Ceramic Surface Mount

Frequency Mixer WIDE BAND

SIM-852MH+

Level 13 (LO Power +13 dBm) 3700 to 8500 MHz

Generic photo used for illustration purposes only

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

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

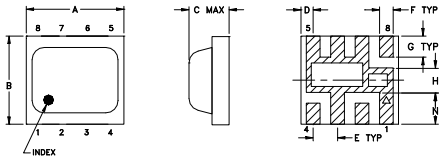
Features

- wide bandwidth, 3700 to 8500 MHz
- low conversion loss, 6.9 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 by US patent 7,027,795

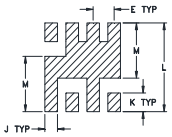
Applications

- satellite up and down converters
- defense radar and communications
- line of sight links
- federal fixed service
- WIFI
- blue tooth
- VSAT
- ISM

Outline Drawing



PCB Metal Land Pattern



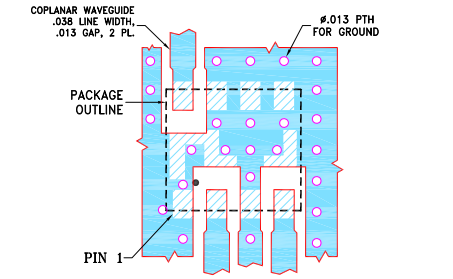
Suggested Layout,
Tolerance to be within±.002

Outline Dimensions (inch / mm)

A	B	C	D	E	F	G
.200	.180	.087	.025	.050	.028	.043
5.08	4.57	2.2098	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 RO4350B WITH DIELECTRIC THICKNESS .020"±.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).

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.
3700-8500	**DC-4000**								
3700-6200		7.3	0.1	8.7	36	28	16	10	22
6200-8500		6.9	0.2	9.8	35	22	15	7	16

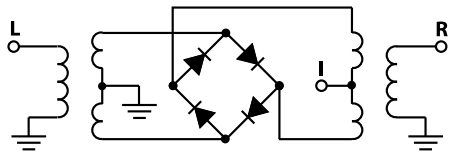
1 dB Compression: +9 dBm typ.

* 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
3700.10	3730.10	7.02	40.31	22.76	3.98	5.79
4000.10	4030.10	7.42	36.20	20.85	4.37	4.86
4500.10	4530.10	7.37	37.26	16.40	3.67	3.23
5000.10	5030.10	7.89	36.66	14.15	5.07	2.07
5500.10	5530.10	7.76	36.47	13.30	4.80	1.73
6000.10	6030.10	7.17	36.88	13.69	4.14	3.00
6100.10	6130.10	7.15	36.38	13.96	3.95	3.20
6200.10	6230.10	7.04	36.34	14.08	3.63	3.60
6500.10	6530.10	6.91	35.51	14.75	2.88	4.50
7000.10	7030.10	6.44	34.67	15.76	2.15	5.93
7100.10	7130.10	6.60	35.86	16.44	1.96	6.28
7200.10	7230.10	6.66	38.11	17.48	1.90	7.00
7400.10	7430.10	6.70	42.47	20.12	1.97	6.78
7500.10	7530.10	6.90	42.36	21.36	2.12	7.47
7800.10	7830.10	7.22	33.82	18.80	2.86	6.83
8000.10	8030.10	7.43	30.25	14.74	3.10	5.74
8100.10	8130.10	7.67	29.04	13.29	3.22	5.22
8200.10	8230.10	8.01	28.37	12.39	3.31	4.69
8400.10	8430.10	8.60	29.91	12.44	3.93	3.86
8500.10	8530.10	8.85	31.20	13.18	4.37	3.59

Electrical Schematic



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C. The parts covered by this specification document are subject to Mini-Circuits 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-Circuits’ website at www.minicircuits.com/MCLStore/terms.jsp

REV. B
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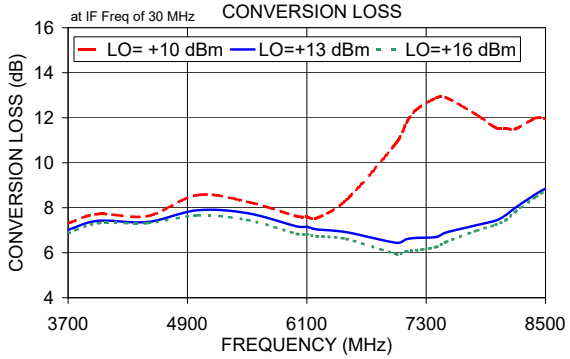
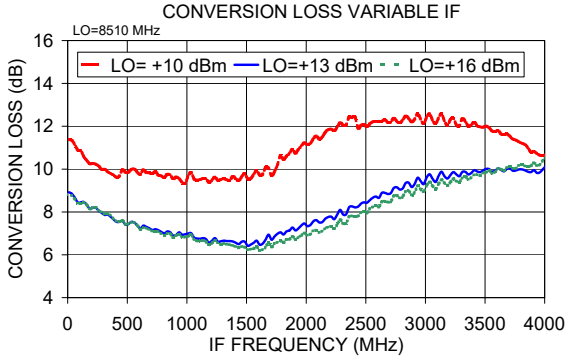
DJ/AM
200821

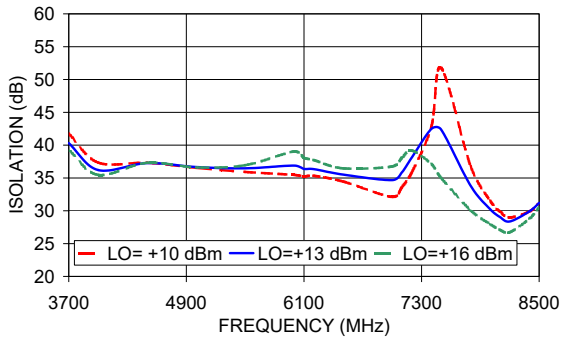
SIM-852MH+
CONVERSION LOSS



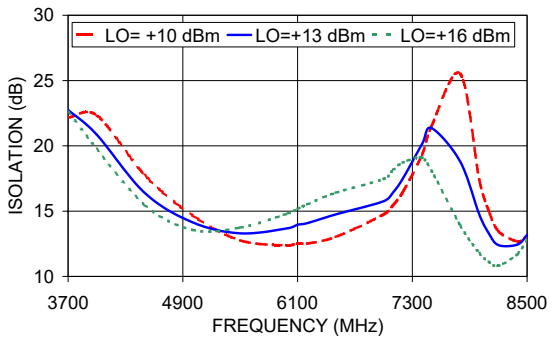
SIM-852MH+
CONVERSION LOSS VARIABLE IF



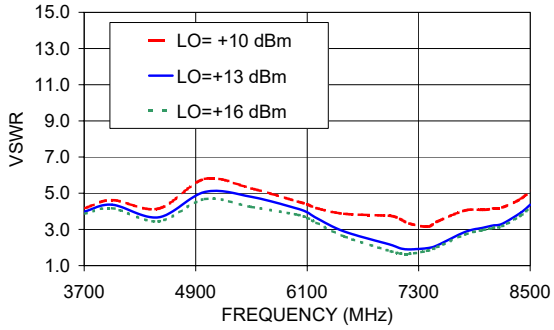
SIM-852MH+
L-R ISOLATION



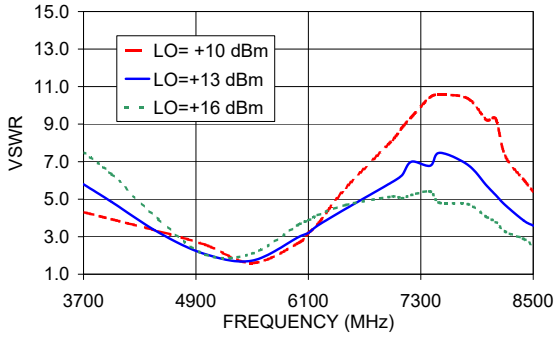
SIM-852MH+
L-I ISOLATION



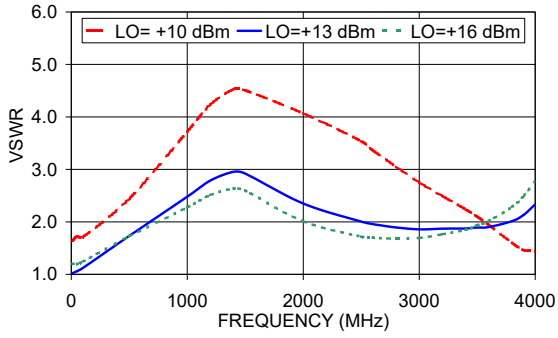
SIM-852MH+
RF VSWR



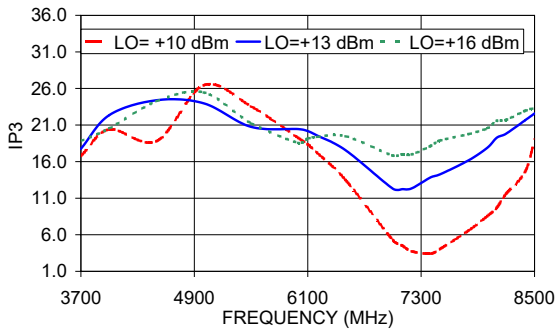
SIM-852MH+
LO VSWR



SIM-852MH+
IF VSWR



SIM-852MH+
IP3



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