

# Surface Mount Frequency Mixer

## ADE-1L+

### Level 3 (LO Power +3 dBm) 2 to 500 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

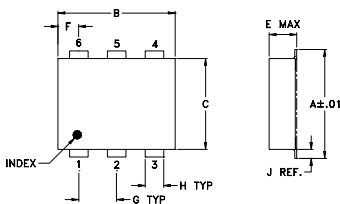
#### Maximum Ratings

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.	

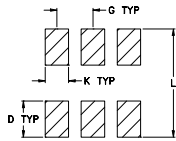
#### Pin Connections

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

#### Outline Drawing



#### PCB Land Pattern

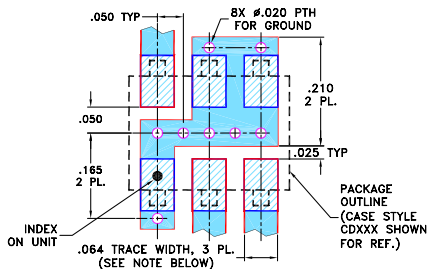


Suggested Layout,  
Tolerance to be within ±.002

#### 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:**
- 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.
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#### Features

- low conversion loss, 5.2 dB typ.
- excellent L-R isolation, 55 dB typ.
- low profile package
- aqueous washable
- protected by US patent 6,133,525

#### Applications

- cellular
- instrumentation

#### 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 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.										
2-500	DC-500	5.2	0.10	7.2	8.0	68	50	55	30	44	30	55	40	45	30	35	25	16

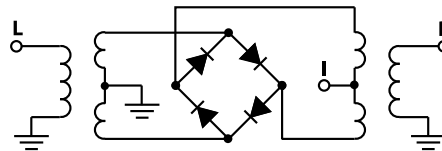
1 dB COMP.: 0 dBm typ.

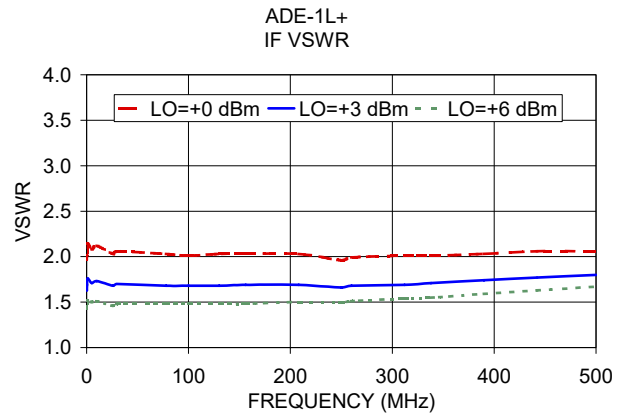
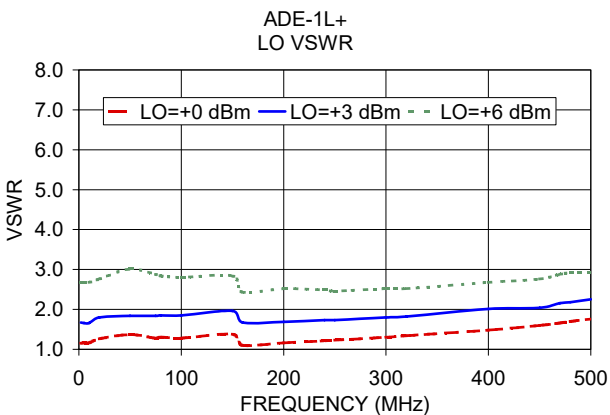
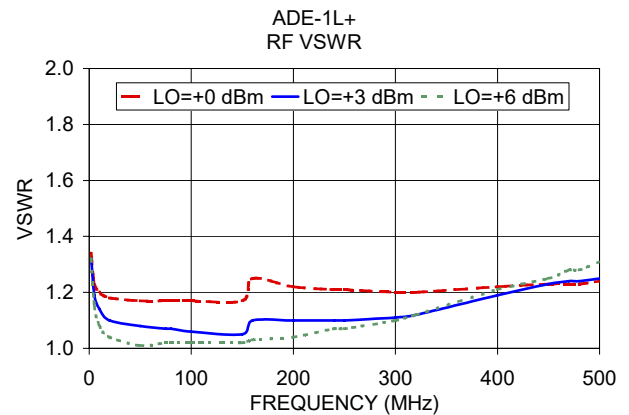
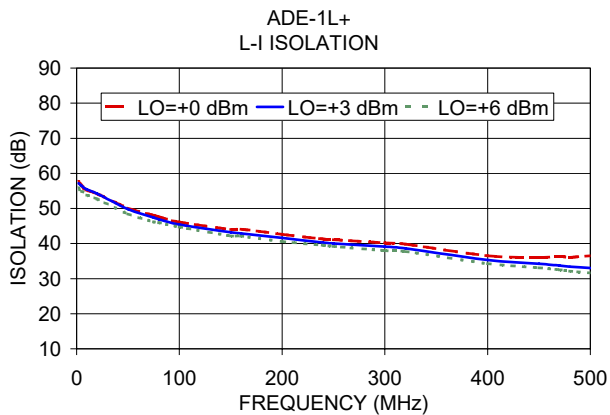
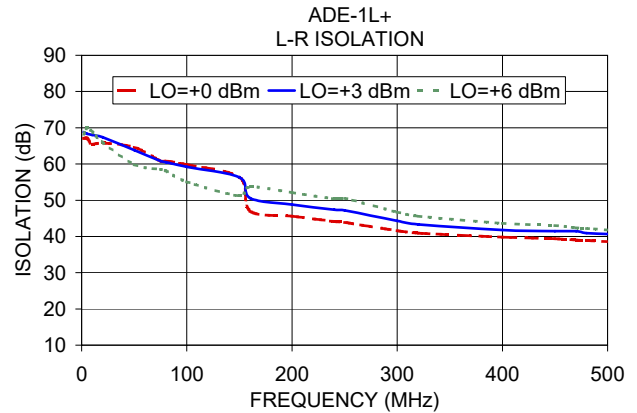
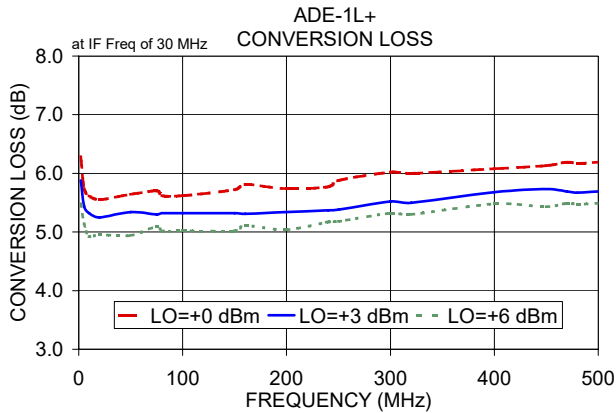
L = low range [ $f_L$  to  $10 f_L$ ] M = mid range [ $10 f_L$  to  $f_U/2$ ] U = upper range [ $f_U/2$  to  $f_U$ ]  
m = mid band [ $2f_L$  to  $f_U/2$ ]

#### Typical Performance Data

Frequency (MHz)		Conversion Loss (dB)	Isolation L-R (dB)	Isolation L-I (dB)	VSWR RF Port (:1)	VSWR LO Port (:1)
RF	LO	LO +3dBm	LO +3dBm	LO +3dBm	LO +3dBm	LO +3dBm
2.00	32.00	5.88	68.80	57.20	1.32	1.67
5.00	35.00	5.44	68.30	56.40	1.19	1.66
10.00	40.00	5.32	68.00	55.40	1.14	1.66
20.00	50.00	5.25	67.40	54.20	1.10	1.80
50.00	80.00	5.34	63.80	49.80	1.08	1.84
75.00	105.00	5.30	60.80	47.40	1.07	1.84
80.09	110.09	5.32	60.50	46.90	1.07	1.85
100.00	130.00	5.32	59.20	45.40	1.06	1.85
150.00	180.00	5.32	56.30	43.20	1.05	1.96
160.09	190.09	5.31	50.60	42.90	1.10	1.67
200.00	230.00	5.34	48.80	41.60	1.10	1.69
240.08	270.08	5.37	47.40	40.30	1.10	1.73
250.00	280.00	5.38	47.20	40.00	1.10	1.73
300.00	330.00	5.52	44.30	39.10	1.11	1.80
320.07	350.07	5.50	43.30	38.60	1.12	1.82
400.00	430.00	5.68	41.80	35.30	1.19	2.01
450.00	480.00	5.73	41.50	34.20	1.23	2.04
470.00	500.00	5.69	41.50	33.70	1.24	2.16
480.00	510.06	5.67	40.90	33.40	1.24	2.18
500.00	530.00	5.69	40.70	33.00	1.25	2.25

#### Electrical Schematic





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