

# Up Converter Frequency Mixer

## SIM-U712H+

### Level 17 (LO Power +17 dBm) 10 to 7100 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

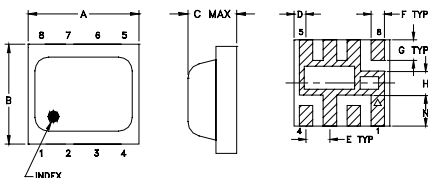
### Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
IF Power	100mW
For extended temperature range, consult factory. Permanent damage may occur if any of these limits are exceeded.	

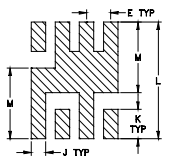
### Pin Connections

LO	2
IF (IN)	8
RF (OUT)	4
GROUND	1,3,5,6,7

### Outline Drawing



### PCB Land Pattern

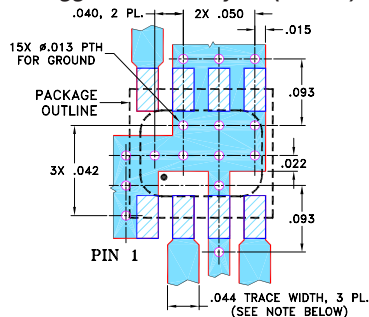


Suggested Layout,  
Tolerance to be within ±.002

### Outline Dimensions (inch/mm)

A	B	C	D	E	F	G
.200	.180	.087	.025	.050	.028	.043
5.08	4.57	2.21	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/MCLStore/terms.jsp](http://www.minicircuits.com/MCLStore/terms.jsp)

### Features

- up converter mixer
- low conversion loss, 7.3 dB typ.
- high IP3, 27 dBm typ.
- ceramic, tiny size
- aqueous washable
- protected by US patent, 7,027,795

### Applications

- cellular infrastructure
- WIMAX
- line-of-sight links
- wide band receivers

### Electrical Specifications

FREQUENCY (MHz)			CONVERSION LOSS* (dB)			LO-IF (IN) ISOLATION (dB)		LO-RF (OUT) ISOLATION (dB)		IP3 at center band (dBm)
IF (IN)	LO	RF (OUT)	Typ.	σ **	Max.	Typ.	Min.	Typ.	Min.	Typ.
2600-7100	10-1780	2600-7100	7.3	0.3	9.5	27	14	19	11	27

1 dB Compression: +14 dBm typ.

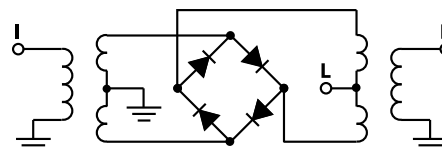
\* Conversion Loss at 30 MHz LO

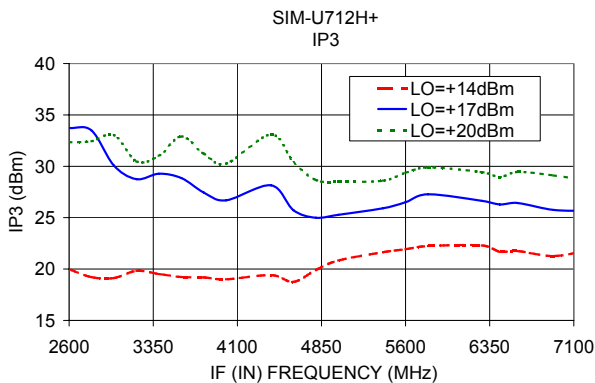
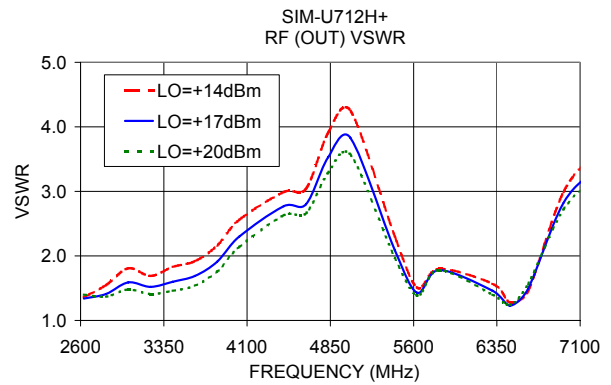
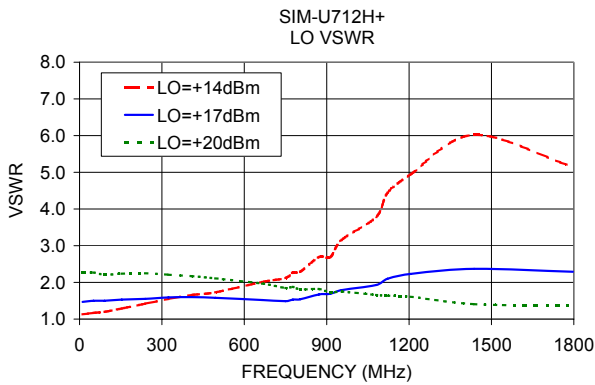
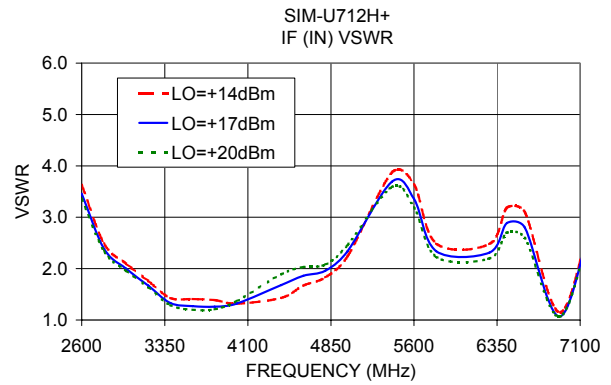
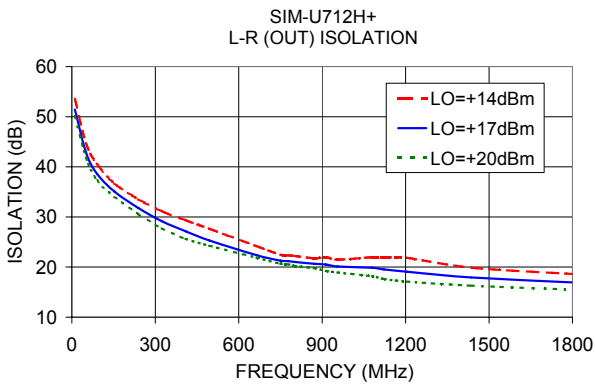
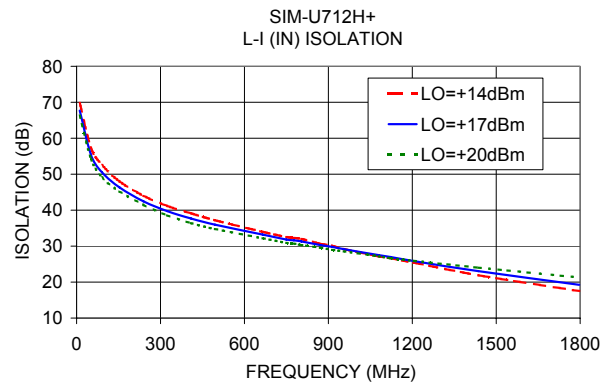
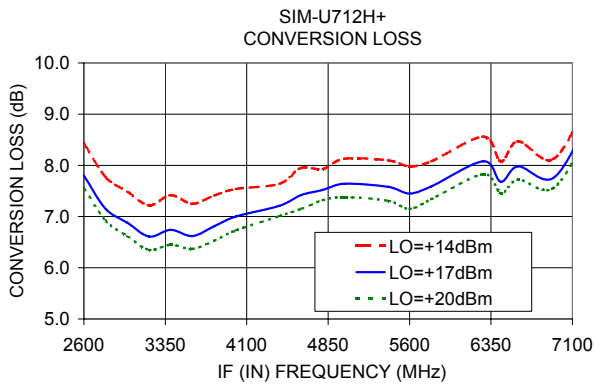
\*\* σ is a standard deviation

### Typical Performance Data

Frequency (MHz)	Conversion Loss (dB)		VSWR RF Port (:1)		Frequency (MHz)	Isolation L-I (dB)		Isolation L-R (dB)		VSWR LO Port (:1)
	LO	RF (OUT)	LO +17dBm	LO +17dBm		LO +17dBm	LO +17dBm	LO +17dBm	LO +17dBm	
2600.10	30.00	2630.10	7.80	1.34	11.00	67.68	51.44	1.47		
2800.10	30.00	2830.10	7.15	1.41	51.00	55.46	42.85	1.50		
3000.10	30.00	3030.10	6.88	1.59	91.00	50.53	38.59	1.50		
3200.10	30.00	3230.10	6.61	1.52	153.60	46.33	35.04	1.53		
3400.10	30.00	3430.10	6.74	1.60	238.80	42.47	31.79	1.55		
3600.10	30.00	3630.10	6.62	1.69	324.00	39.73	29.14	1.59		
3800.10	30.00	3830.10	6.81	1.91	409.20	37.68	27.14	1.60		
4000.10	30.00	4030.10	7.00	2.30	494.40	35.96	25.30	1.58		
4400.10	30.00	4430.10	7.21	2.77	664.80	33.22	22.36	1.52		
4600.10	30.00	4630.10	7.42	2.80	750.00	31.84	21.29	1.49		
4800.10	30.00	4830.10	7.52	3.53	776.67	31.61	21.20	1.53		
5000.10	30.00	5030.10	7.64	3.83	803.33	31.30	21.00	1.54		
5400.10	30.00	5430.10	7.58	2.09	871.67	30.30	20.66	1.67		
5600.10	30.00	5630.10	7.45	1.43	913.33	29.80	20.50	1.69		
5800.10	30.00	5830.10	7.59	1.78	955.00	29.17	20.11	1.79		
6280.10	30.00	6310.10	8.08	1.46	1080.00	27.50	19.86	1.93		
6440.10	30.00	6470.10	7.68	1.23	1121.67	26.99	19.53	2.10		
6600.10	30.00	6630.10	7.98	1.49	1205.00	25.85	19.07	2.23		
6920.10	30.00	6950.10	7.75	2.82	1436.67	23.03	17.93	2.37		
7240.10	30.00	7270.10	8.80	3.39	1796.50	19.26	16.94	2.29		

### Electrical Schematic





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