Ceramic Surface Mount

Frequency Mixer WIDE BAND

SIM-83LH+

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

CASE STYLE: HV1195

+RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Available Tape and Reel at no extra cost

Reel Size	Devices/Reel
7"	10, 20, 50, 100, 200, 500

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

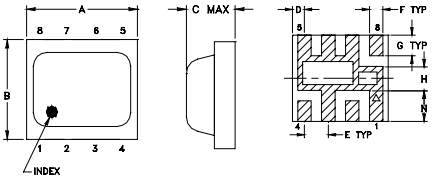
Features

- 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

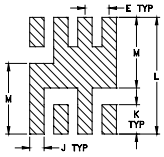
Applications

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

Outline Drawing



PCB Land Pattern



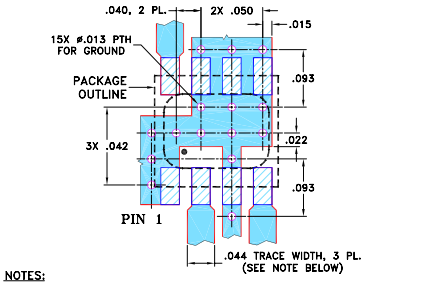
Suggested Layout,
Tolerance to be within ±.002

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:

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.

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_L-f_U	IF	Typ.	σ	Max.	Typ.	Min.	Typ.	Min.	Typ.
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

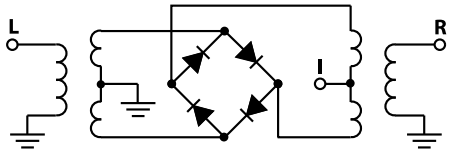
1 dB Compression: +3 dBm typ.

* 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	LO	LO +10dBm	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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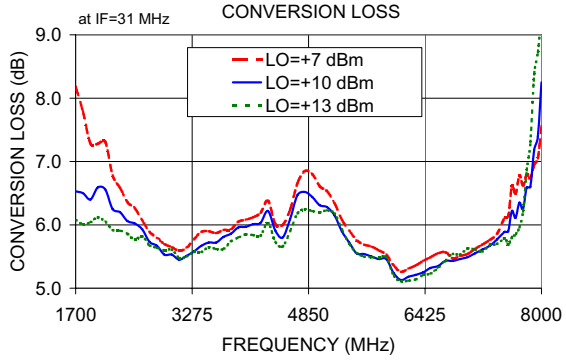
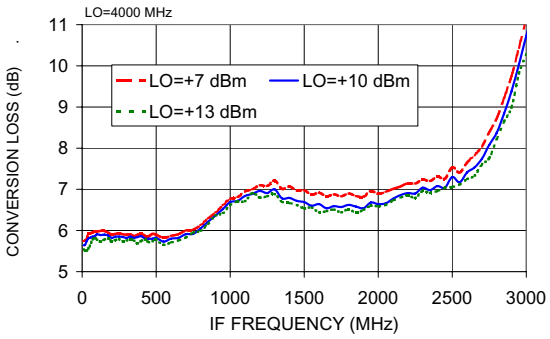
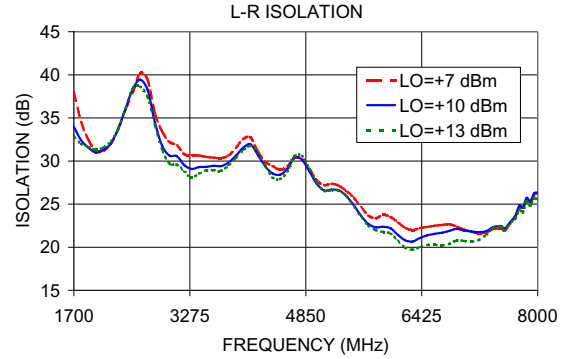
SIM-83LH+
CONVERSION LOSS



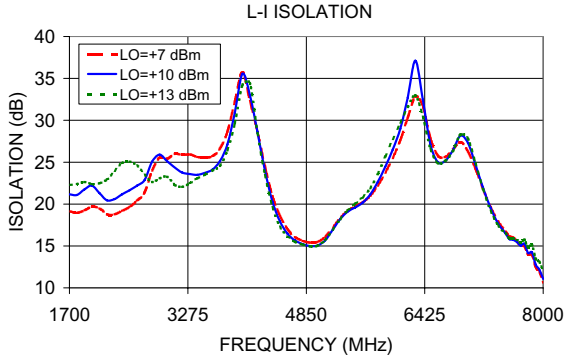
SIM-83LH+
CONVERSION LOSS VARIABLE IF



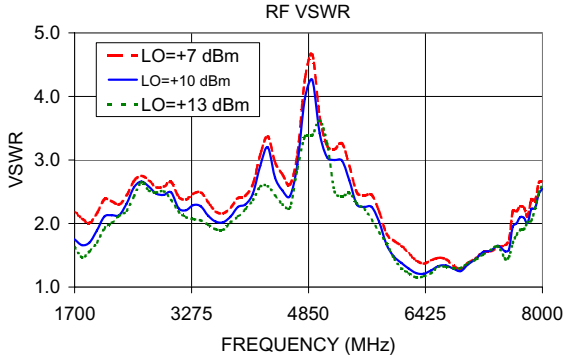
SIM-83LH+
L-R ISOLATION



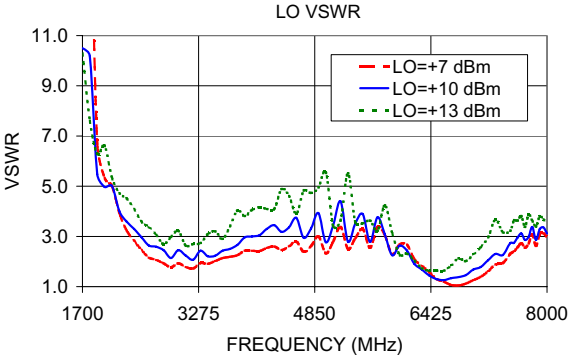
SIM-83LH+
L-I ISOLATION



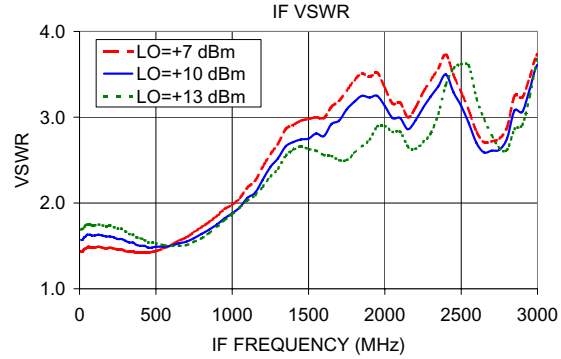
SIM-83LH+
RF VSWR



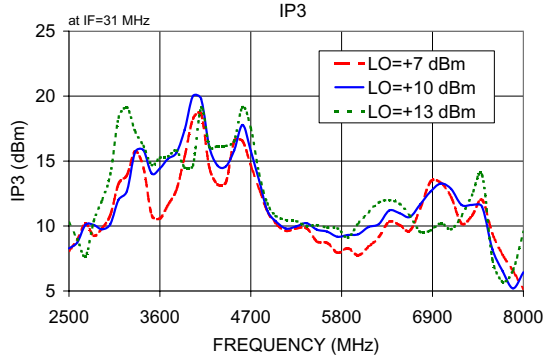
SIM-83LH+
LO VSWR



SIM-83LH+
IF VSWR



SIM-83LH+
IP3



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