

# Ceramic Surface Mount Frequency Mixer WIDE BAND

## SIM-852MH+

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

#### 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

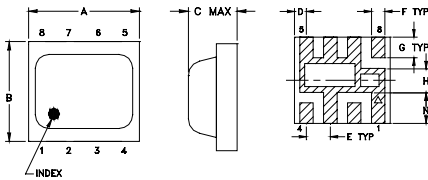
- satellite up and down converters
- defense radar and communications
- line of sight links
- federal fixed service
- WIFI
- blue tooth
- VSAT
- ISM

CASE STYLE: HV1195  
PRICE: \$ 8.95 ea. QTY (10)

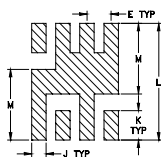
**+RoHS Compliant**  
The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Available Tape and Reel at no extra cost  
Reel Size Devices/Reel  
7" 10, 20, 50, 100, 200, 500

#### Outline Drawing



#### PCB Land Pattern

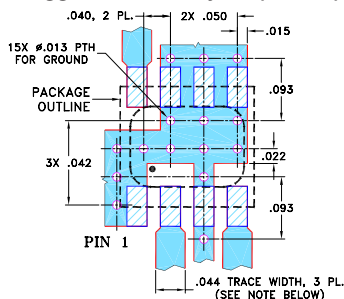


Suggested Layout,  
Tolerance to be within ±0.002

#### Outline Dimensions (inch/mm)

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:

1. 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.
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 $f_c - f_u$	IF	Typ. $\sigma$ Max.	Typ. Min.	Typ. Min.	Typ.		
3700-8500	DC-4000							
3700-6200			7.3	0.1	8.7	36	28	22
6200-8500			6.9	0.2	9.8	35	22	16

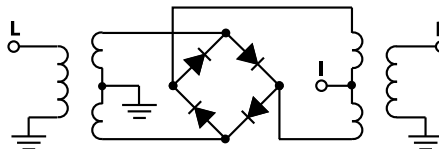
1 dB Compression: +9 dBm typ.

\* 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 +13dBm	RF +13dBm	LO +13dBm	RF +13dBm	LO +13dBm	RF +13dBm	LO +13dBm	RF +13dBm	LO +13dBm	RF +13dBm
3700.10	7.02	3.98	40.31	22.76	3.98	5.79				
4000.10	7.42	4.37	36.20	20.85	4.37	4.86				
4500.10	7.37	3.67	37.26	16.40	3.67	3.23				
5000.10	7.89	5.07	36.66	14.15	5.07	2.07				
5500.10	7.76	4.80	36.47	13.30	4.80	1.73				
6000.10	7.17	4.14	36.88	13.69	4.14	3.00				
6100.10	7.15	3.95	36.38	13.96	3.95	3.20				
6200.10	7.04	3.63	36.34	14.08	3.63	3.60				
6500.10	6.91	2.88	35.51	14.75	2.88	4.50				
7000.10	6.44	2.15	34.67	15.76	2.15	5.93				
7100.10	6.60	1.96	35.86	16.44	1.96	6.28				
7200.10	6.66	1.90	38.11	17.48	1.90	7.00				
7400.10	6.70	1.97	42.47	20.12	1.97	6.78				
7500.10	6.90	2.12	42.36	21.36	2.12	7.47				
7800.10	7.22	2.86	33.82	18.80	2.86	6.83				
8000.10	7.43	3.10	30.25	14.74	3.10	5.74				
8100.10	7.67	3.22	29.04	13.29	3.22	5.22				
8200.10	8.01	3.31	28.37	12.39	3.31	4.69				
8400.10	8.60	3.93	29.91	12.44	3.93	3.86				
8500.10	8.85	4.37	31.20	13.18	4.37	3.59				

#### Electrical Schematic



**Mini-Circuits**  
ISO 9001 ISO 14001 AS 9100 CERTIFIED

For detailed performance specs & shopping online see web site

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 The Design Engineers Search Engine Provides ACTUAL Data Instantly at [minicircuits.com](http://minicircuits.com)

IF/RF MICROWAVE COMPONENTS

Notes: 1. Performance and quality attributes and conditions not expressly stated in this specification sheet are intended to be excluded and do not form a part of this specification sheet. 2. Electrical specifications and performance data contained herein are based on Mini-Circuits' applicable established test performance criteria and measurement instructions. 3. The parts covered by this specification sheet 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](http://www.minicircuits.com/MCLStore/terms.jsp).

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Page 1 of 2

