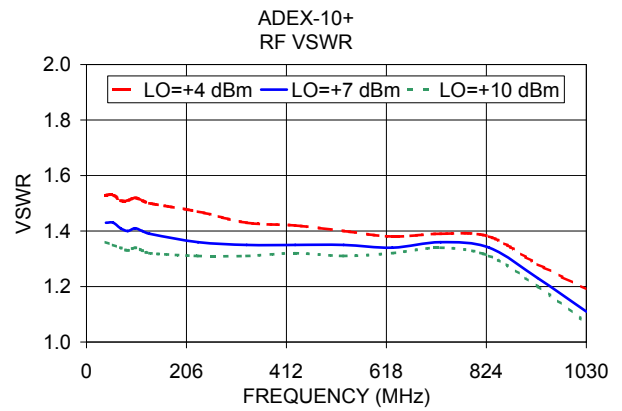
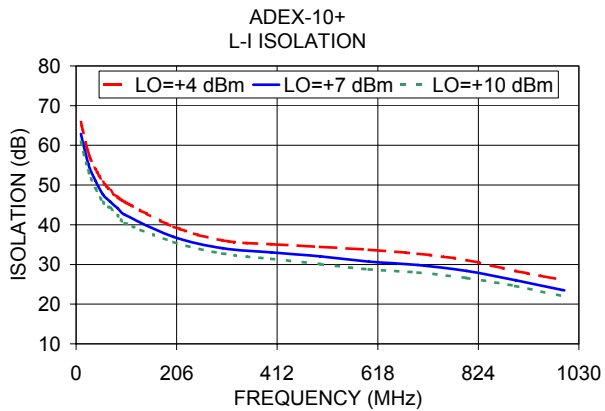
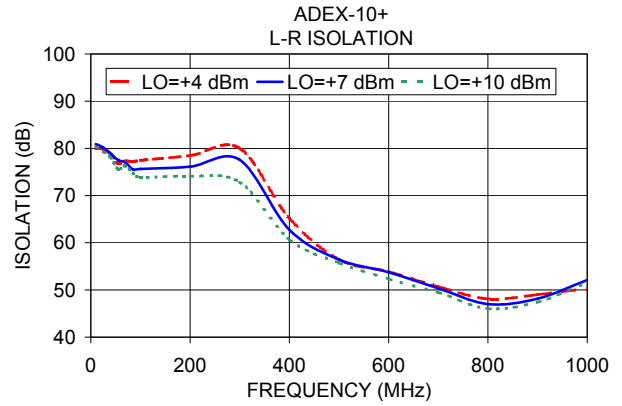
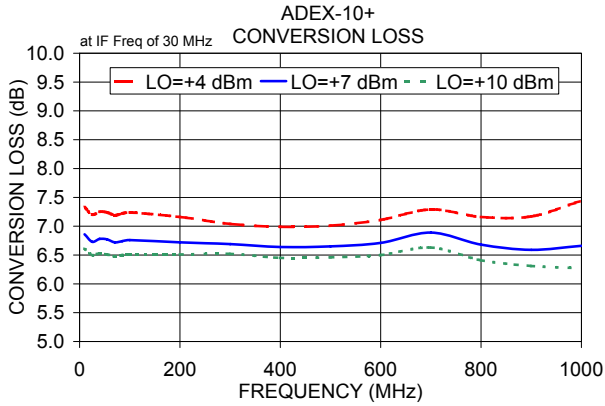
Electrical Schematic



Mini-Circuits

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M158496
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