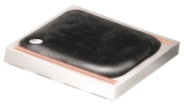
Ceramic Surface Mount

Frequency Mixer WIDE BAND

SIM-43+

Level 7 (LO Power +7 dBm) 750 to 4200 MHz



CASE STYLE: HV1195
PRICE: $7.45 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.

Pin Connections

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

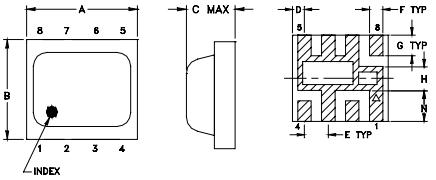
Features

- wide bandwidth, 750 to 4200 MHz
- low conversion loss, 6.1 dB typ.
- excellent L-R isolation, 35 dB typ.
- 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

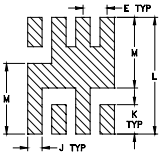
Applications

- cellular
- defense & weather radar
- defense communications
- PCN
- WCDMA
- WIFI
- blue tooth
- VSAT
- ISM

Outline Drawing



PCB Land Pattern



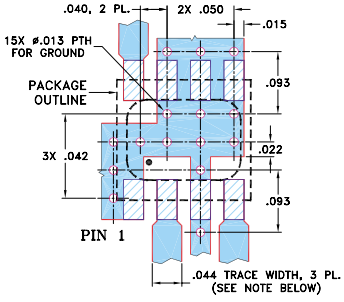
Suggested Layout,
Tolerance to be within ±.002

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

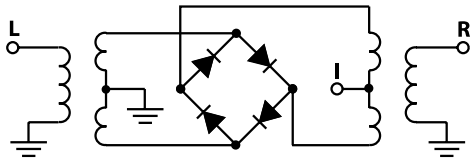
FREQUENCY (MHz)		CONVERSION LOSS* (dB)			LO-RF ISOLATION (dB)		LO-IF ISOLATION (dB)		IP3 at center band (dBm)
LO/RF f_{L-f_U}	IF	Typ.	σ	Max.	Typ.	Min.	Typ.	Min.	Typ.
750-4200	**DC-1500**								
750-2500		6.3	0.1	7.8	37	30	24	11	12
2500-4200		5.7	0.1	8.1	32	25	20	14	12

1 dB Compression: +1 dBm typ.
* Conversion loss at 30 MHz IF. σ is a measure of repeatability from unit to unit.

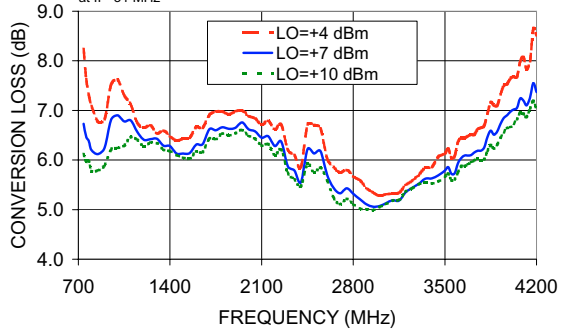
Typical Performance Data

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
740.00	771.00	6.73	40.31	25.02	2.11	7.97
800.00	831.00	6.20	37.61	24.68	1.71	5.22
900.00	931.00	6.25	36.50	25.33	1.97	3.55
1000.00	1031.00	6.90	40.60	26.55	2.89	2.05
1200.00	1231.00	6.41	42.66	31.50	3.33	1.04
1400.00	1431.00	6.28	37.92	37.58	3.68	1.43
1600.00	1631.00	6.31	36.81	32.80	3.47	2.14
1800.00	1831.00	6.66	38.10	22.63	3.57	2.37
2000.00	2031.00	6.62	37.15	16.13	3.31	1.77
2200.00	2231.00	6.28	36.38	17.49	3.06	1.88
2400.00	2431.00	5.55	35.98	20.30	2.29	2.02
2700.00	2731.00	5.33	33.12	24.66	2.02	1.74
3000.00	3031.00	5.07	31.91	29.23	1.29	1.35
3200.00	3231.00	5.35	31.77	28.40	1.24	1.20
3400.00	3431.00	5.63	31.28	23.23	1.55	1.18
3800.00	3831.00	6.25	29.57	20.18	2.67	1.89
3900.00	3931.00	6.58	30.95	20.66	3.40	2.29
4000.00	4031.00	6.97	32.47	19.31	3.53	2.54
4100.00	4131.00	7.20	31.49	18.27	3.74	3.00
4200.00	4231.00	7.37	32.50	17.81	4.17	3.91

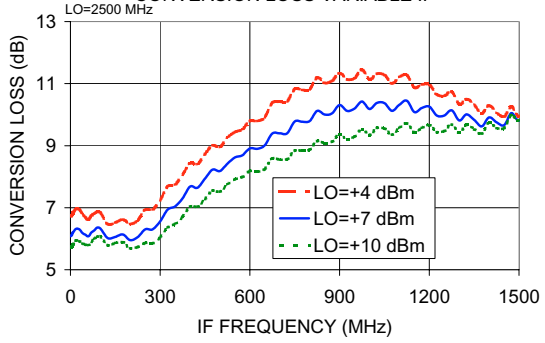
Electrical Schematic



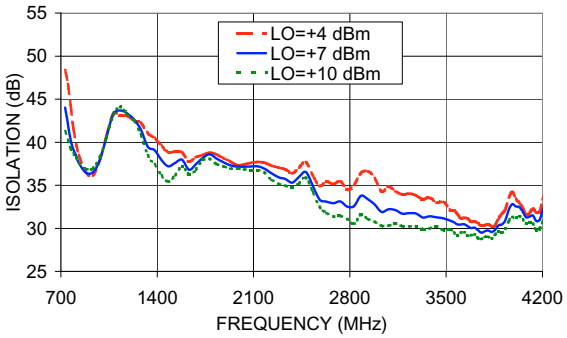
SIM-43+
CONVERSION LOSS



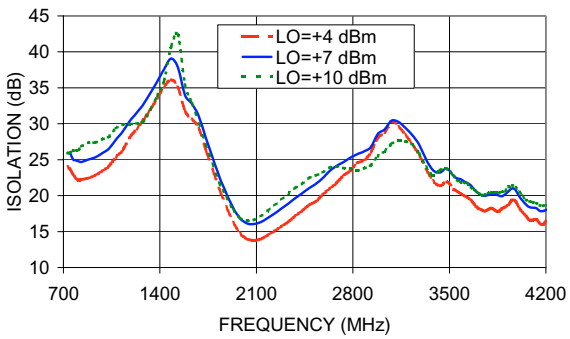
SIM-43+
CONVERSION LOSS VARIABLE IF



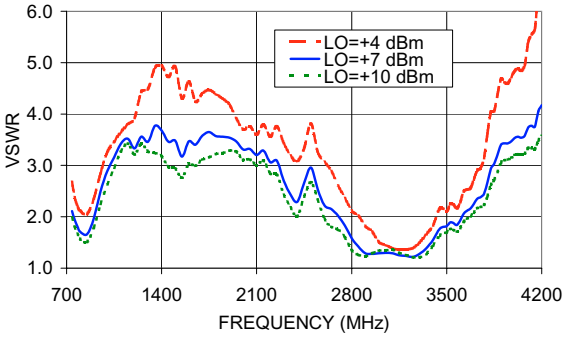
SIM-43+
L-R ISOLATION



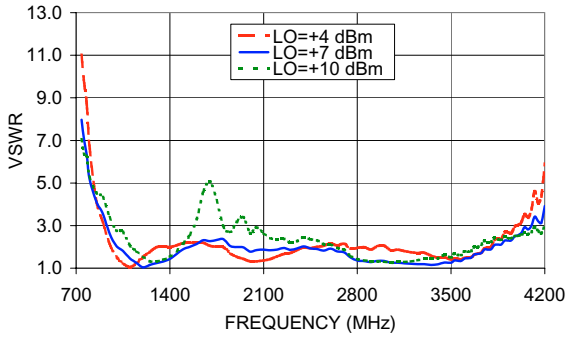
SIM-43+
L-I ISOLATION



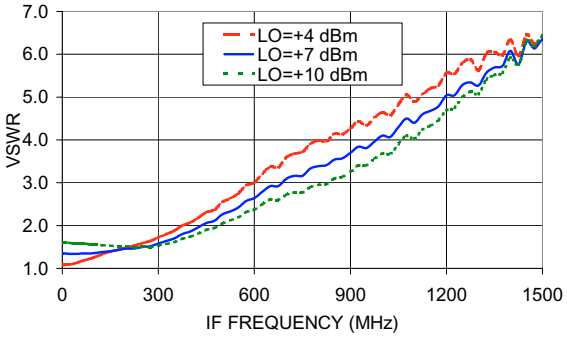
SIM-43+
RF VSWR



SIM-43+
LO VSWR



SIM-43+
IF VSWR



SIM-43+
IP3