Surface Mount

Frequency Mixer

ADE-1HW+
ADE-1HW

Level 17 (LO Power +17 dBm) 5 to 750 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"	10, 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	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

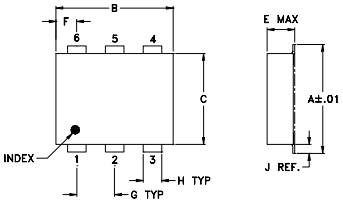
Features

- low conversion loss, 6.0 dB typ.
- excellent L-R isolation, 48 dB typ.
- excellent L-I isolation, 40 dB typ.
- aqueous washable
- protected by US patent 6,133,525

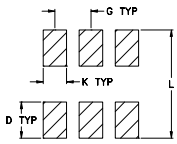
Applications

- VHF/UHF receivers

Outline Drawing



PCB Land Pattern



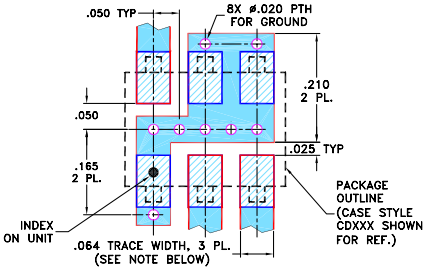
Suggested Layout,
Tolerance to be within ±.002

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

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	L		M		U		L		M		U		
LO/RF f_L-f_U	IF	$\overline{X}$	σ	Max.	Max.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.
5-750	DC-750	6.0	0.10	7.2	8.8	64	45	48	35	42	28	50	35	40	30	30	18	26

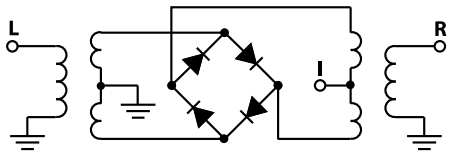
1 dB COMP.: +14 dBm typ.

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 +17dBm	LO +17dBm	LO +17dBm	LO +17dBm	LO +17dBm
5.00	35.00	6.34	64.80	52.10	1.35	1.38
10.00	40.00	6.07	64.50	50.90	1.20	1.38
20.00	50.00	6.03	62.90	48.30	1.12	1.38
50.00	80.00	5.86	59.30	44.20	1.06	1.41
65.19	95.19	5.76	56.90	44.10	1.04	1.51
130.18	160.18	5.68	54.80	41.00	1.02	1.58
195.17	225.17	5.82	48.90	41.90	1.00	1.66
250.00	280.00	5.92	47.90	40.80	1.02	1.62
260.16	290.16	5.73	47.80	40.30	1.02	1.64
295.00	325.00	5.93	47.00	38.80	1.04	1.75
300.00	330.00	5.90	46.80	38.90	1.04	1.75
325.15	355.15	5.96	45.70	39.20	1.04	1.68
390.14	420.14	6.02	46.40	34.70	1.08	1.84
455.13	485.13	6.15	45.20	31.60	1.11	1.80
500.00	530.00	6.24	43.40	30.70	1.13	1.87
520.12	550.12	6.25	42.90	30.20	1.14	1.81
585.11	615.11	6.25	41.50	28.10	1.16	2.06
650.10	680.10	6.16	40.30	26.60	1.22	2.23
715.09	745.09	6.52	39.10	26.10	1.29	2.18
750.00	780.00	6.73	38.60	25.60	1.37	2.58

Electrical Schematic



Notes
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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.
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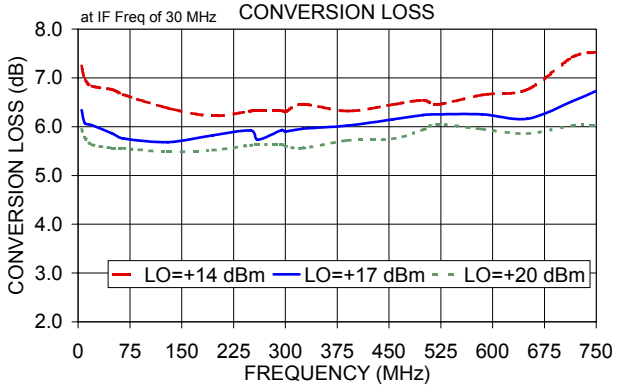
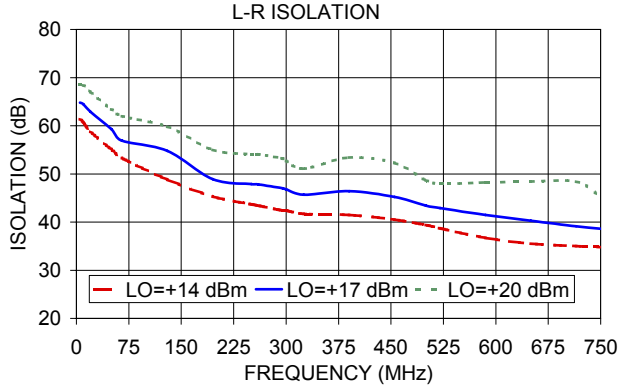
Performance Charts

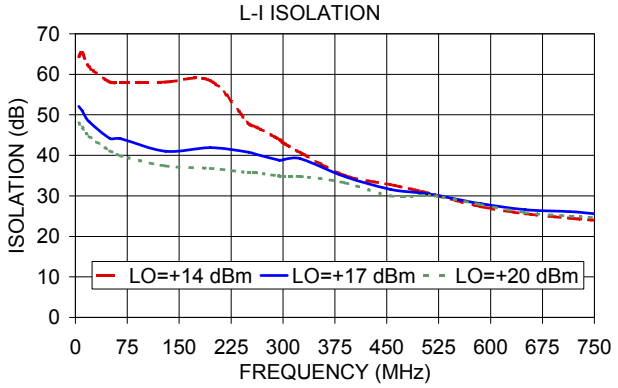
ADE-1HW
at IF Freq of 30 MHz CONVERSION LOSS



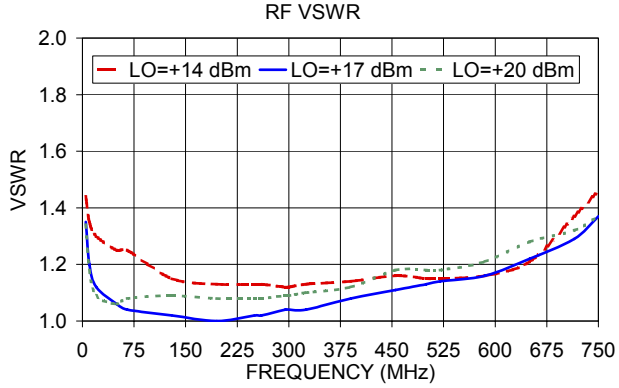
ADE-1HW
L-R ISOLATION



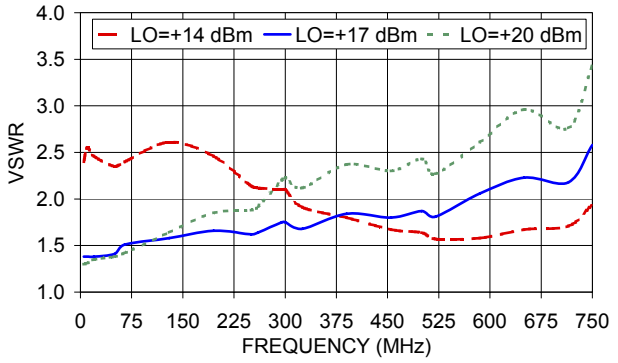
ADE-1HW
L-I ISOLATION



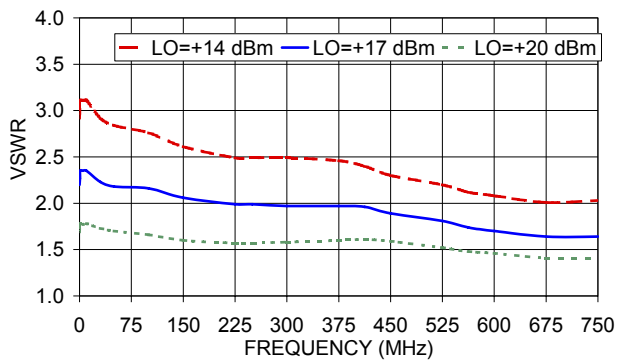
ADE-1HW
RF VSWR



ADE-1HW
LO VSWR



ADE-1HW
IF VSWR



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