

# Frequency Mixer

## ADE-20+

Level 7 (LO Power +7 dBm) 1500 to 2000 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

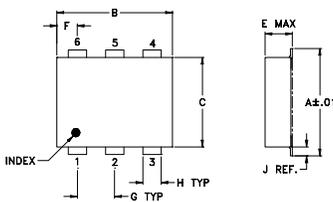
### Maximum Ratings

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.	

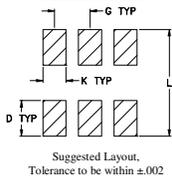
### Pin Connections

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

### Outline Drawing



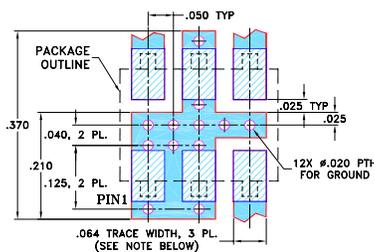
#### PCB Land Pattern



### 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-02 Suggested PCB Layout (PL-051)



- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .050" ± .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, 5.4 dB typ.
- excellent isolation, 31 dB typ.
- low profile package
- aqueous washable
- protected by U.S. Patent 6,133,525

### Applications

- digital cellular
- digital cordless phone
- PCN

### Electrical Specifications

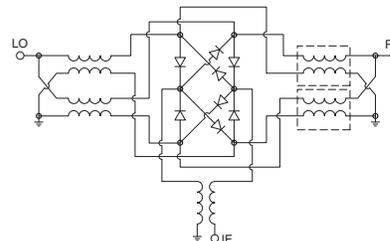
FREQUENCY (MHz)	CONVERSION LOSS (dB)		LO-RF ISOLATION (dB)		LO-IF ISOLATION (dB)		IP3 at center band (dBm)			
	LO/RF	IF	$\bar{X}$	$\sigma$ Max.	Typ.	Min.		Typ.	Min.	
1500-2000	DC-300		5.4	0.10	7.8	31	22	28	20	14

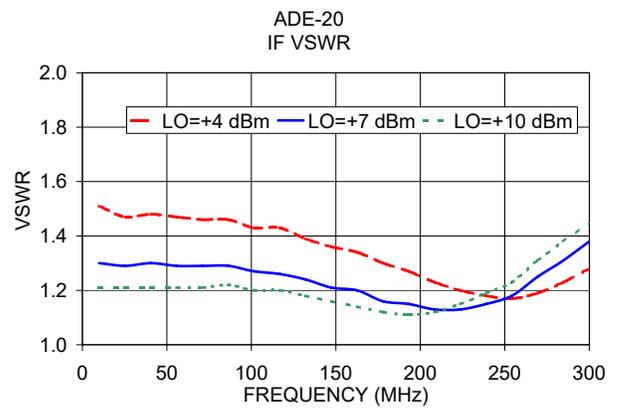
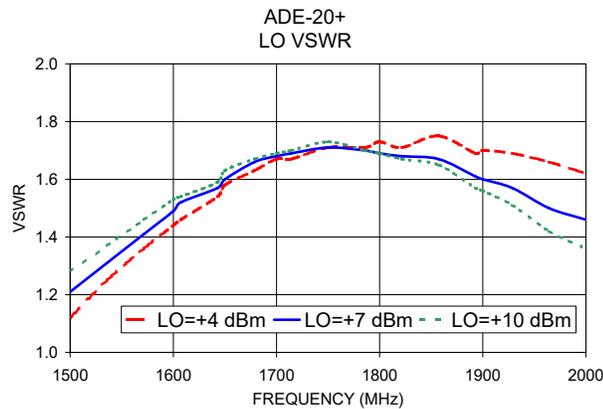
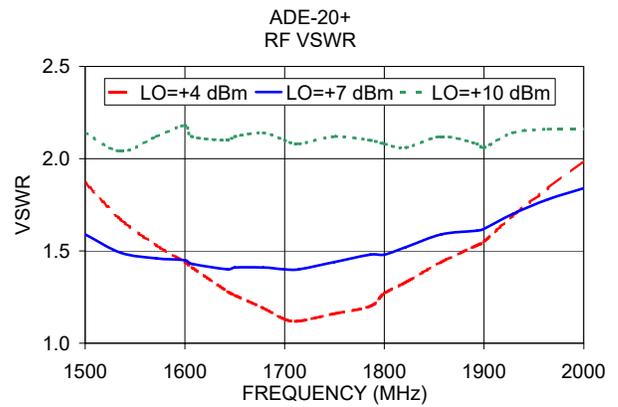
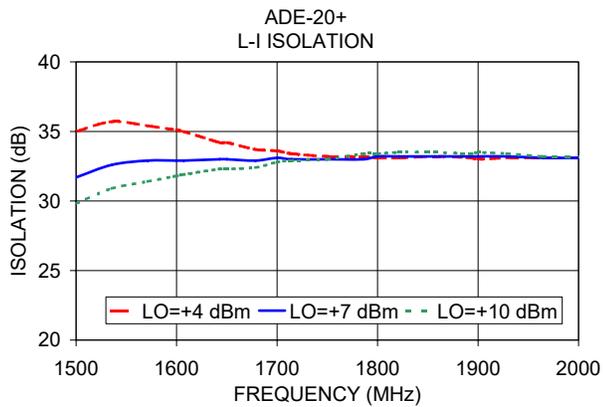
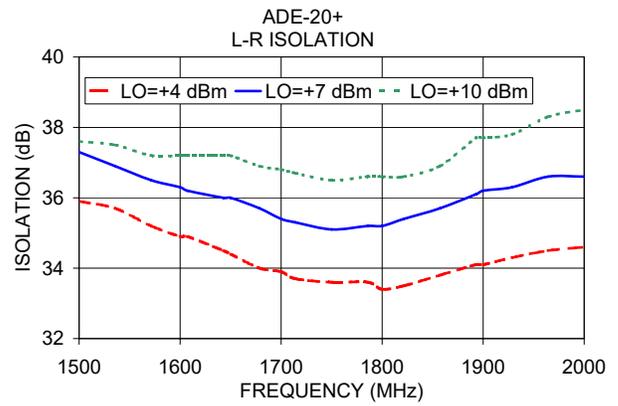
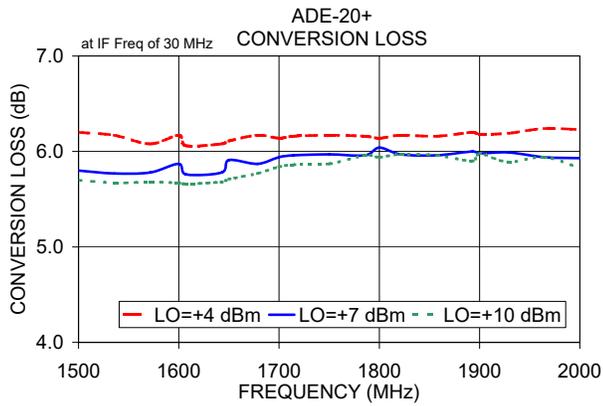
1 dB COMP.: +1 dBm typ.

### 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 +7dBm	LO +7dBm	LO +7dBm	LO +7dBm	LO +7dBm
1500.00	1530.00	5.80	37.30	31.70	1.59	1.21
1535.71	1565.71	5.77	36.90	32.60	1.49	1.31
1571.43	1601.43	5.78	36.50	32.90	1.46	1.41
1600.00	1630.00	5.87	36.30	32.90	1.45	1.49
1607.14	1637.14	5.76	36.20	32.90	1.43	1.52
1642.86	1672.86	5.78	36.00	33.00	1.40	1.57
1650.00	1680.00	5.91	36.00	33.00	1.41	1.60
1678.57	1708.57	5.87	35.70	32.90	1.41	1.66
1700.00	1730.00	5.94	35.40	33.10	1.40	1.68
1714.29	1744.29	5.96	35.30	33.00	1.40	1.69
1750.00	1780.00	5.97	35.10	33.00	1.44	1.71
1785.71	1815.71	5.96	35.20	33.00	1.48	1.70
1800.00	1830.00	6.04	35.20	33.20	1.48	1.69
1821.43	1851.43	5.97	35.40	33.20	1.52	1.68
1857.14	1887.14	5.96	35.70	33.20	1.59	1.67
1892.86	1922.86	6.00	36.10	33.20	1.61	1.61
1900.00	1930.00	5.98	36.20	33.20	1.62	1.60
1928.57	1958.57	5.99	36.30	33.20	1.70	1.57
1964.29	1994.29	5.94	36.60	33.10	1.78	1.50
2000.00	2030.00	5.93	36.60	33.10	1.84	1.46

### 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)

