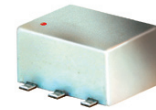


Surface Mount Frequency Mixer

ADE-13+ ADE-13

Level 7 (LO Power +7 dBm) 50 to 1600 MHz



CASE STYLE: CD541
PRICE: \$3.10 ea. QTY (10-49)

Maximum Ratings

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

Pin Connections

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

Features

- low conversion loss, 8.1 dB typ.
- excellent L-R isolation, 40 dB typ.
- low profile package
- aqueous washable
- protected by U.S. Patent 6,133,525

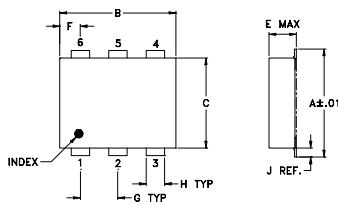
Applications

- satellite distribution
- GPS

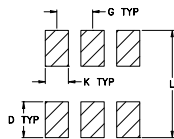
+ RoHS compliant in accordance with EU Directive (2002/95/EC)

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications.

Outline Drawing



PCB Land Pattern

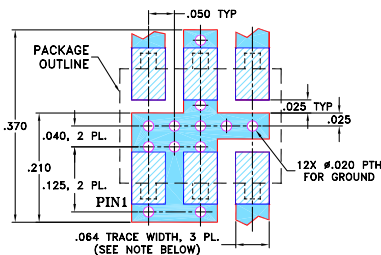


Suggested Layout.
Tolerance to be within ±.002

Outline Dimensions (inch/mm)

A	B	C	D	E	F	G
.272	.310	.220	.100	.082	.055	.100
6.91	7.87	5.59	2.54	2.08	1.40	2.54
H	J	K	L	wt		
.030	.026	.065	.300	grams		
0.76	0.66	1.65	7.62	0.15		

Demo Board MCL P/N: TB-02 Suggested PCB Layout (PL-051)



- 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)									
	LO/RF	IF	L	M	U	L	M	U										
f_L - f_U	\bar{X}	σ	Max.	Total Range	Max.	Typ.	Min.	Typ.	Min.	Typ.								
50-1600	50-1000	8.1	0.10	9.0	9.8	50	25	40	25	33	20	49	30	35	20	32	20	11

1 dB COMP.: +1 dBm typ.

L = low range [f_L to $10 f_L$]

m = mid band [$2 f_L$ to $f_U/2$]

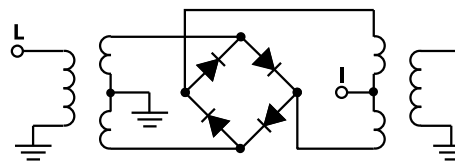
M = mid range [$10 f_L$ to $f_U/2$]

U = upper range [$f_U/2$ to f_U]

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
50.00	80.00	7.46	55.80	52.20	1.07	2.68
100.00	130.00	7.58	52.00	47.90	1.05	2.72
160.71	190.71	7.51	49.30	44.30	1.01	2.61
271.43	301.43	7.74	45.70	40.50	1.13	2.58
300.00	330.00	7.76	45.00	39.70	1.17	2.72
382.14	412.14	7.69	43.20	38.00	1.31	2.65
492.86	522.86	7.86	40.40	36.20	1.49	2.61
500.00	530.00	7.92	40.40	36.10	1.50	2.61
603.57	633.57	8.06	37.80	35.40	1.71	2.46
714.29	744.29	8.16	36.20	34.40	1.81	2.35
825.00	855.00	7.91	35.30	33.50	1.69	2.52
935.71	965.71	7.87	32.30	33.20	1.64	2.72
1000.00	1030.00	7.75	31.00	33.40	1.63	2.80
1046.43	1076.43	7.87	30.60	33.60	1.61	2.80
1157.14	1187.14	8.02	30.00	33.20	1.48	3.01
1267.86	1297.86	8.09	30.60	32.80	1.30	3.26
1300.00	1330.00	8.17	31.50	32.30	1.27	3.32
1378.57	1408.57	8.24	31.60	31.90	1.27	3.57
1489.29	1519.29	8.30	28.10	31.10	1.42	4.22
1600.00	1630.00	8.40	27.60	30.80	1.56	5.33

Electrical Schematic



Mini-Circuits
ISO 9001 ISO 14001 AS 9100 CERTIFIED
The Design Engineers Search Engine Provides ACTUAL Data Instantly at minicircuits.com
IF/RF MICROWAVE COMPONENTS

For detailed performance specs & shopping online see web site

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Performance Charts

