

# Ceramic Surface Mount Frequency Mixer WIDE BAND

## SIM-14LH+

### Level 10 (LO Power +10 dBm) 3700 to 10000 MHz



#### Maximum Ratings

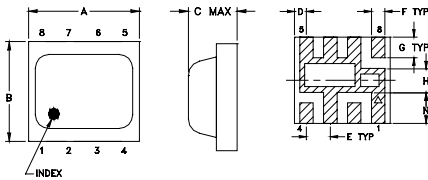
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	50mW

For extended temperature range, consult factory.  
Permanent damage may occur if any of these limits are exceeded.

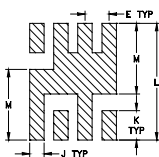
#### Pin Connections

LO	8
RF	4
IF	2
GROUND	1,3,5,6,7

#### Outline Drawing



#### PCB Land Pattern

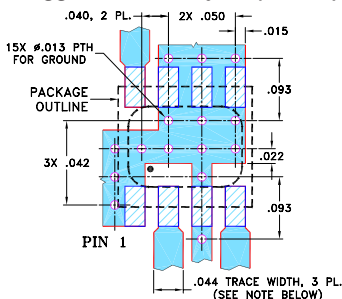


Suggested Layout,  
Tolerance to be within ±0.002

#### Outline Dimensions (inch/mm)

A	B	C	D	E	F	G
.200	.180	.087	.025	.050	.028	.043
5.08	4.57	2.21	0.64	1.27	0.71	1.09
H	J	K	L	M	N	wt
.050	.030	.060	0.238	0.144	0.065	grams
1.27	0.76	1.52	6.05	3.66	1.65	0.08

#### Demo Board MCL P/N: TB-382 Suggested PCB Layout (PL-239)



#### NOTES:

- TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .020" ± .0015"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
- 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

#### Features

- wide bandwidth, 3700 to 10000 MHz
- low conversion loss, 6.7 dB typ.
- high L-R isolation, 38 dB typ.
- excellent IF BW, DC to 4000 MHz
- LTCC double balanced mixer
- tiny size, low profile, 0.08"
- useable as up and down converter
- aqueous washable
- protected by US patent 7,027,795

#### Applications

- satellite up and down converters
- defense radar and communications
- line of sight links
- federal fixed service
- WIFI
- blue tooth
- VSAT
- ISM

#### Electrical Specifications

FREQUENCY (MHz)	CONVERSION LOSS* (dB)			LO-RF ISOLATION (dB)		LO-IF ISOLATION (dB)		IP3 at center band (dBm)
	LO/RF $f_i - f_u$	IF	Typ. $\sigma$ Max.	Typ. Min.	Typ. Min.	Typ. Min.		
3700-10000	DC-4000							
3700-6200			6.7 0.3 8.3	38 29		17 11		19
6200-10000			6.7 0.2 8.9	35 21		17 10		12

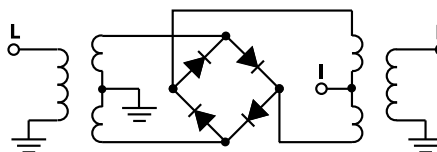
1 dB Compression: +5 dBm typ.

\* Conversion loss at 30 MHz IF.  $\sigma$  is a measure of repeatability from unit to unit.

#### Typical Performance Data

Frequency (MHz)	Conversion Loss (dB)		Isolation L-R (dB)		Isolation L-I (dB)		VSWR RF Port (:1)		VSWR LO Port (:1)	
	LO	+10dBm	LO	+10dBm	LO	+10dBm	LO	+10dBm	LO	+10dBm
3560.00	3590.00	7.30	40.15	18.87	2.43	10.16				
3740.00	3770.00	6.82	41.27	19.21	2.66	5.72				
4100.00	4130.00	6.97	39.63	19.14	3.31	3.88				
4280.00	4310.00	6.98	37.73	18.69	3.39	3.74				
4460.00	4490.00	7.07	37.45	17.41	3.38	3.17				
4640.00	4670.00	6.93	37.50	16.34	2.95	2.36				
4820.00	4850.00	6.65	38.46	16.08	3.15	2.02				
5000.00	5030.00	6.74	40.39	15.55	3.53	1.54				
5600.00	5630.00	7.57	39.12	14.89	4.40	1.40				
6280.00	6310.00	7.02	34.27	15.14	4.33	2.83				
6620.00	6650.00	6.74	29.98	14.24	3.08	2.69				
6960.00	6990.00	6.30	31.24	14.80	2.44	2.91				
7300.00	7330.00	5.77	32.63	15.10	1.77	3.59				
7640.00	7670.00	5.56	31.66	14.68	1.19	3.25				
7980.00	8010.00	5.92	29.76	13.75	1.42	3.04				
8320.00	8350.00	6.27	28.44	14.18	1.74	2.43				
9000.00	9030.00	7.08	40.25	19.61	3.19	1.31				
9500.00	9530.00	7.74	40.11	23.53	3.81	1.49				
9810.00	9840.00	7.99	37.87	21.82	4.39	1.80				
10120.00	10150.00	8.04	35.70	21.02	4.73	2.05				

#### Electrical Schematic



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IF/RF MICROWAVE COMPONENTS

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