

# Frequency Mixer WIDE BAND

## SIM-63LH+

Level 10 (LO Power +10 dBm) 750 to 6000 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

### Features

- wide bandwidth, 750 to 6000 MHz
- low conversion loss, 6.2 dB typ.
- excellent L-R isolation, 34 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

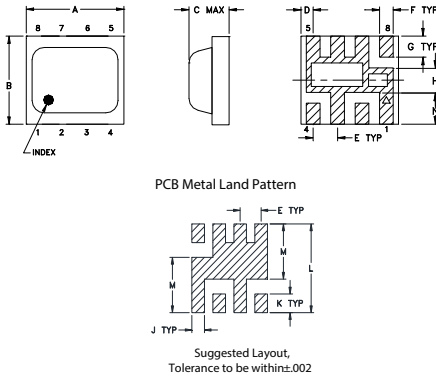
### +RoHS Compliant

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

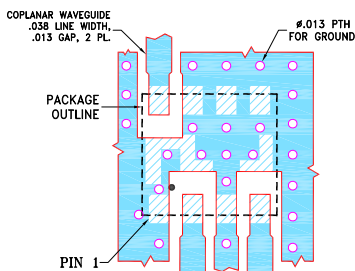
### Outline Drawing



### 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:
1. TRACE WIDTH AND GAP ARE SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS .020" & .015"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH AND GAP 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.

### 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.
- The parts covered by this specification document are subject to Mini-Circuit's standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuit's website at [www.minicircuits.com/WCLStore/terms.jsp](http://www.minicircuits.com/WCLStore/terms.jsp)

### Electrical Specifications

FREQUENCY (MHz)	CONVERSION LOSS* (dB)			LO-RF ISOLATION (dB)		LO-IF ISOLATION (dB)		IP3 at center band (dBm)	
	LO/RF $f_c - f_u$	IF		Typ.	Min.	Typ.	Min.		
750-6000	DC-1500	Typ.	$\sigma$	Max.	Typ.	Min.	Typ.	Min.	Typ.
750-1700		6.3	0.1	7.3	37	31	30	20	12
1700-2000		6.6	0.1	7.5	37	32	20	12	18
2000-3100		5.8	0.1	7.2	32	25	22	12	12
3100-3800		5.7	0.1	7.0	30	25	25	15	15
3800-6000		8.0	0.2	9.3	30	22	20	13	15

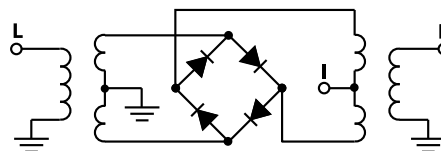
1 dB Compression: +3 dBm typ.

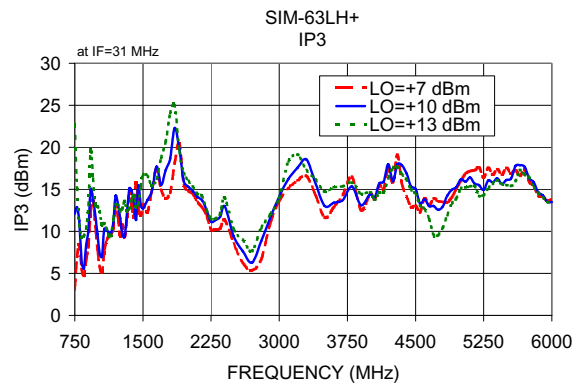
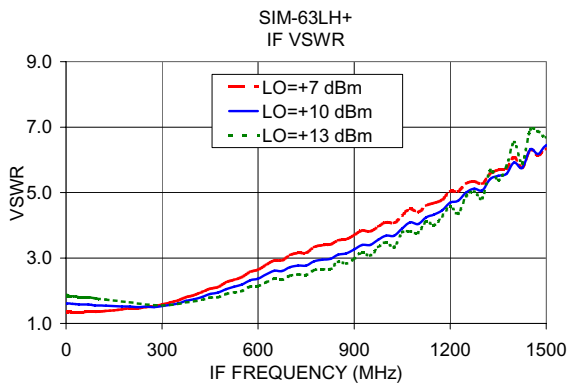
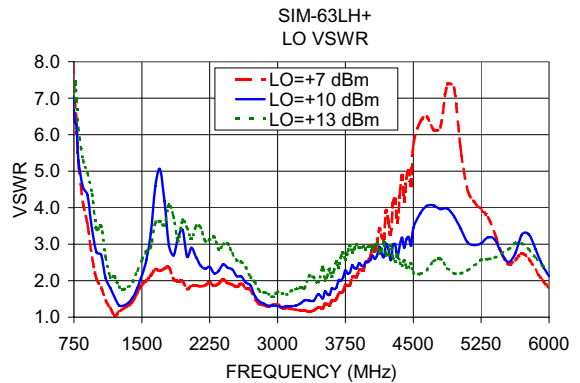
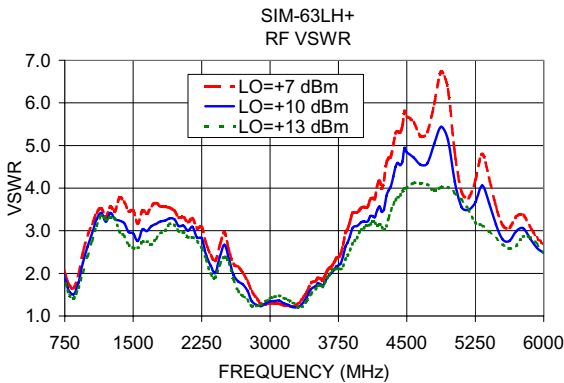
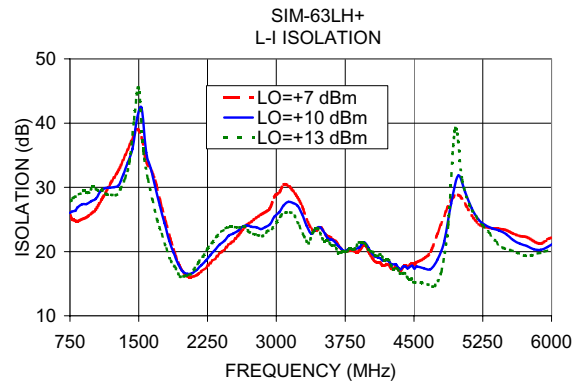
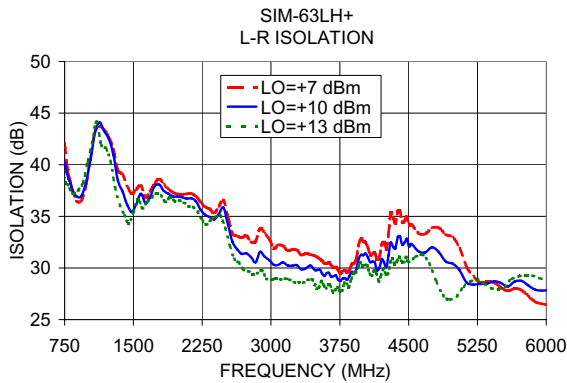
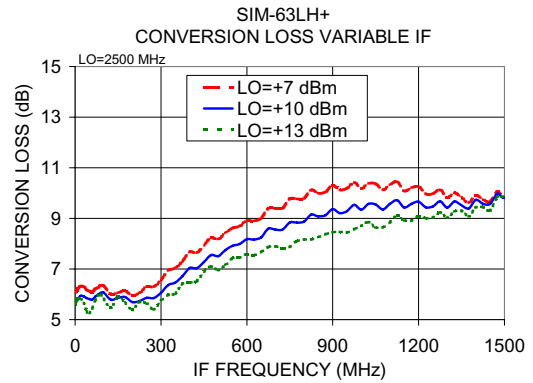
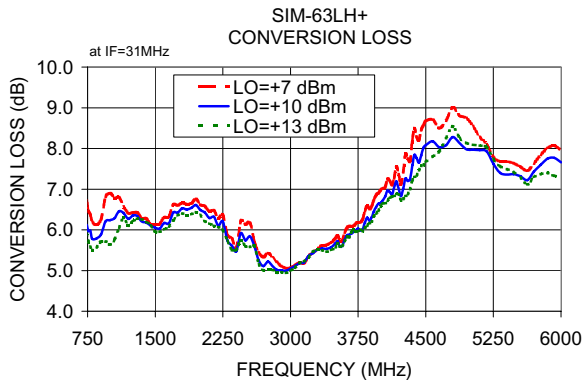
\* Conversion loss at 30 MHz IF.  $\sigma$  is a measure of repeatability from unit to unit.

### 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 +10dBm	LO +10dBm	LO +10dBm	LO +10dBm	LO +10dBm	LO +10dBm	LO +10dBm	LO +10dBm	LO +10dBm	LO +10dBm
740.00	771.00	6.12	39.29	26.22	1.99	7.05				
850.00	881.00	5.79	36.91	27.35	1.51	4.55				
1000.00	1031.00	6.24	40.47	28.20	2.63	2.78				
1200.00	1231.00	6.27	42.51	30.04	3.21	1.54				
1500.00	1531.00	6.05	36.17	42.37	2.94	2.15				
1800.00	1831.00	6.53	37.46	21.72	3.22	2.96				
2100.00	2131.00	6.29	36.76	17.14	3.00	2.64				
2400.00	2431.00	5.47	35.23	21.65	2.01	2.45				
2700.00	2731.00	5.11	31.43	23.85	1.75	1.87				
3000.00	3031.00	5.05	30.30	26.15	1.34	1.30				
3400.00	3431.00	5.53	30.24	23.55	1.44	1.45				
3800.00	3831.00	6.01	28.84	20.37	2.40	2.23				
4200.00	4231.00	7.01	30.59	18.41	3.57	3.00				
4500.00	4531.00	8.08	32.32	17.66	4.84	3.45				
4800.00	4831.00	8.28	31.53	21.57	5.04	3.96				
5100.00	5131.00	7.96	28.60	26.68	3.55	3.05				
5400.00	5431.00	7.36	28.72	23.26	3.65	3.13				
5700.00	5731.00	7.43	28.75	20.86	2.99	3.26				
5850.00	5881.00	7.75	27.90	20.28	2.82	2.87				
6000.00	6031.00	7.66	27.87	21.39	2.48	2.13				

### Electrical Schematic





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