



THE DATASHEET OF SIM-43+



Ceramic Surface Mount Frequency Mixer WIDE BAND

SIM-43+

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



Generic photo used for illustration purposes only

CASE STYLE: HV1195

Maximum Ratings

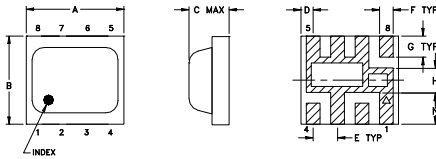
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	50mW

For extended temperature range, consult factory.
Permanent damage may occur if any of these limits are exceeded.

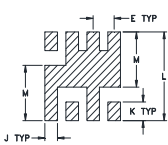
Pin Connections

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

Outline Drawing



PCB Metal Land Pattern

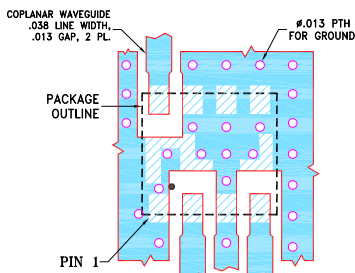


Suggested Layout, Tolerance to be within ±0.02

Outline Dimensions (inch/mm)

A	B	C	D	E	F	G
.200	.180	.087	.025	.050	.028	.043
5.08	4.57	2.2098	0.64	1.27	0.71	1.09
H	J	K	L	M	N	wt
.050	.030	.043	.204	.127	0.065	grams
1.27	0.76	1.09	5.18	3.23	1.65	0.08

Demo Board MCL P/N: TB-382 Suggested PCB Layout (PL-239)



- NOTES:
- TRACE WIDTH AND GAP ARE SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .020±.0015"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH AND GAP MAY NEED TO BE MODIFIED.
 - 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.

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

Electrical Specifications

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

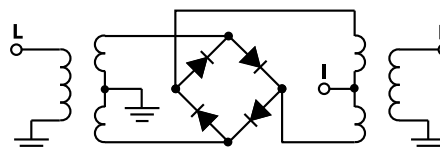
1 dB Compression: +1 dBm typ.

* 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)	
						LO +7dBm
RF	LO	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



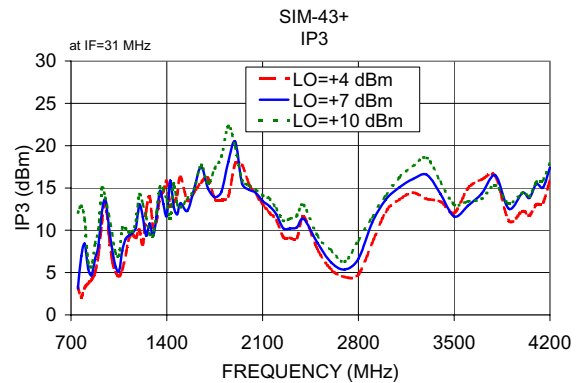
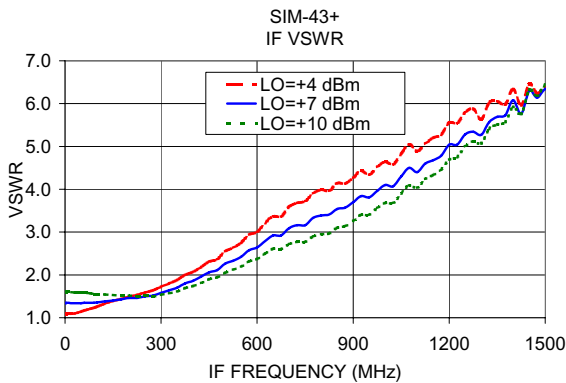
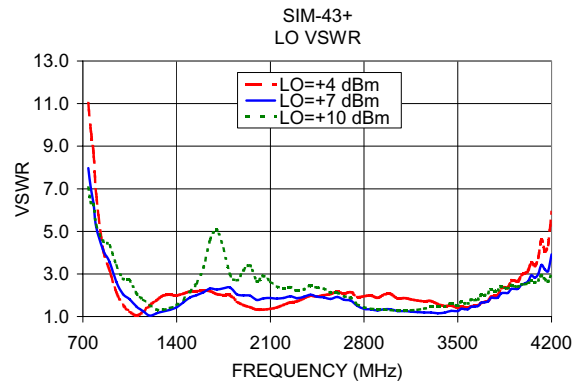
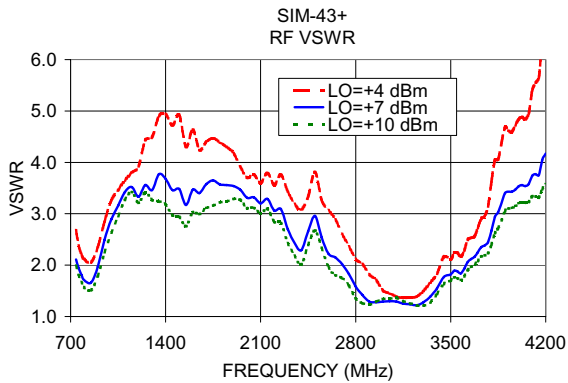
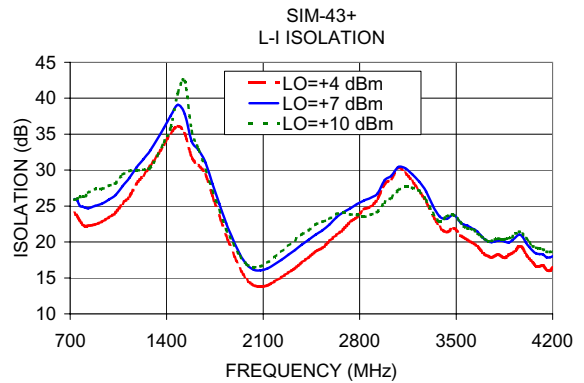
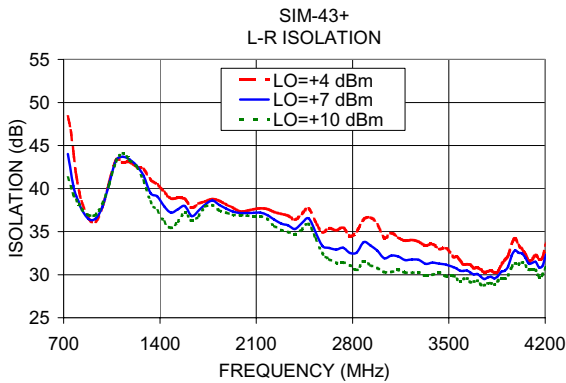
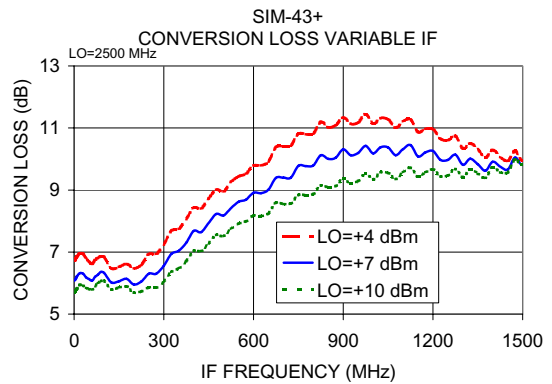
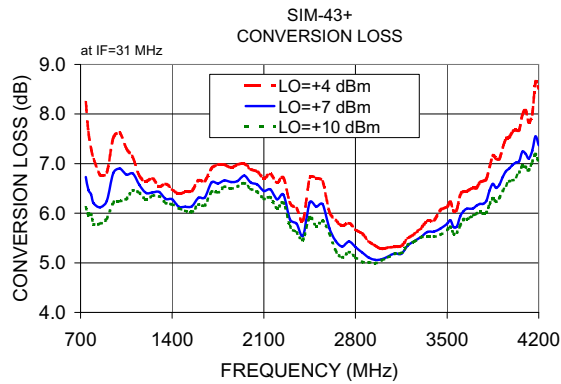
Notes

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