

# Frequency Mixer

## ADE-11X

Level 7 (LO Power +7 dBm) 10 to 2000 MHz



Generic photo used for illustration purposes only  
CASE STYLE: CD542

### Maximum Ratings

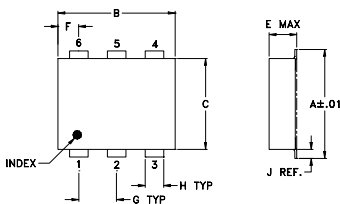
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	50mW
IF Current	40mA

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

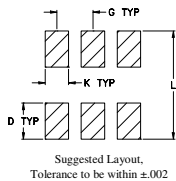
### Pin Connections

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

### Outline Drawing



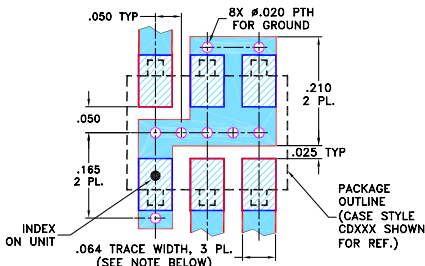
### PCB Land Pattern



### 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 R04350B 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.  
C. The parts covered by this specification document 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)

### Features

- low conversion loss, 7.1 dB typ.
- excellent L-R isolation, 36 dB typ. & L-I isolation, 37 dB typ.
- low profile package
- aqueous washable
- protected by U.S. Patent 6,133,525

### Applications

- cellular
- PCN
- VHF & UHF
- communication receivers & transmitters

### Electrical Specifications

FREQUENCY (MHz)	CONVERSION LOSS (dB)		LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)			IP3 at center band (dBm)									
	Mid-Band m	Total Range Max.	L	M	U	L	M	U										
LO/RF f <sub>L</sub> -f <sub>U</sub>	$\bar{X}$	$\sigma$	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.									
10-2000	5-1000	7.1	0.10	8.2	9.8	62	45	36	20	27	18	60	45	37	20	38	20	9

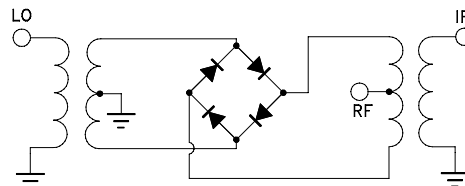
1 dB COMP.: +1 dBm typ.

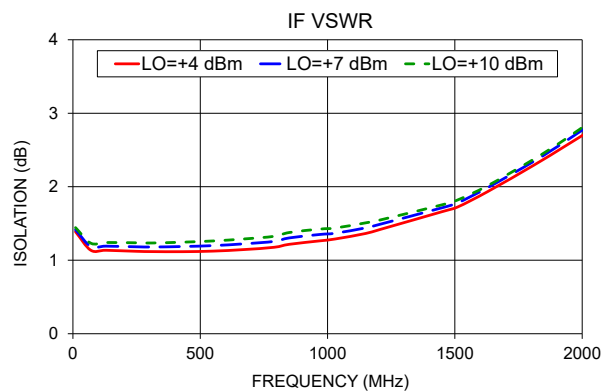
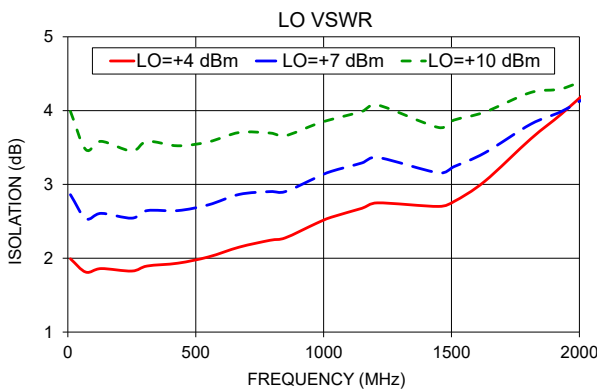
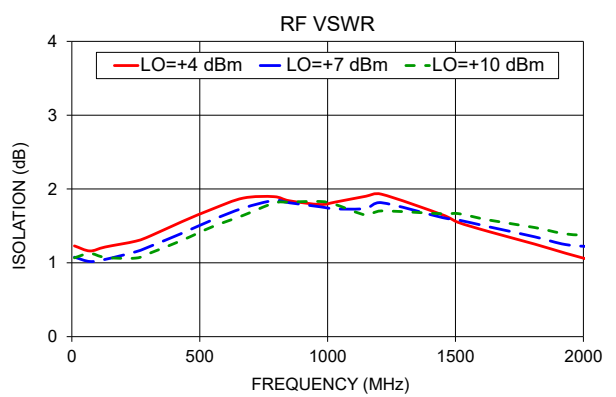
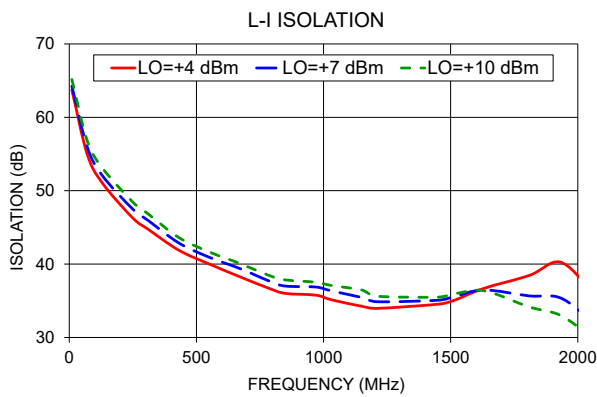
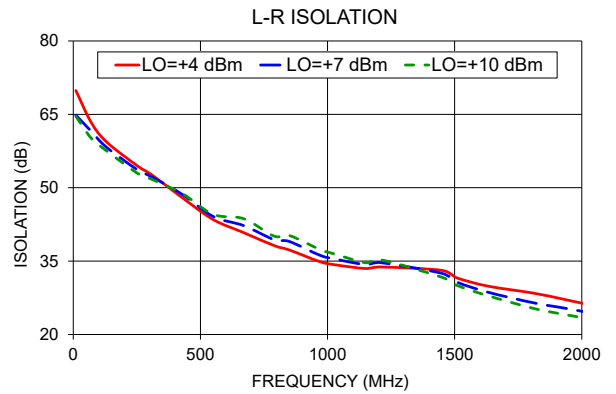
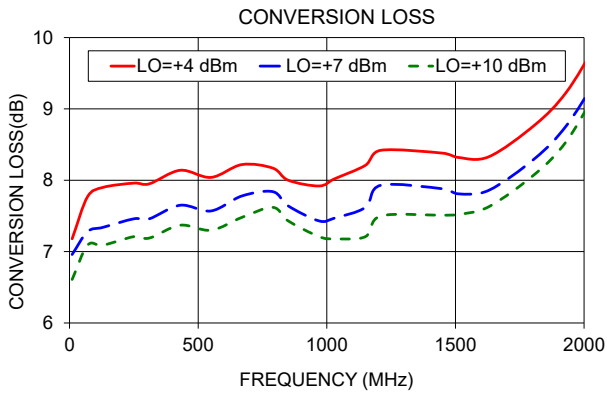
L = low range [f<sub>L</sub> to 10 f<sub>L</sub>] M = mid range [10 f<sub>L</sub> to f<sub>U</sub>/2] U = upper range [f<sub>U</sub>/2 to f<sub>U</sub>]  
m = mid band [2f<sub>L</sub> to f<sub>U</sub>/2]

### 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
10.1	40.1	6.96	64.83	64.24	1.08	2.86
70.1	100.1	7.28	61.55	55.99	1.02	2.54
130.1	160.1	7.34	58.29	52.05	1.05	2.61
250.1	280.1	7.46	53.74	47.47	1.15	2.54
310.1	340.1	7.46	52.18	45.94	1.23	2.65
430.1	460.1	7.65	48.59	42.89	1.40	2.65
550.1	580.1	7.57	44.12	40.93	1.58	2.72
670.1	700.1	7.78	42.25	39.40	1.74	2.86
790.1	820.1	7.84	39.37	37.63	1.84	2.90
850.1	880.1	7.64	39.00	37.00	1.81	2.90
970.1	1000.1	7.43	36.19	36.87	1.76	3.09
1030.1	1060.1	7.47	35.41	36.35	1.73	3.18
1150.1	1180.1	7.62	34.28	35.45	1.74	3.29
1210.1	1240.1	7.93	34.68	34.87	1.81	3.37
1450.1	1480.1	7.88	32.49	35.07	1.61	3.16
1510.1	1540.1	7.81	30.67	35.52	1.58	3.24
1630.1	1660.1	7.86	28.65	36.47	1.49	3.43
1810.1	1840.1	8.31	26.47	35.66	1.35	3.82
1930.1	1960.1	8.76	25.40	35.41	1.25	3.99
2050.1	2080.1	9.42	24.27	32.47	1.21	4.23

### Electrical Schematic





**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.
- C. The parts covered by this specification document 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)

