Ceramic Surface Mount

Frequency Mixer WIDE BAND

SIM-153+

Level 7 (LO Power +7 dBm) 3400 to 15000 MHz

CASE STYLE: HV1195
PRICE: $9.95 ea. QTY (10-49)

+ 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.

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

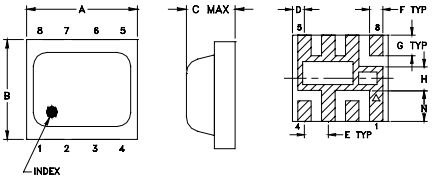
Features

- wide bandwidth, 3400 to 15000 MHz
- low conversion loss, 6.8 dB typ.
- high L-R isolation, 36 dB typ.
- excellent IF BW, DC to 4000 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

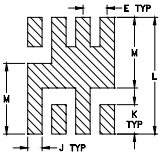
Applications

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

Outline Drawing



PCB Land Pattern



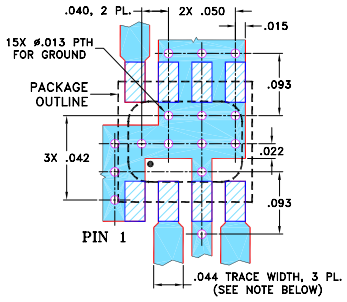
Suggested Layout,
Tolerance to be within ±.002

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

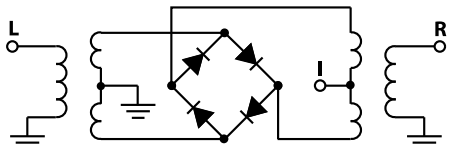
FREQUENCY (MHz)		CONVERSION LOSS* (dB)			LO-RF ISOLATION (dB)		LO-IF ISOLATION (dB)		IP3 at center band (dBm)
LO/RF f_L-f_U	IF	Typ.	σ	Max.	Typ.	Min.	Typ.	Min.	Typ.
3400-15000	**DC-4000**								
3400-10000		6.5	0.3	9.5	36	25	15	12	10
10000-13500		10.0	0.7	13.2	36	27	30	15	—
13500-15000		8.0	0.4	10.4	31	20	27	20	—

1 dB Compression: +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
3400.00	3431.00	7.14	42.99	19.46	2.82	11.83
4000.00	4031.00	6.32	41.32	18.41	3.31	4.30
4500.00	4531.00	6.26	37.54	15.84	2.71	2.40
5000.00	5031.00	6.75	40.73	14.23	4.10	1.33
5600.00	5631.00	7.01	37.75	14.10	4.02	1.87
6500.00	6531.00	5.97	36.81	15.44	2.60	2.62
7400.00	7431.00	5.34	34.01	15.81	1.44	2.97
8000.00	8031.00	5.43	28.07	12.83	1.58	2.51
8500.00	8531.00	5.64	30.06	16.20	2.15	1.82
9000.00	9031.00	6.59	38.23	22.75	3.25	1.45
9500.00	9531.00	7.58	32.38	20.23	3.67	1.64
10000.00	10031.00	8.11	34.68	20.01	4.62	2.48
11000.00	11031.00	8.92	40.65	27.99	5.27	2.84
12000.00	12031.00	9.95	33.01	42.68	5.30	3.63
13050.00	13081.00	9.99	36.98	37.00	4.78	2.46
13500.00	13531.00	9.85	40.28	33.11	4.65	2.28
14025.00	14056.00	8.53	38.51	30.02	2.71	2.32
14550.00	14581.00	7.26	31.68	28.81	1.18	2.18
15075.00	15106.00	8.28	23.38	29.68	1.84	2.69

Electrical Schematic



REV. A
M106413
SIM-153+
ED-12399/3
DJ/RS/CP
071129

Performance Charts

SIM-153+

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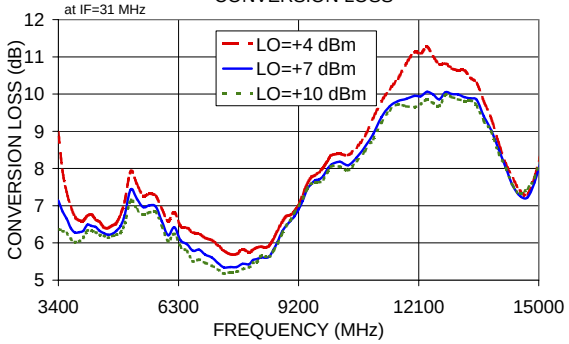
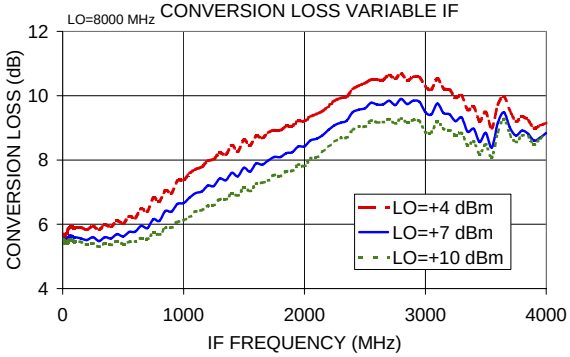
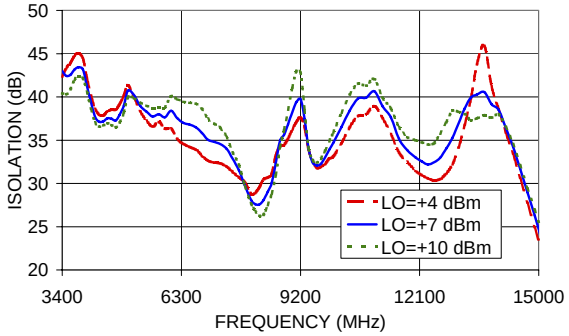
CONVERSION LOSS



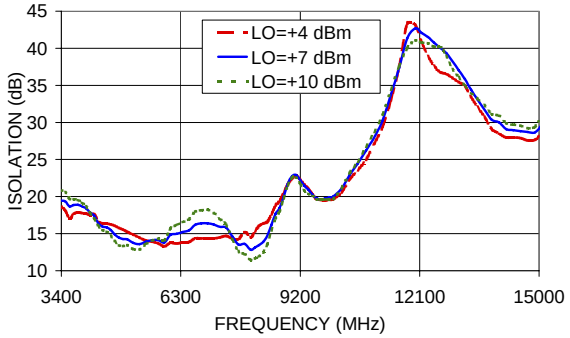
SIM-153+
CONVERSION LOSS VARIABLE IF



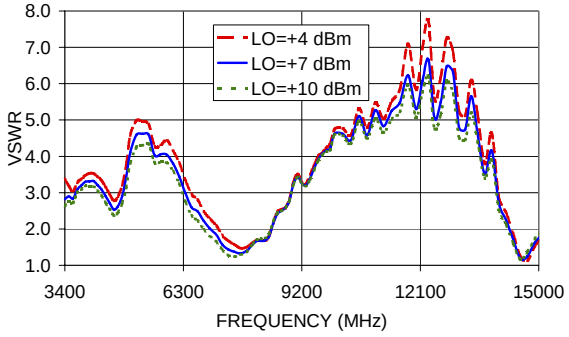
SIM-153+
L-R ISOLATION



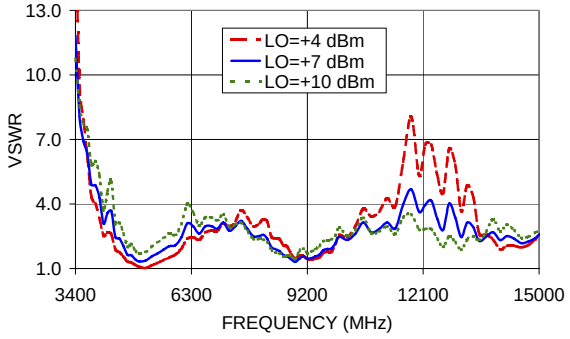
SIM-153+
L-I ISOLATION



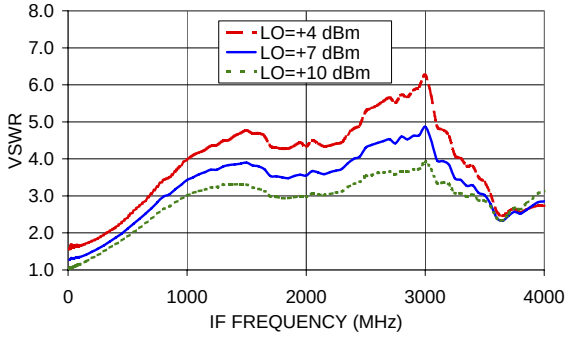
SIM-153+
RF VSWR



SIM-153+
LO VSWR



SIM-153+
IF VSWR



SIM-153+
IP3