

Surface Mount High Reliability Mixer

ADE-R5LH+

Level 10 (LO Power +10 dBm) 10 to 1500 MHz



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, 500
13"	500,1000

Maximum Ratings

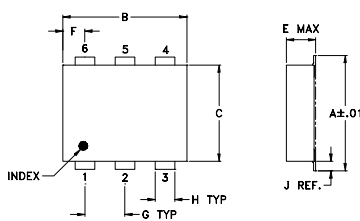
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	50mW
IF Current	40mA

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

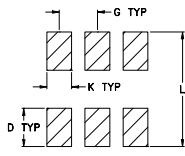
Pin Connections

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

Outline Drawing



PCB Land Pattern

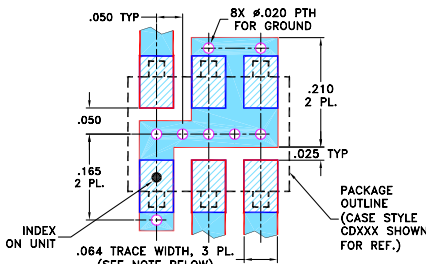


Suggested Layout,
Tolerance to be within ±.002

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: 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

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

Features

- hermetically sealed ceramic quad
- low conversion loss, 7.2 dB typ.
- excellent L-R isolation, 55 dB typ.
- excellent IP3, 17 dBm
- low profile package
- aqueous washable
- protected by US Patent 6,133,525

Applications

- cellular
- PCS

Electrical Specifications

FREQUENCY (MHz)		CONVERSION LOSS (dB)				LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)			IP3 at center band (dBm)						
LO/RF	IF	Mid-Band		Total Range	L	M	U	L	M	U								
f_L - f_U		\bar{X}	σ	Max.	Max.	Typ. Min.	Typ. Min.	Typ. Min.	Typ. Min.	Typ. Min.	Typ. Min.	Typ.						
10-1500	DC-1000	7.2	0.10	8.2	9.5	65	50	55	40	42	27	50	37	45	28	30	20	15

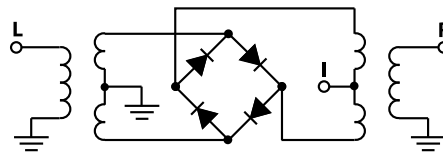
1 dB COMP: +5 dBm typ.
Phase detection, positive polarity

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 [$2 f_L$ 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 +10dBm	LO +10dBm	LO +10dBm	LO +10dBm	LO +10dBm
10.10	40.10	6.69	68.93	72.82	1.92	1.23
130.10	160.10	6.87	65.42	52.06	1.42	1.49
250.10	280.10	6.77	63.17	50.64	1.44	1.55
350.10	380.10	6.81	60.80	50.63	1.56	1.58
450.10	480.10	6.88	62.07	50.33	1.57	1.62
550.10	580.10	6.98	54.44	49.75	1.65	1.67
610.10	640.10	6.89	53.57	47.38	1.54	1.72
650.10	680.10	6.93	55.53	45.72	1.56	1.72
710.10	740.10	7.11	69.22	44.40	1.61	1.78
750.10	780.10	7.30	74.48	46.39	1.59	1.79
810.10	840.10	7.47	70.35	56.47	1.68	1.87
850.10	880.10	7.41	69.05	58.34	1.57	1.86
950.10	980.10	7.23	55.99	43.36	1.55	1.90
1010.10	1040.10	7.23	50.14	40.00	1.50	2.00
1050.10	1080.10	7.20	47.67	38.54	1.51	1.97
1150.10	1180.10	7.16	44.23	36.10	1.37	2.06
1250.10	1280.10	7.50	42.38	36.34	1.21	2.15
1350.10	1380.10	7.48	40.25	34.12	1.07	2.20
1450.10	1480.10	7.15	36.47	28.53	1.30	2.20
1510.10	1540.10	7.20	34.45	26.65	1.43	2.27

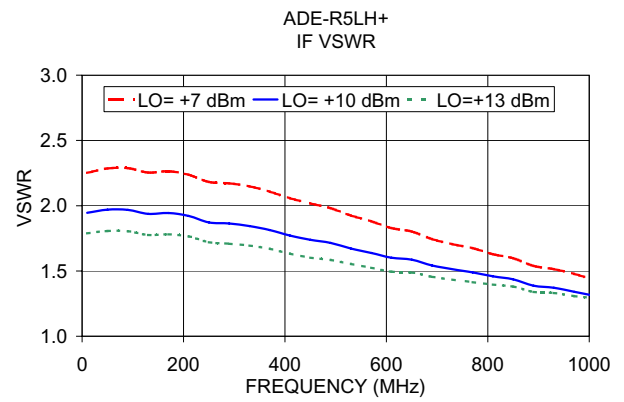
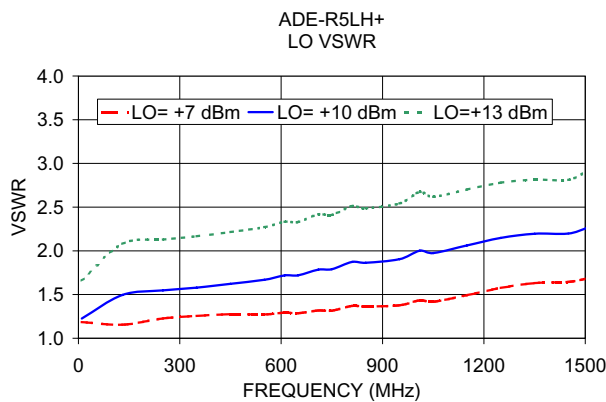
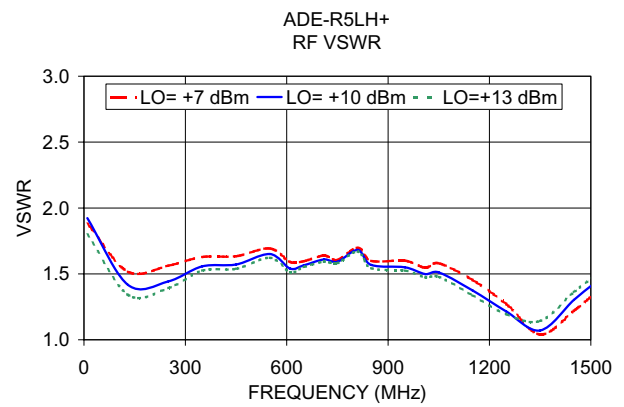
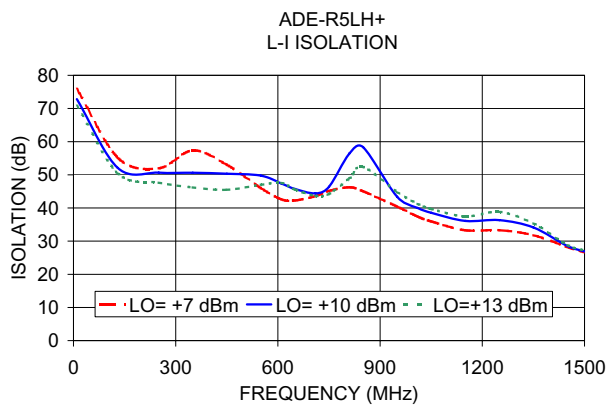
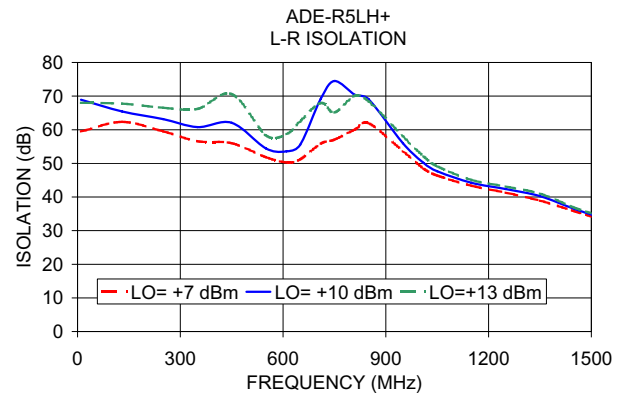
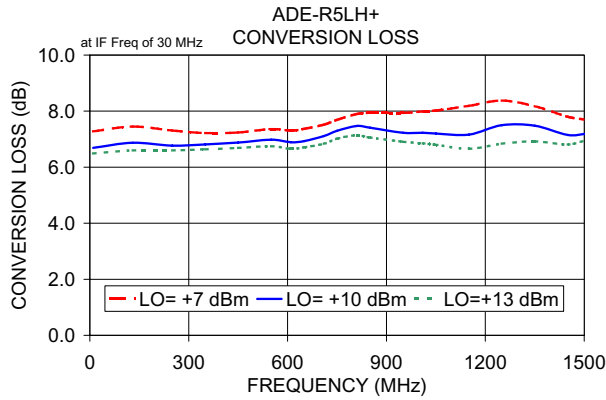
Electrical Schematic



Mini-Circuits

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