

# Ceramic Surface Mount Frequency Mixer WIDE BAND

## SIM-83LH+

Level 10 (LO Power +10 dBm) 1700 to 8000 MHz



CASE STYLE: HV1195

### 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.

### Pin Connections

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

### Features

- wide bandwidth, 1700 to 8000 MHz
- low conversion loss, 6.0 dB typ.
- excellent IF BW, DC to 3000 MHz
- LTCC double balanced mixer
- low profile, 0.08"
- protected by US patent 7,027,795
- useable as up and down converter

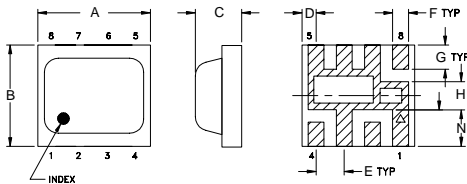
### Applications

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

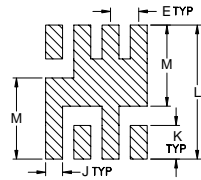
+ RoHS compliant in accordance with EU Directive (2002/95/EC)

The +Suffix has been added in order to identify RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications.

### Outline Drawing



### PCB Land Pattern

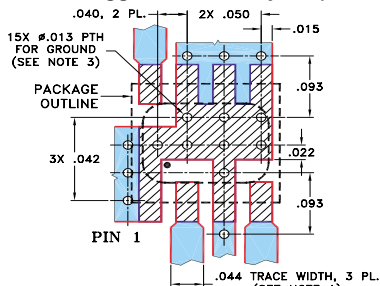


Suggested Layout, Tolerance to be within ±.002

### Outline Dimensions (inch/mm)

A	B	C	D	E	F	G
0.200	0.180	0.087	0.025	0.050	0.028	0.043
5.08	4.57	2.21	0.64	1.27	0.71	1.09
H	J	K	L	M	N	wt
.0050	.030	0.060	0.238	0.144	0.065	grams
0.13	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: 1. 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.  
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.  
3. THE PLATED THROUGH VIA HOLES IN THE PCB GROUND PAD SHALL BE PLUGGED. IF VIA HOLES CANNOT BE PLUGGED, IT IS RECOMMENDED TO CAP THE VIAS WITH SOLDER MASK ON THE BACK SIDE OF THE BOARD.
- 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 $f_c - f_u$	IF	Typ.	σ	Max.	Typ.	Min.		Typ.	Min.
1700-8000	DC-3000									
1700-3200			6.0	0.1	7.9	33	25	23	17	10
3200-3700			5.7	0.1	6.7	30	24	23	18	15
3700-4200			5.8	0.1	7.2	31	24	28	18	18
4200-8000			6.0	0.2	8.9	23	16	18	8	11

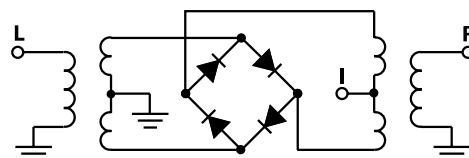
1 dB COMPR. +3 dBm typ.

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

### Typical Performance Data

Frequency (MHz)	Suggested Layout	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
1700.00	1731.00	6.53	33.97	21.16	1.75	10.50						
1800.00	1831.00	6.50	32.41	21.09	1.66	10.19						
2000.00	2031.00	6.59	30.98	22.21	1.89	4.97						
2300.00	2331.00	6.20	33.66	20.60	2.13	3.59						
2600.00	2631.00	5.93	39.44	22.21	2.66	2.64						
3000.00	3031.00	5.53	30.63	25.11	2.49	2.45						
3400.00	3431.00	5.67	29.29	23.49	2.27	2.21						
3800.00	3831.00	5.86	29.82	27.10	2.11	2.66						
4200.00	4231.00	6.03	30.69	28.64	2.91	3.30						
4600.00	4631.00	6.09	29.09	16.45	2.43	3.74						
5000.00	5031.00	6.31	27.35	15.06	3.42	2.77						
5400.00	5431.00	5.72	25.94	19.10	2.68	3.51						
5800.00	5831.00	5.46	22.31	22.64	2.03	3.08						
6200.00	6231.00	5.18	20.81	32.72	1.29	1.91						
6600.00	6631.00	5.35	21.56	25.01	1.33	1.26						
7000.00	7031.00	5.49	21.93	27.31	1.36	1.68						
7400.00	7431.00	5.77	22.35	17.70	1.65	2.26						
7700.00	7731.00	6.35	23.66	15.04	2.10	2.86						
7900.00	7931.00	7.18	25.31	12.78	2.24	3.29						
8000.00	8031.00	8.25	26.35	11.07	2.55	3.12						

### Electrical Schematic



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