

Ceramic Surface Mount Frequency Mixer WIDE BAND

SIM-14+

Level 7 (LO Power +7 dBm) 3700 to 10000 MHz



CASE STYLE: HV1195

Maximum Ratings

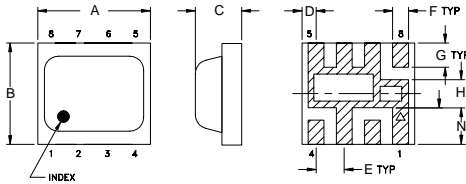
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	50mW

For extended temperature range, consult factory.

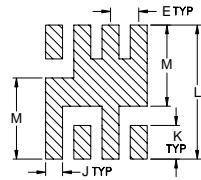
Pin Connections

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

Outline Drawing



PCB Land Pattern

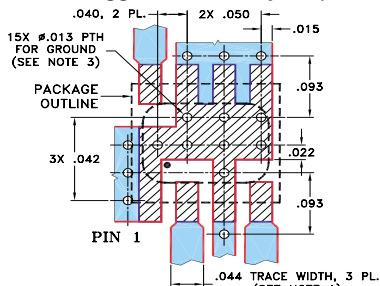


Suggested Layout,
Tolerance to be within ±.002

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, 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
- 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
- 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)			
		Typ.	Min.	Typ.	Min.				
3700-10000	DC-4000	Typ.	σ	Max.	Typ.	Min.	Typ.		
3700-6200		6.7	0.3	8.3	38	31	16	12	16
6200-10000		6.7	0.3	9.5	35	25	17	12	8

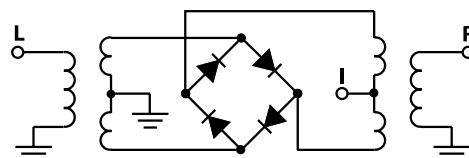
1 dB COMPR. +1 dBm typ.

* 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)	
						LO +7dBm
3700.00	3731.00	6.40	43.16	18.87	3.08	6.33
3800.00	3831.00	6.28	43.42	18.88	3.19	4.90
4000.00	4031.00	6.32	41.32	18.41	3.31	4.30
4200.00	4231.00	6.46	37.68	17.43	3.21	3.59
4500.00	4531.00	6.26	37.54	15.84	2.71	2.40
4800.00	4831.00	6.32	37.95	14.47	2.90	1.62
5150.00	5181.00	7.44	40.20	13.75	4.59	1.37
5600.00	5631.00	7.01	37.75	14.10	4.02	1.87
6200.00	6231.00	6.42	37.55	14.99	3.45	3.10
6800.00	6831.00	5.82	35.83	16.40	2.22	2.97
7400.00	7431.00	5.34	34.01	15.81	1.44	2.97
7850.00	7881.00	5.44	29.74	13.61	1.40	2.50
8300.00	8331.00	5.61	28.07	13.89	1.69	1.99
8600.00	8631.00	5.83	32.35	17.66	2.41	1.63
8900.00	8931.00	6.46	36.86	21.71	2.78	1.31
9200.00	9231.00	6.90	39.72	22.22	3.26	1.46
9500.00	9531.00	7.58	32.38	20.23	3.67	1.64
9700.00	9731.00	7.71	32.27	19.61	4.07	1.91
9900.00	9931.00	7.99	33.90	19.86	4.24	2.16
10000.00	10031.00	8.11	34.68	20.01	4.62	2.48

Electrical Schematic



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