

# Surface Mount Frequency Mixer

## ADE-1LH+

Level 10 (LO Power +10 dBm) 0.5 to 500 MHz



Generic photo used for illustration purposes only

CASE STYLE: CD636

**+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

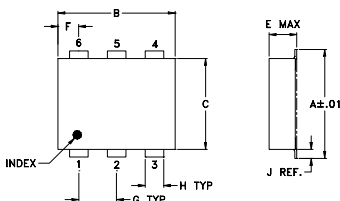
### Features

- low conversion loss, 5.0 dB typ.
- excellent L-R isolation, 55 dB typ. and L-I isolation, 45 dB typ.
- good IP3, 15 dBm typ.
- aqueous washable
- protected by US Patent 6,133,525

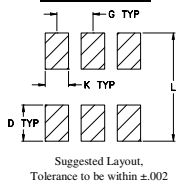
### Applications

- VHF/UHF receivers

### Outline Drawing



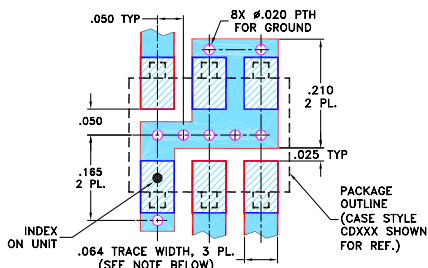
### PCB Land Pattern



### 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: 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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### 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	Mid-Band													
IF	$m$													
$f_L$ - $f_U$	$\bar{X}$ $\sigma$ Max. Total Range Max.	Typ. Min.	Typ. Min.	Typ. Min.	Typ. Min.	Typ. Min.	Typ. Min.	Typ.						
0.5-500	DC-500	65	50	55	35	47	26	52	40	45	22	34	20	15

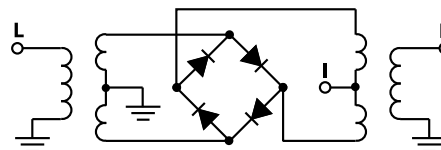
1 dB COMP.: +5 dBm typ.

L = low range [ $f_L$  to  $10 f_L$ ]  
M = mid band [ $2 f_L$  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 +10dBm	LO +10dBm	LO +10dBm	LO +10dBm	LO +10dBm
0.50	30.50	5.87	67.00	52.50	1.54	2.56
0.80	30.80	5.68	66.83	52.17	1.37	2.56
1.00	31.00	5.70	67.01	52.00	1.33	2.61
5.00	35.00	5.21	65.67	50.33	1.23	2.61
10.00	40.00	5.08	64.17	50.17	1.22	2.67
50.00	80.00	5.30	59.16	43.84	1.15	2.56
71.52	101.52	5.27	57.66	42.17	1.13	2.61
100.00	130.00	5.31	56.51	40.51	1.12	2.62
142.94	172.94	5.47	55.83	38.33	1.16	2.67
150.00	180.00	5.48	55.34	38.00	1.16	2.61
200.00	230.00	5.49	52.67	37.50	1.14	2.73
214.36	244.36	5.48	52.01	37.34	1.13	2.73
250.00	280.00	5.54	51.34	36.67	1.08	2.56
285.79	315.79	5.76	46.84	34.51	1.09	2.67
300.00	330.00	5.85	45.83	33.67	1.09	2.67
350.00	380.00	5.67	48.00	30.67	1.14	2.56
400.00	430.00	5.74	47.01	27.33	1.16	2.86
428.63	458.63	6.00	46.66	27.00	1.12	2.80
470.00	500.00	6.30	48.34	27.67	1.06	3.01
500.00	530.00	6.61	44.33	27.33	1.10	2.93

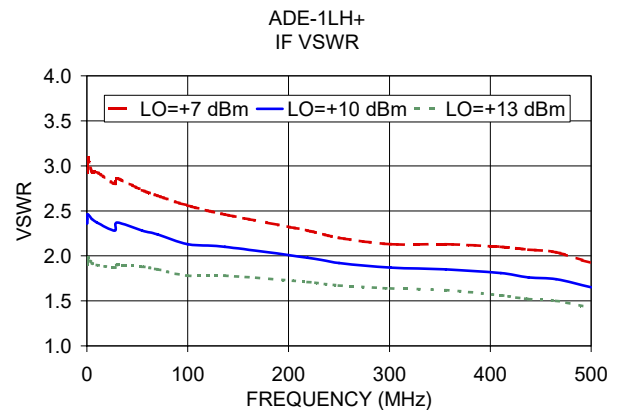
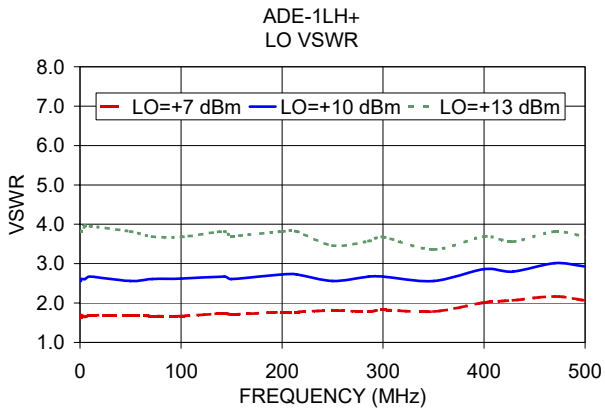
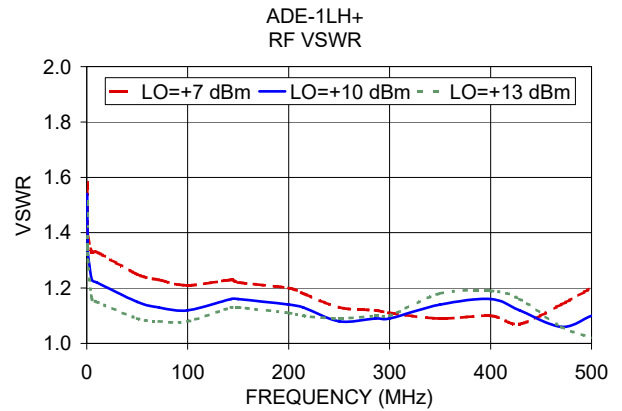
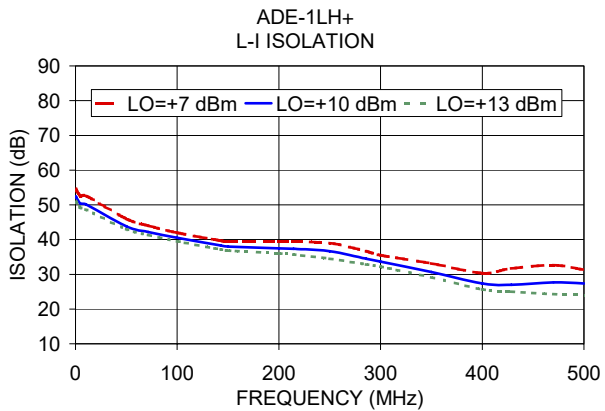
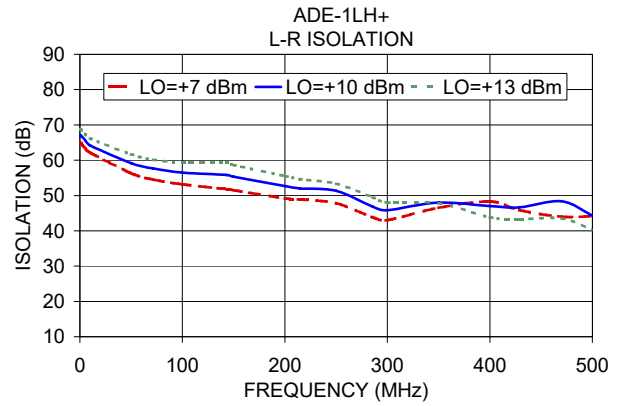
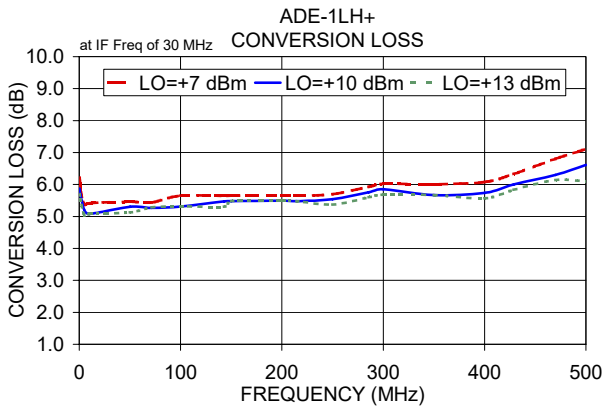
### Electrical Schematic



**Mini-Circuits**

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