

Frequency Mixer WIDE BAND

Level 13 (LO Power +13 dBm) 3200 to 15000 MHz

SIM-153MH+



Generic photo used for illustration purposes only

CASE STYLE: HV1195

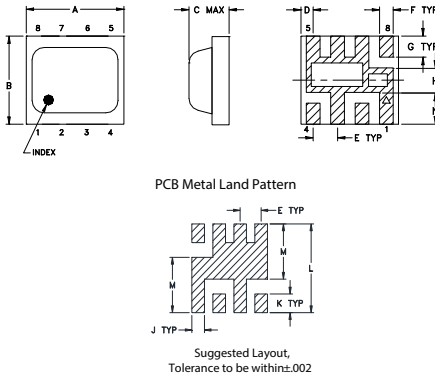
Maximum Ratings

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

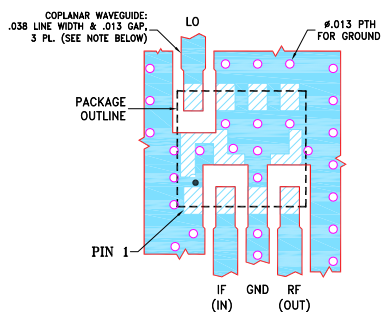
Outline Drawing



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-458+ Suggested PCB Layout (PL-517)



- NOTES:**
1. TRACE WIDTH AND GAP ARE SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .0028(.0015); 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).

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Notes

- A. 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.
- B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- C. 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/MCLStore/terms.jsp

Features

- wide bandwidth, 3200 to 15000 MHz
- low conversion loss, 6.5 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 under U.S. 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

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							Typ.
3200-15000	DC-4000							
3200-4500	6.4	0.2	8.9	38	31	19	15	17
4500-5100	6.5	0.2	8.0	38	32	15	11	22
5100-14000	7.5	0.4	11.5	35	22	15	9	17
14000-15000	7.8	0.3	9.6	30	18	28	17	14

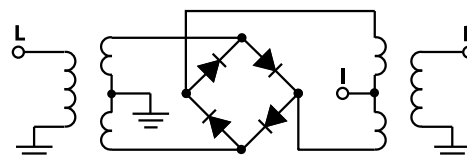
1 dB Compression: +7 dBm typ.

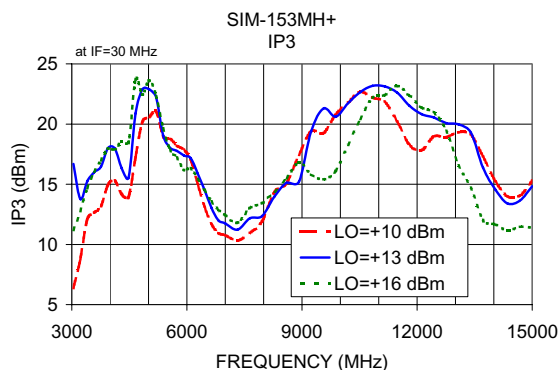
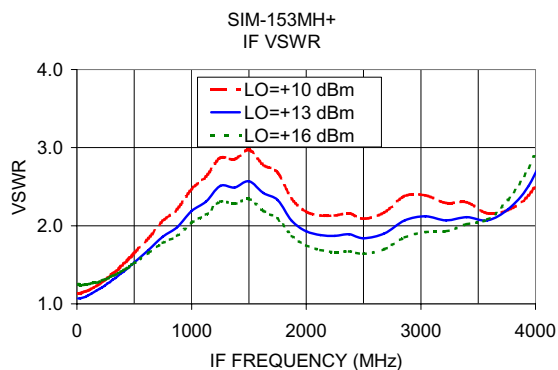
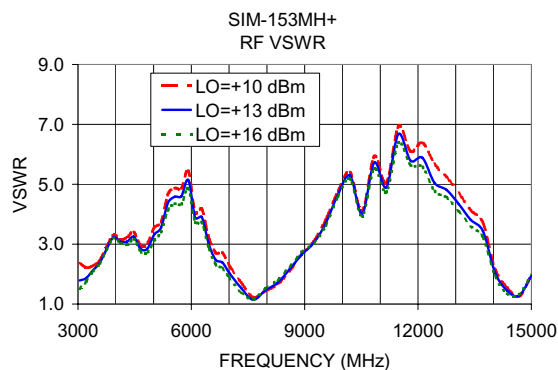
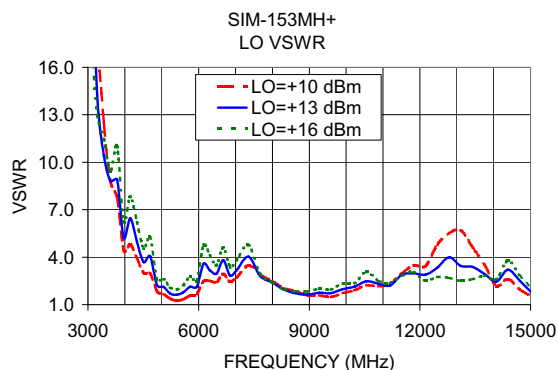
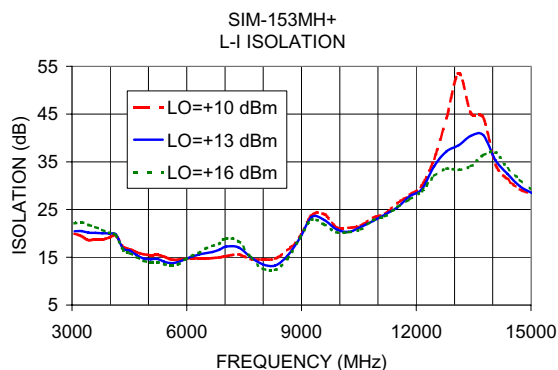
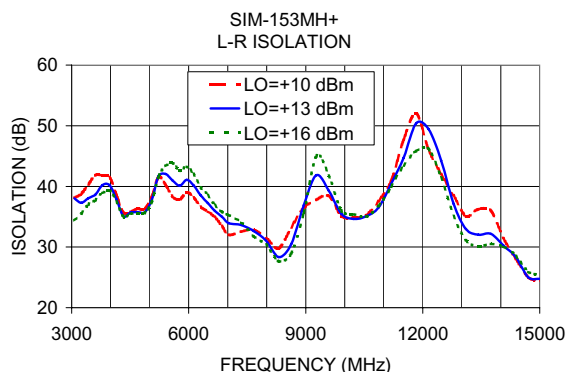
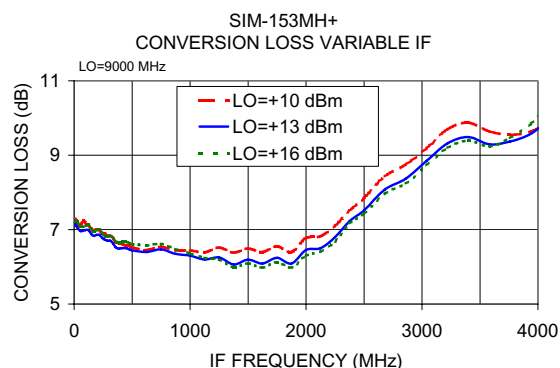
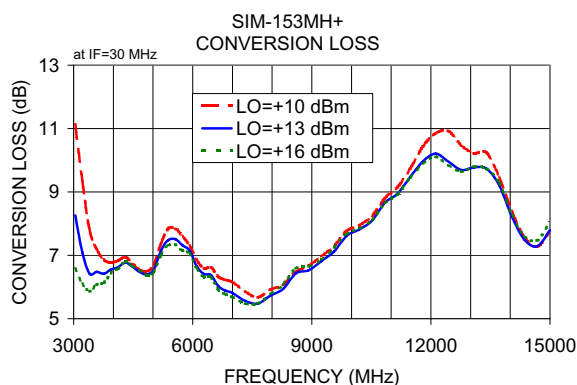
* Conversion loss at 30 MHz IF. σ is a measure of repeatability from unit to unit.

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 +13dBm	LO +13dBm	LO +13dBm	LO +13dBm	LO +13dBm
3040.10	3070.00	8.26	38.01	20.45	1.79	25.34
3220.10	3250.00	7.09	37.30	20.51	1.87	14.19
3580.10	3610.00	6.48	38.65	20.11	2.39	8.79
4120.10	4150.00	6.63	37.90	19.72	3.08	6.45
4660.10	4690.00	6.48	35.77	15.49	2.84	4.04
5200.10	5230.00	7.15	41.71	14.68	3.55	1.70
5740.10	5770.00	7.32	40.10	14.00	4.60	2.13
6280.10	6310.00	6.41	38.52	15.57	3.91	3.17
7000.10	7030.00	5.81	33.94	17.23	2.05	3.17
7960.10	7990.00	5.73	31.00	13.54	1.46	2.40
8920.10	8950.00	6.53	36.88	18.96	2.65	1.64
9880.10	9910.00	7.62	35.50	20.89	4.65	1.98
10840.10	10870.00	8.66	36.53	22.63	5.72	2.33
11480.10	11510.00	9.47	44.69	25.50	6.68	2.89
12120.10	12150.00	10.21	49.42	29.27	5.88	2.90
12760.10	12790.00	9.69	37.13	37.19	4.81	3.99
13400.10	13430.00	9.74	32.02	40.42	3.81	3.38
14040.10	14070.00	8.22	30.24	35.32	2.06	2.47
14680.10	14710.00	7.29	25.00	29.88	1.28	2.50
15000.10	15030.00	7.79	24.75	28.45	1.94	1.76

Electrical Schematic





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