

# Ceramic Surface Mount Frequency Mixer WIDE BAND

## SIM-14H+

### Level 17 (LO Power +17 dBm) 3700 to 10000 MHz



#### Maximum Ratings

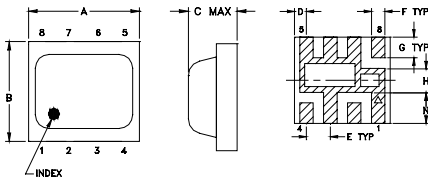
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	100mW

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

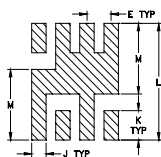
#### Pin Connections

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

#### Outline Drawing



#### PCB Land Pattern

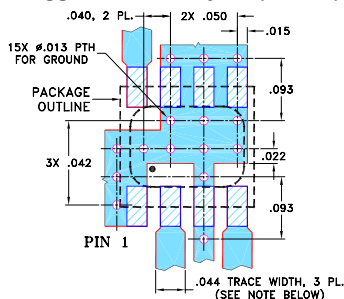


Suggested Layout,  
Tolerance to be within ±0.02

#### 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

#### Features

- wide bandwidth, 3700 to 10000 MHz
- low conversion loss, 7.0 dB typ.
- high L-R isolation, 38 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

#### Electrical Specifications

FREQUENCY (MHz)	CONVERSION LOSS* (dB)			LO-RF ISOLATION (dB)		LO-IF ISOLATION (dB)		IP3 (dBm)
	LO/RF $f_c - f_u$	IF	DC-4000	Typ.	Min.	Typ.	Min.	
3700-6200	7.0	0.3	9.3	38	29	16	9	25
6200-10000	7.0	0.3	10.5	35	24	17	8	25

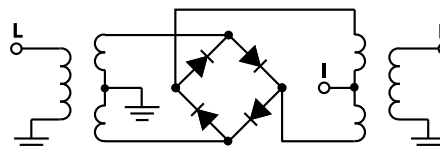
1 dB Compression: +14 dBm typ.

\* 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)
3560.00	7.51	37.51	16.92	2.55	7.97
3720.00	8.17	42.81	18.98	3.05	3.95
3880.00	7.17	40.82	17.17	3.17	6.58
4040.00	7.62	43.86	18.91	3.51	7.34
4200.00	7.48	38.33	16.97	3.29	4.29
4520.00	7.00	37.71	16.17	3.56	1.94
4840.00	6.57	37.94	16.15	3.28	2.16
5100.00	7.10	39.65	16.32	3.40	1.59
5880.00	7.55	39.57	13.91	5.48	1.36
6270.00	7.79	35.34	13.12	4.81	2.46
6660.00	7.56	29.49	12.32	3.01	2.34
7050.00	6.71	31.34	12.85	2.24	3.16
7830.00	6.80	33.03	14.74	1.54	3.97
8220.00	6.99	32.05	15.28	1.90	3.32
8610.00	7.19	39.29	15.05	2.77	2.30
9000.00	7.96	37.33	15.47	3.79	1.54
9100.00	7.93	37.82	16.00	3.99	1.45
9450.00	8.29	41.23	18.02	4.17	1.54
9800.00	8.39	42.86	19.43	4.83	2.02
10150.00	8.92	42.41	21.36	5.20	2.60

#### Electrical Schematic



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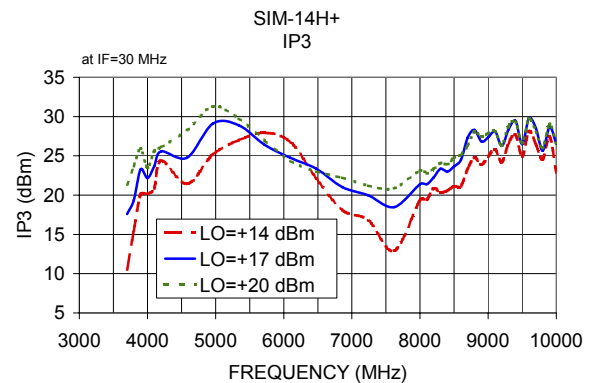
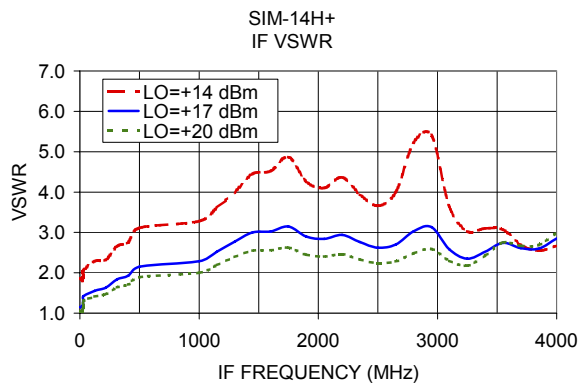
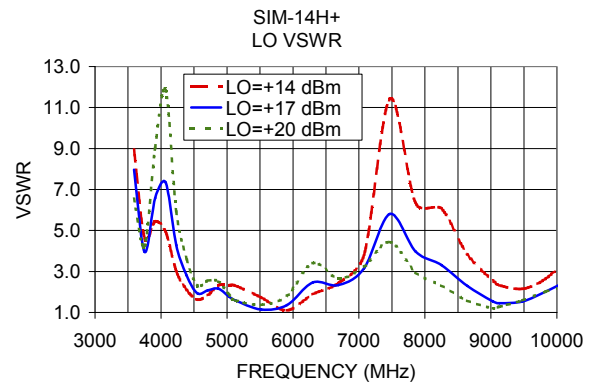
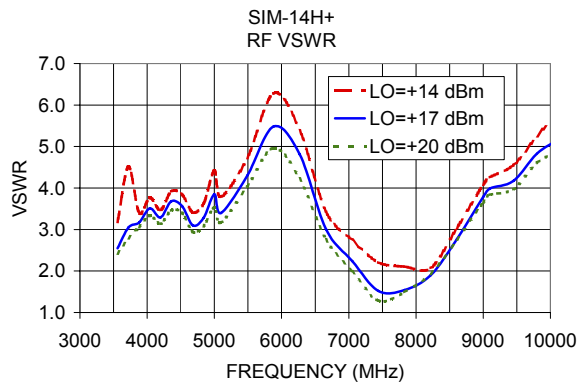
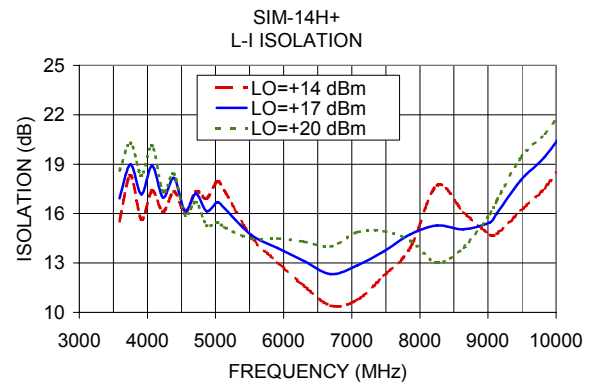
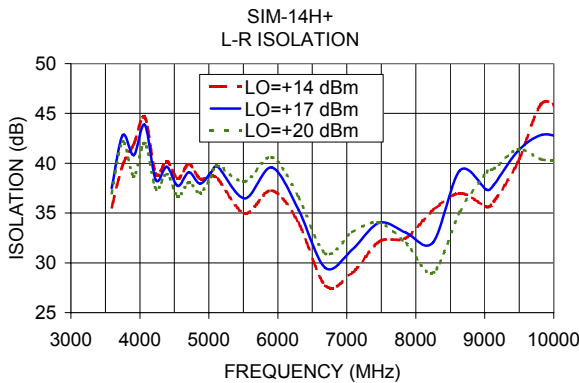
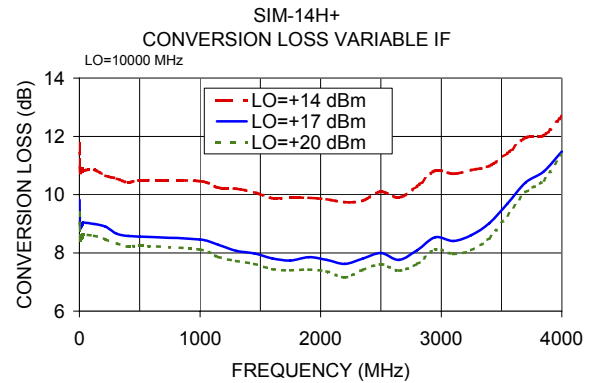
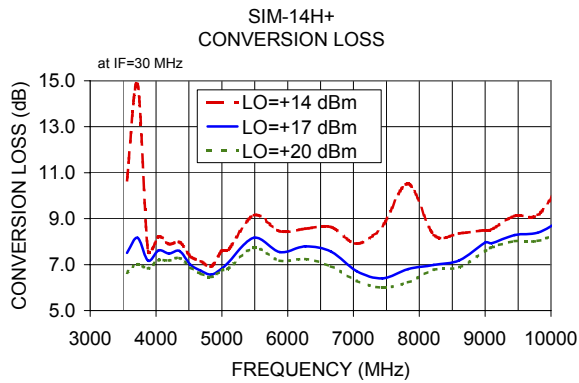
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