

Ceramic Surface Mount Frequency Mixer WIDE BAND

SIM-83LH+

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



Maximum Ratings

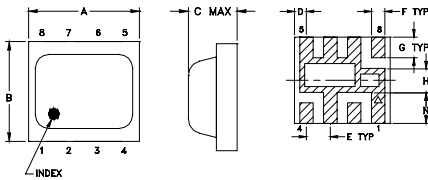
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	50mW

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

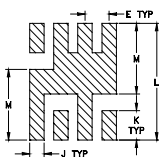
Pin Connections

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

Outline Drawing



PCB Land Pattern

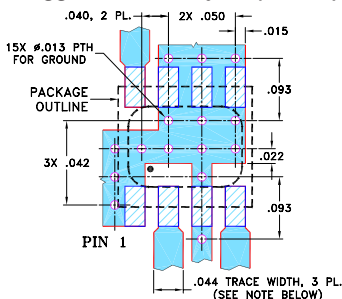


Suggested Layout,
Tolerance to be within ±0.002

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, 1700 to 8000 MHz
- low conversion loss, 6.0 dB typ.
- excellent IF BW, DC to 3000 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
- 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 $f_c - f_u$	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

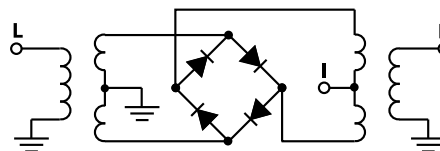
1 dB Compression: +3 dBm typ.

* Conversion loss at 30 MHz IF σ 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)	
						RF
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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IF/RF MICROWAVE COMPONENTS

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