

# Frequency Mixer

Level 17 (LO Power +17 dBm) 0.5 to 500 MHz

## Maximum Ratings

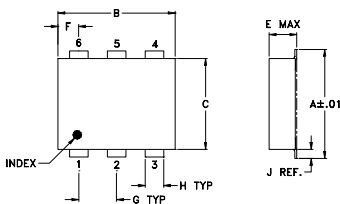
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	200mW
IF Current	40mA

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

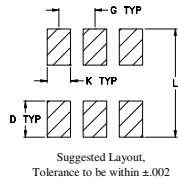
## Pin Connections

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

## Outline Drawing



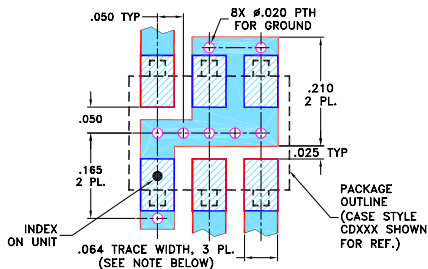
### PCB Land Pattern



## Outline Dimensions (inch/mm)

A	B	C	D	E	F	G
.272	.310	.220	.100	.162	.055	.100
6.91	7.87	5.59	2.54	4.11	1.40	2.54
H	J	K	L	wt		
.030	.026	.065	.300	grams		
0.76	0.66	1.65	7.62	0.25		

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



- NOTES:
- 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.
  - 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

- 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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- The parts covered by this specification document are subject to Mini-Circuit's standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuit's website at [www.minicircuits.com/MCLStore/terms.jsp](http://www.minicircuits.com/MCLStore/terms.jsp)

## Features

- low conversion loss, 5.3 dB typ.
- excellent L-R isolation, 52 dB typ.
- excellent IP3, 23 dBm typ.
- aqueous washable
- protected by U.S. Patent 6,133,525

## Applications

- VHF/UHF receivers

## ADE-1H



CASE STYLE: CD636

Available Tape and Reel at no extra cost

Reel Size	Devices/Reel
7"	20, 50, 100, 200, 500
13"	500, 1000

## 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							
0.5-500	DC-500	65	50	52	35	40	26	53	40	42	25	32	20	23

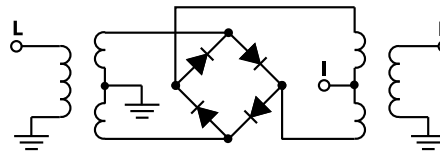
1 dB COMP.: +14 dBm typ.

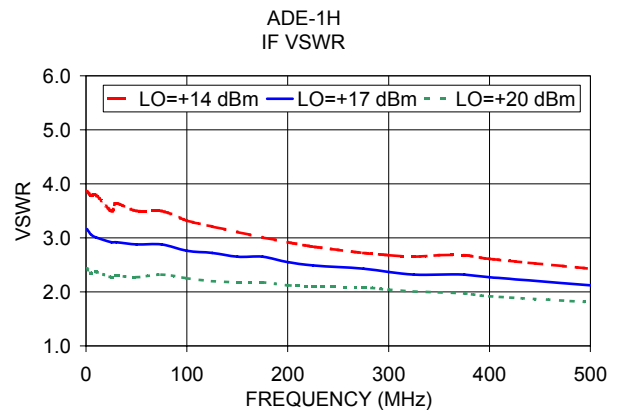
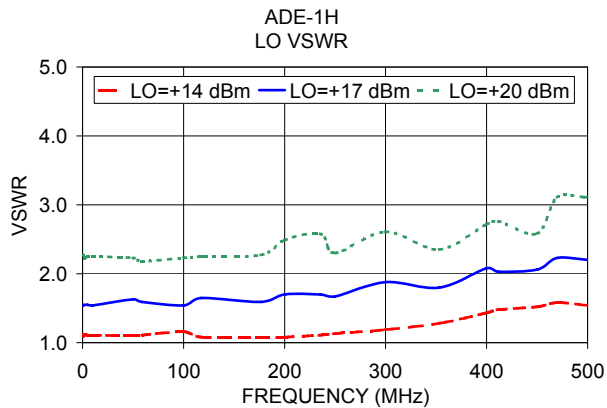
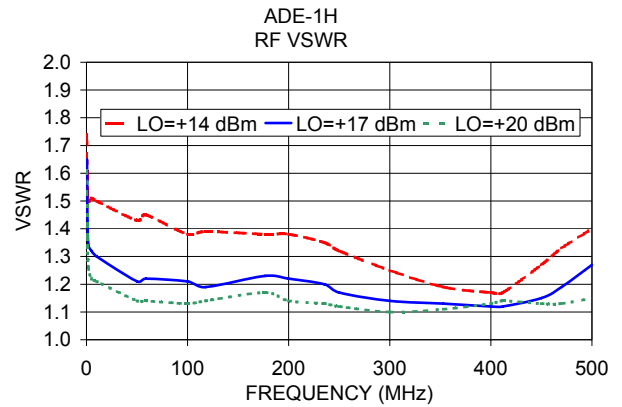
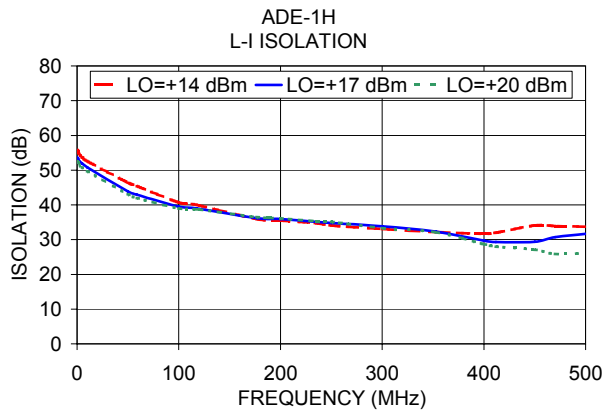
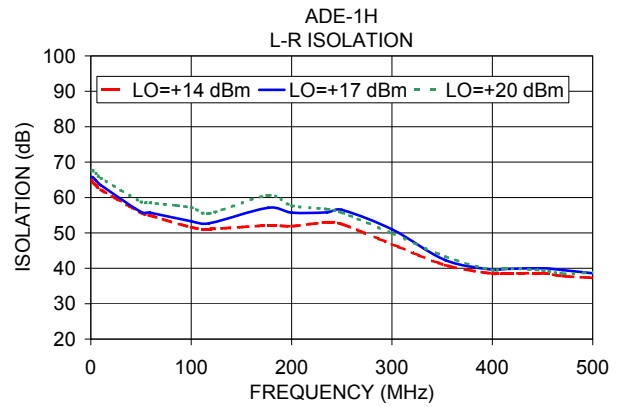
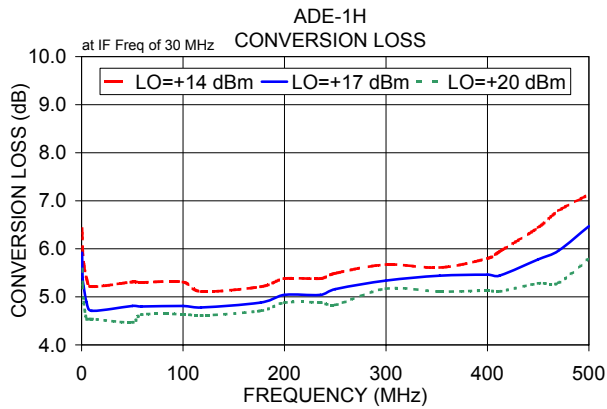
L = low range [ $f_1$  to  $10 f_1$ ]  
M = mid range [ $10 f_1$  to  $f_1/2$ ]  
U = upper range [ $f_1/2$  to  $f_1$ ]

## 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
0.50	30.50	5.92	65.80	53.70	1.65	1.54
1.00	31.00	5.41	65.80	53.40	1.43	1.54
2.00	32.00	5.22	65.70	52.70	1.34	1.55
5.00	35.00	4.88	64.90	51.90	1.32	1.55
10.00	40.00	4.71	63.50	50.80	1.30	1.54
50.00	80.00	4.81	55.90	43.90	1.21	1.63
58.92	88.92	4.80	55.70	42.90	1.22	1.59
100.00	130.00	4.81	53.30	39.50	1.21	1.54
117.74	147.74	4.78	52.70	39.00	1.19	1.65
176.55	206.55	4.88	57.10	36.20	1.23	1.59
200.00	230.00	5.04	55.70	35.90	1.22	1.70
235.37	265.37	5.04	55.80	35.10	1.20	1.70
250.00	280.00	5.16	56.50	34.80	1.17	1.67
300.00	330.00	5.34	51.00	33.80	1.14	1.88
353.01	383.01	5.44	42.30	32.30	1.13	1.80
400.00	430.00	5.46	39.60	29.70	1.12	2.08
411.82	441.82	5.44	39.80	29.30	1.12	2.03
450.00	480.00	5.78	40.00	29.40	1.15	2.06
470.00	500.00	5.96	39.50	30.70	1.19	2.23
500.00	530.00	6.47	38.60	31.70	1.27	2.20

## Electrical Schematic





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