

# Surface Mount Frequency Mixer

## ADE-2ASK+

### Level 7 (LO Power +7 dBm) 1 to 1000 MHz



CASE STYLE: CD542

#### Maximum Ratings

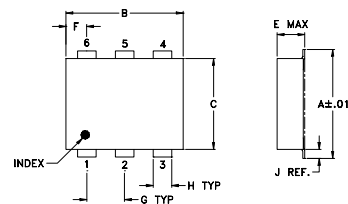
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	50mW
IF Current	40mA

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

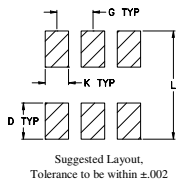
#### Pin Connections

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

#### Outline Drawing



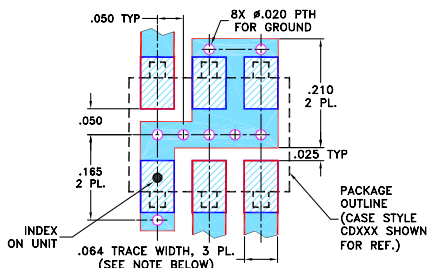
#### PCB Land Pattern



#### 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 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-Circuit's 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-Circuit's website at [www.minicircuits.com/MCLStore/terms.jsp](http://www.minicircuits.com/MCLStore/terms.jsp)

#### Features

- low conversion loss, 5.4 dB typ.
- excellent L-R isolation, 45 dB typ.
- low profile package
- aqueous washable
- protected by U.S. Patent 6,133,525

#### Applications

- VSAT systems
- instrumentation
- cellular

#### +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, 500
13"	500, 1000

#### 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	
1-1000	DC-1000	55	45	36	50	40	32	12

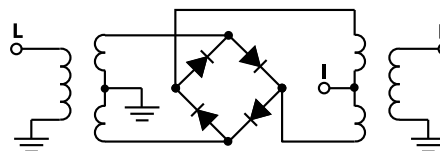
1 dB COMP.: +1 dBm typ.  
Phase detection, positive polarity

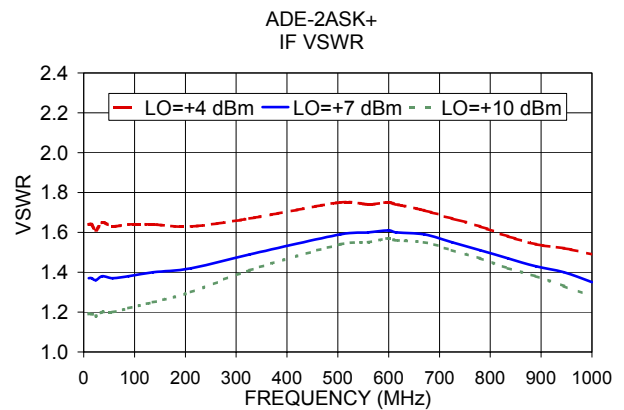
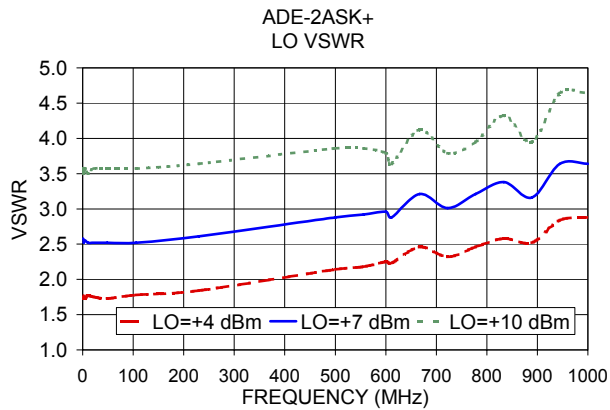
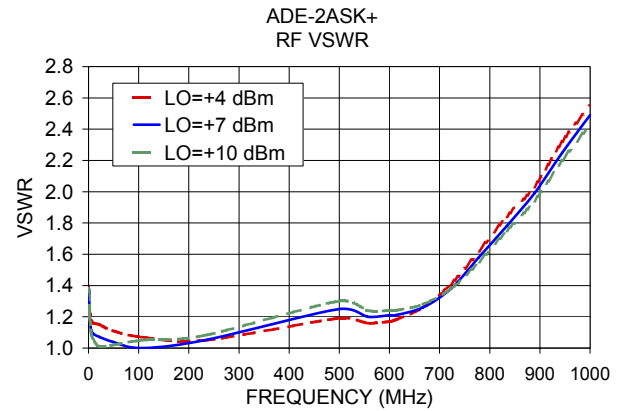
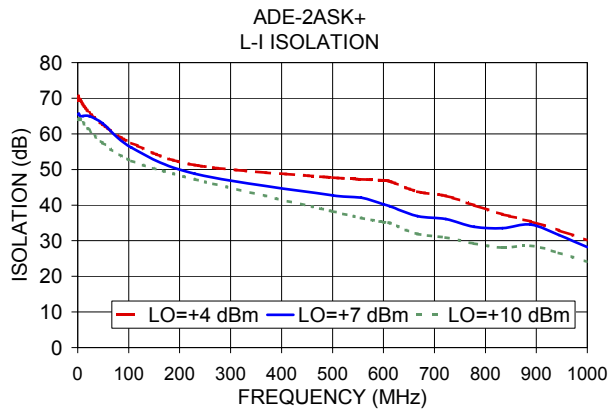
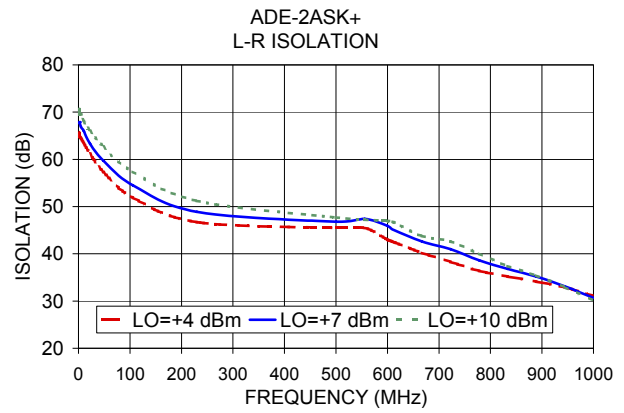
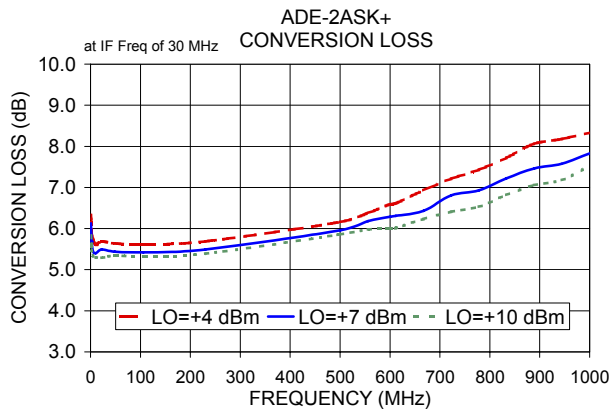
L = low range [ $f_L$  to  $10 f_L$ ] M = mid range [ $10 f_L$  to  $f_U/2$ ] U = upper range [ $f_U/2$  to  $f_U$ ]  
m = mid band [ $2f_L$  to  $f_U/2$ ]

#### Typical Performance Data

Frequency (MHz)	Conversion Loss (dB)	Isolation L-R (dB)	Isolation L-I (dB)	VSWR RF Port (:1)	VSWR LO Port (:1)
1.00	31.00	6.13	67.70	1.38	2.58
2.00	32.00	5.68	67.90	1.22	2.55
2.18	32.18	5.68	67.90	1.21	2.52
4.73	34.73	5.45	66.90	1.12	2.55
10.29	40.29	5.40	66.00	1.09	2.52
22.37	52.37	5.49	63.30	1.07	2.52
48.66	78.66	5.44	59.70	1.04	2.52
105.82	135.82	5.42	54.50	1.00	2.52
230.13	260.13	5.49	48.90	1.05	2.61
500.50	530.50	5.96	46.80	1.25	2.88
556.00	586.00	6.18	47.40	1.20	2.92
600.00	630.00	6.29	45.90	1.21	2.96
611.50	641.50	6.31	45.10	1.21	2.88
667.00	697.00	6.43	42.60	1.26	3.21
722.50	752.50	6.81	41.00	1.38	3.01
778.00	808.00	6.93	38.60	1.58	3.21
833.50	863.50	7.22	36.80	1.78	3.38
889.00	919.00	7.46	35.20	1.99	3.16
944.50	974.50	7.58	33.10	2.25	3.64
1000.00	1030.00	7.83	30.70	2.49	3.64

#### Electrical Schematic





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