

Ceramic Surface Mount Frequency Mixer WIDE BAND

SIM-83+

Level 7 (LO Power +7 dBm) 2300 to 8000 MHz

Maximum Ratings

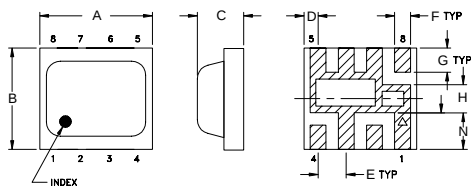
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	50mW

For extended temperature range, consult factory.

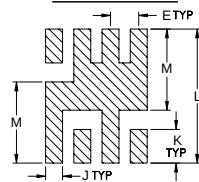
Pin Connections

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

Outline Drawing



PCB Land Pattern

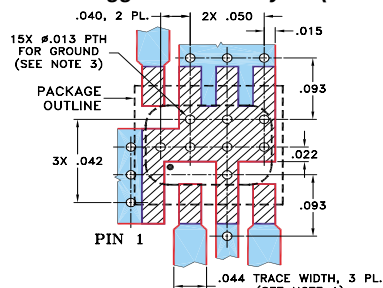


Suggested Layout,
Tolerance to be within ±.002

Outline Dimensions (inch)

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

Features

- wide bandwidth, 2300 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
- ISM
- WIFI
- blue tooth
- VSAT

Electrical Specifications

FREQUENCY (MHz)		CONVERSION LOSS* (dB)			LO-RF ISOLATION (dB)		LO-IF ISOLATION (dB)		IP3 at center band (dBm)
LO/RF f_L - f_U	IF	Typ.	σ	Max.	Typ.	Min.	Typ.	Min.	
2300-8000	DC-3000								
2300-3200		6.0	0.1	7.8	35	27	23	15	12
3200-3700		5.8	0.1	7.0	31	26	24	18	13
3700-4200		5.9	0.2	7.4	32	26	28	19	15
4200-8000		6.0	0.2	8.9	23	17	18	7	10

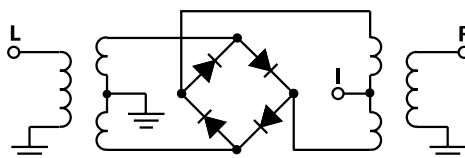
1 dB COMPR. +1 dBm typ.

* 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	LO	LO +7dBm	LO +7dBm	LO +7dBm	LO +7dBm	LO +7dBm
2300.00	2331.00	6.58	33.75	18.78	2.30	3.23
2500.00	2531.00	6.26	37.97	19.66	2.67	2.46
2700.00	2731.00	5.89	39.45	21.43	2.68	2.07
3000.00	3031.00	5.65	32.22	25.41	2.65	1.93
3300.00	3331.00	5.77	30.68	25.94	2.47	1.94
3600.00	3631.00	5.87	30.39	25.71	2.19	2.14
3900.00	3931.00	6.05	31.52	32.26	2.40	2.43
4200.00	4231.00	6.19	31.06	28.64	3.09	2.54
4500.00	4531.00	6.00	28.97	18.58	2.77	2.60
4800.00	4831.00	6.85	30.21	15.63	4.27	2.62
5100.00	5131.00	6.53	27.21	16.08	3.22	2.80
5400.00	5431.00	5.91	26.54	19.19	2.91	2.93
5700.00	5731.00	5.66	23.69	20.99	2.45	3.38
6000.00	6031.00	5.36	23.52	25.50	1.73	2.68
6500.00	6531.00	5.49	22.36	27.85	1.42	1.31
6900.00	6931.00	5.51	22.41	27.41	1.28	1.12
7300.00	7331.00	5.76	21.74	19.64	1.56	1.88
7600.00	7631.00	6.61	22.46	16.02	2.19	2.56
7800.00	7831.00	6.79	24.63	13.98	2.12	3.07
8000.00	8031.00	7.56	26.32	10.64	2.67	2.95

Electrical Schematic



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Page 1 of 2

