

# Ceramic Surface Mount Frequency Mixer WIDE BAND

## SIM-43H+

### Level 17 (LO Power +17 dBm) 1000 to 4000 MHz



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

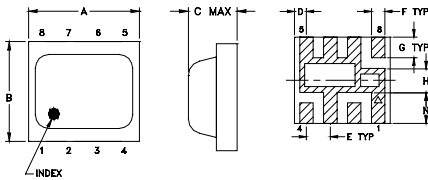
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	100mW

For extended temperature range, consult factory.  
Permanent damage may occur if any of these limits are exceeded.

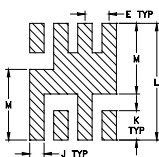
#### Pin Connections

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

#### Outline Drawing



#### PCB Land Pattern

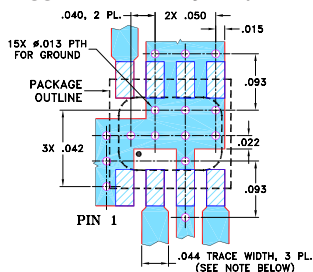


Suggested Layout,  
Tolerance to be within ±0.02

#### 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:

- 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.
- 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)

#### Features

- wide bandwidth, 1000 to 4000 MHz, useable down to 800 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)
	LO/RF $f_L-f_U$	IF	Typ. $\sigma$ Max.	Typ.	Min.	Typ.	Min.	
1000-4000	DC-1500		6.5 0.1 8.6	37	32	24	9	22
1000-2500			5.7 0.1 8.6	34	28	20	12	24

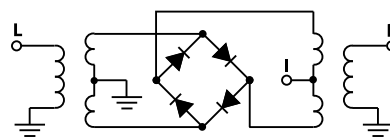
1 dB Compression: +14 dBm typ.

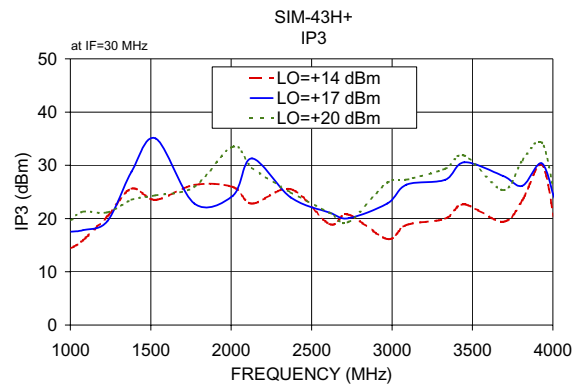
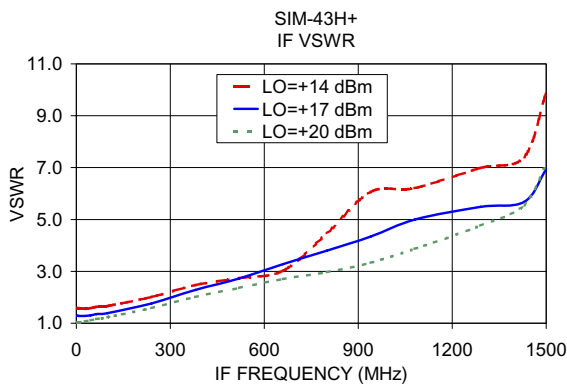
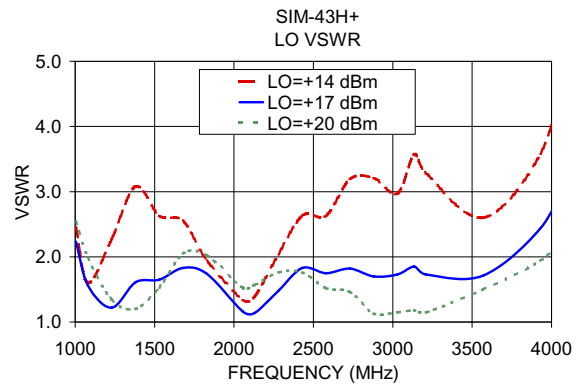
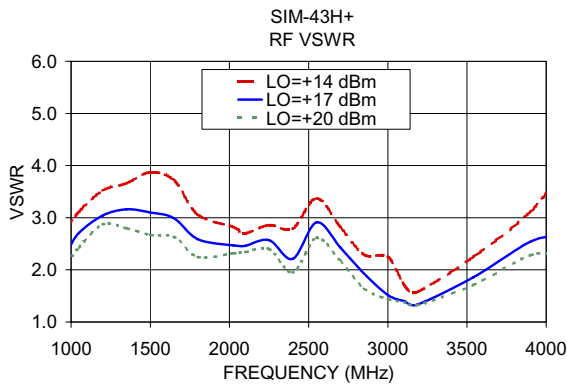
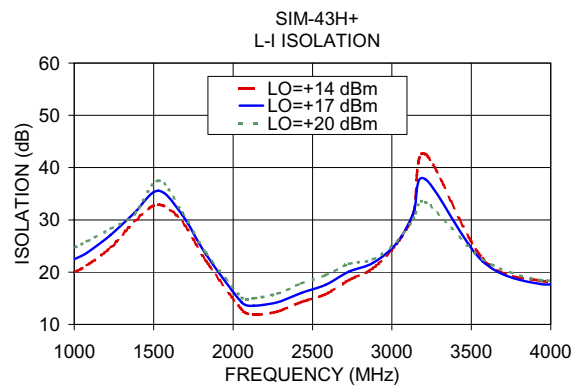
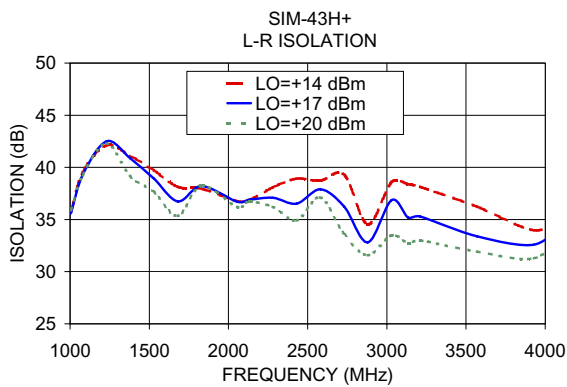
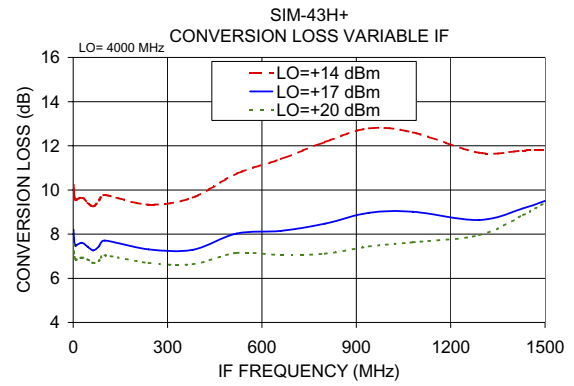
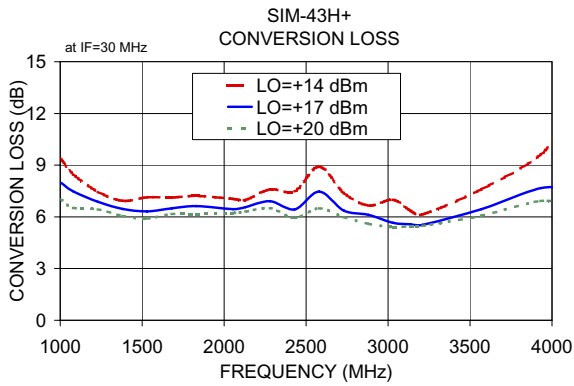
\* Conversion loss at 30 MHz IF.  $\sigma$  is a measure of repeatability from unit to unit.

#### Typical Performance Data

Frequency (MHz)	Conversion Loss (dB)	Isolation L-R (dB)	Isolation L-I (dB)	VSWR RF Port (:1)	VSWR LO Port (:1)
975.00	7.97	35.59	22.55	2.35	2.23
1050.00	7.48	39.31	23.71	2.71	1.56
1200.00	6.87	42.50	27.13	3.04	1.22
1350.00	6.46	40.87	31.37	3.16	1.61
1500.00	6.32	38.93	35.59	3.10	1.65
1650.00	6.49	36.73	30.94	2.99	1.83
1800.00	6.62	38.21	23.39	2.59	1.74
2025.00	6.45	36.69	14.20	2.47	1.16
2100.00	6.56	36.90	13.59	2.46	1.14
2250.00	6.91	37.09	14.23	2.57	1.48
2400.00	6.43	36.52	16.01	2.21	1.83
2550.00	7.46	37.89	17.58	2.91	1.75
2700.00	6.37	36.23	20.10	2.43	1.82
2850.00	6.12	32.81	21.75	1.93	1.70
3000.00	5.65	36.85	25.56	1.52	1.73
3105.00	5.57	35.17	31.30	1.40	1.85
3180.00	5.54	35.28	37.78	1.33	1.73
3540.00	6.45	33.40	22.10	1.86	1.71
3900.00	7.66	32.59	17.74	2.54	2.44
4080.00	7.54	34.81	18.91	2.65	3.28

#### Electrical Schematic





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