

# Surface Mount Frequency Mixer

## ADE-1MH+ ADE-1MH

Level 13 (LO Power +13 dBm) 2 to 500 MHz



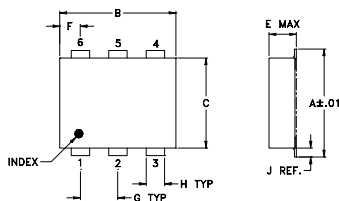
### Maximum Ratings

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.	

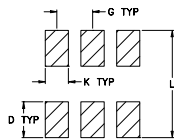
### Pin Connections

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

### Outline Drawing



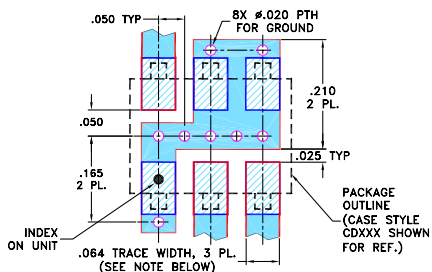
#### PCB Land Pattern



### Outline Dimensions (inch/mm)

A	B	C	D	E	F	G
.272	.310	.220	.100	.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

### Features

- good L-R isolation, 50 dB typ.  
L-I isolation, 45 dB typ.
- low profile package
- aqueous washable
- protected by U.S. Patent 6,133,525

### Applications

- cellular
- VHF/UHF receivers

CASE STYLE: CD542

PRICE: \$5.95 ea. QTY (10-49)

**+ RoHS compliant in accordance with EU Directive (2002/95/EC)**

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications.

### 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							
2-500	DC-500	60	45	50	35	48	25	55	40	45	30	40	22	17

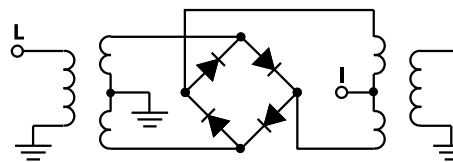
1 dB COMP.: +9 dBm typ.

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 +13dBm	LO +13dBm	LO +13dBm	LO +13dBm	LO +13dBm
2.00	32.00	6.40	61.50	52.50	1.48	2.37
5.00	35.00	5.96	60.83	51.00	1.24	2.37
10.00	40.00	5.71	60.00	51.00	1.15	2.46
20.00	50.00	5.63	58.00	49.67	1.10	2.51
35.10	65.10	5.49	55.50	48.00	1.08	2.46
50.00	80.00	5.62	53.83	46.17	1.07	2.41
70.09	100.09	5.57	53.01	44.50	1.06	2.46
105.09	135.09	5.52	50.16	40.67	1.05	2.36
140.08	170.08	5.48	48.66	41.00	1.05	2.41
175.08	205.08	5.74	50.67	40.00	1.09	2.36
210.07	240.07	5.82	48.84	39.50	1.11	2.46
245.07	275.07	5.78	47.00	38.17	1.12	2.51
250.00	280.00	5.79	46.83	38.17	1.12	2.46
280.06	310.06	5.71	47.00	37.17	1.12	2.51
350.05	380.05	5.82	43.50	35.17	1.14	2.51
385.05	415.05	5.92	41.17	33.00	1.19	2.61
420.04	450.04	5.88	39.83	30.67	1.24	2.67
470.00	500.00	5.72	38.50	30.67	1.27	2.67
490.03	520.03	5.86	38.00	30.34	1.26	2.79
500.00	530.00	5.67	37.33	30.33	1.26	2.67

### Electrical Schematic



**Mini-Circuits**  
ISO 9001 ISO 14001 AS 9100 CERTIFIED  
The Design Engineers Search Engine Provides ACTUAL Data Instantly at [minicircuits.com](http://minicircuits.com)  
IF/RF MICROWAVE COMPONENTS

For detailed performance specs & shopping online see web site

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Notes: 1. Performance and quality attributes and conditions not expressly stated in this specification sheet are intended to be excluded and do not form a part of this specification sheet. 2. Electrical specifications and performance data contained herein are based on Mini-Circuit's applicable established test performance criteria and measurement instructions. 3. The parts covered by this specification sheet are subject to Mini-Circuits 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-Circuits' website at [www.minicircuits.com/MCLStore/terms.jsp](http://www.minicircuits.com/MCLStore/terms.jsp).

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## Performance Charts

