

Frequency Mixer WIDE BAND

SIM-43+

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

Maximum Ratings

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

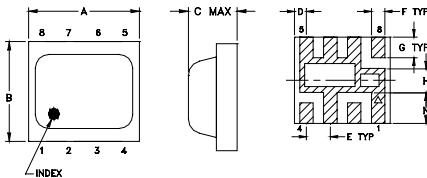
For extended temperature range, consult factory.

Permanent damage may occur if any of these limits are exceeded.

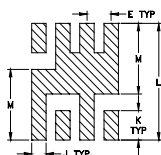
Pin Connections

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

Outline Drawing



PCB Land Pattern

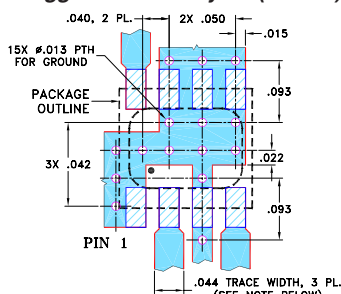
Suggested Layout,
Tolerance to be within ±0.002

Outline Dimensions (inch)

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:

- 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.
- 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

Notes

- Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
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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.	σ	Max.	Typ.	Min.	Typ.	Min.	
LO/RF $f_L - f_U$	IF								
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

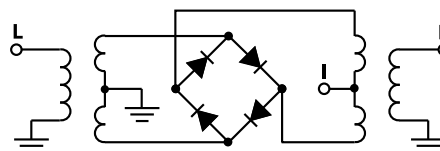
1 dB Compression: +1 dBm typ.

* 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



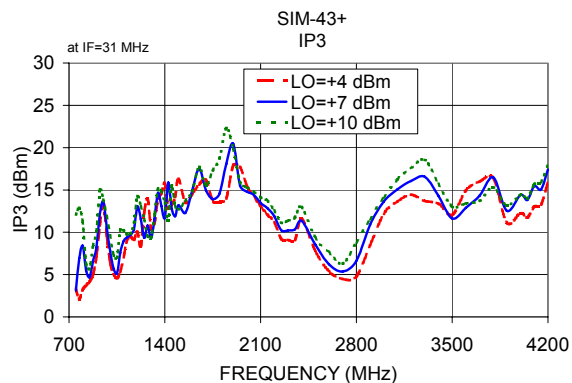
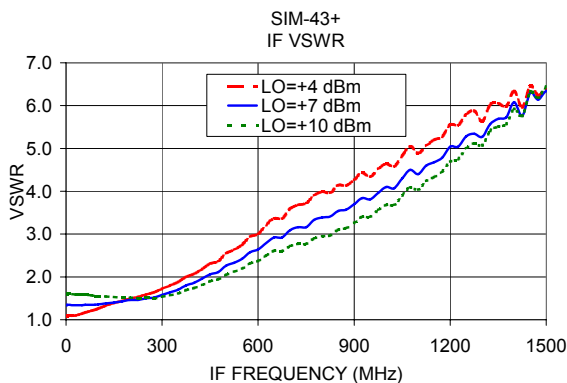
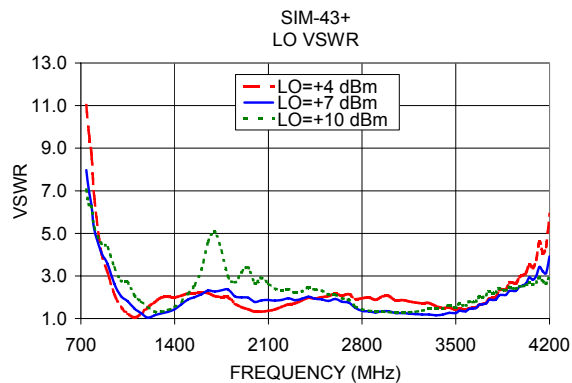
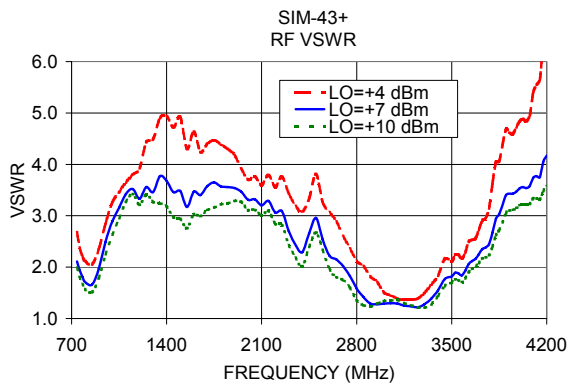
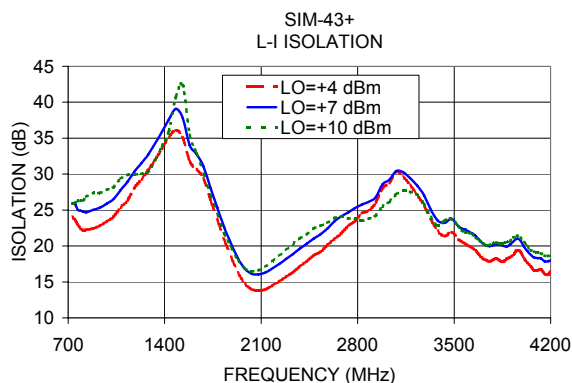
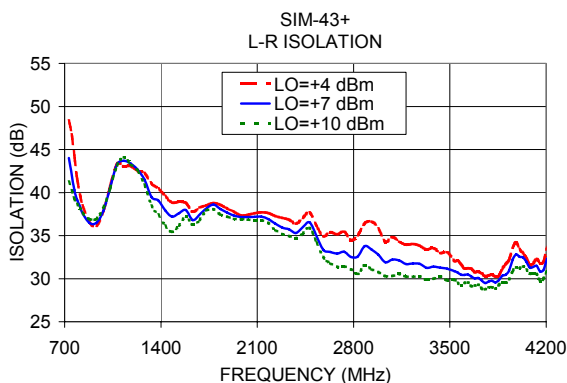
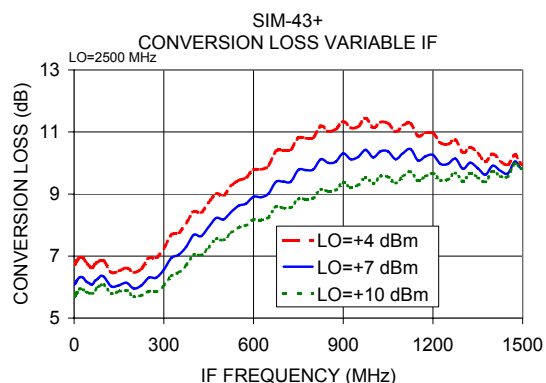
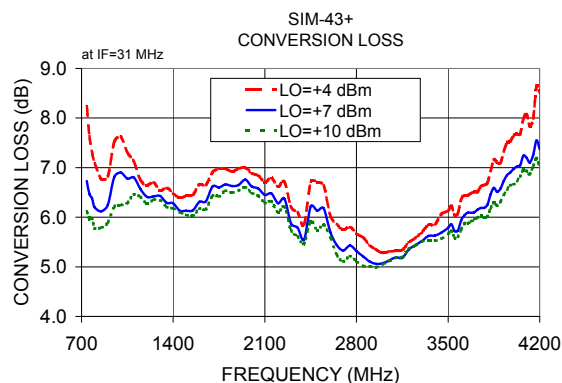
CASE STYLE: HV1195

+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



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