

# Up Converter Frequency Mixer

## SIM-U742MH+

### Level 13 (LO Power +13 dBm) 0.1 to 7400 MHz



Generic photo used for illustration purposes only

CASE STYLE: HV1195

#### Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
IF Power	50mW

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

#### Pin Connections

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

#### Features

- up converter mixer
- low conversion loss, 8.0 dB typ.
- high IP3, 20 dBm typ.
- ceramic, tiny size
- aqueous washable
- protected by US Patent, 7,027,795

#### Applications

- instrumentation
- wide band receivers

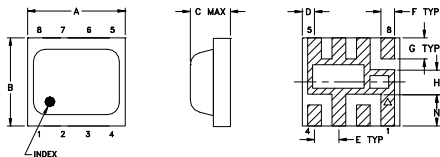
**+RoHS Compliant**

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

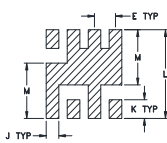
**Available Tape and Reel at no extra cost**

Reel Size	Devices/Reel
7"	10, 20, 50, 100, 200, 500

#### Outline Drawing



PCB Metal Land Pattern

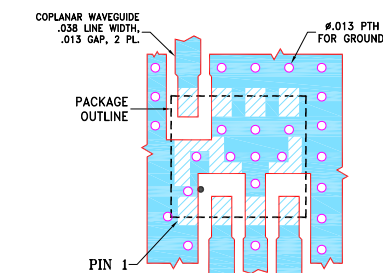


Suggested Layout, Tolerance to be within: .002

#### 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-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.
0.1-3300	2300-7400	2300-7400	8.0	0.4	9.8	17	11	23	13	20

1 dB Compression: +9 dBm typ.

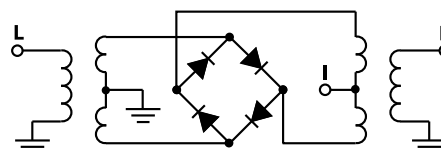
\* Conversion loss at 4075 MHz RF

\*\* σ is a standard deviation

#### Typical Performance Data

Frequency (MHz)			Conver. Loss (dB)	Freq. (MHz)	Isolation L-I (dB)	Isolation L-R (dB)	VSWR LO Port (:1)	Freq. (MHz)	VSWR RF (OUT) Port (:1)
IF (IN)	LO	RF (OUT)	LO +13dBm	LO +13dBm	LO +13dBm	LO +13dBm	LO +13dBm	LO +13dBm	LO +13dBm
21.10	4096.10	4075.00	6.03	2280.00	21.11	35.76	3.36	2250.00	2.32
31.10	4106.10	4075.00	6.05	2500.00	25.02	42.09	2.74	2470.00	2.72
41.10	4116.10	4075.00	6.03	2720.00	27.47	35.87	2.40	2690.00	2.91
194.85	4141.10	3946.25	5.99	2950.00	28.05	31.81	2.29	2920.00	3.19
338.60	4156.10	3817.50	5.95	3250.00	26.76	29.17	1.91	3220.00	2.90
482.35	4171.10	3688.75	5.94	3370.00	25.09	28.95	2.13	3340.00	3.02
769.85	4236.10	3466.25	5.95	3430.00	24.87	29.31	1.95	3400.00	2.90
1057.35	4617.35	3560.00	6.14	3650.00	23.46	29.32	1.80	3620.00	2.78
1201.10	4807.98	3606.88	6.52	4750.00	16.89	26.01	3.68	4720.00	3.43
1344.85	4998.60	3653.75	7.08	5630.00	16.30	22.90	4.40	5600.00	3.03
1632.35	5379.85	3747.50	8.67	5720.00	16.72	22.41	4.23	5690.00	2.88
1919.85	5761.10	3841.25	9.09	5900.00	17.80	21.43	5.30	5870.00	2.54
2207.35	6142.35	3935.00	8.72	6080.00	19.31	20.77	3.32	6050.00	2.28
2351.10	6332.98	3981.88	8.28	6260.00	21.40	21.15	2.84	6230.00	2.41
2494.85	6523.60	4028.75	7.97	6350.00	22.67	21.56	2.38	6320.00	2.34
2782.35	6904.85	4122.50	7.83	6440.00	24.00	22.02	1.86	6410.00	2.30
2926.10	7095.48	4169.38	7.66	6780.00	26.39	22.15	1.59	6750.00	2.79
3069.85	7286.10	4216.25	8.23	7030.00	21.16	19.85	1.96	7000.00	3.11
3213.60	7376.10	4162.50	8.62	7280.00	17.83	20.22	2.73	7250.00	3.84
3357.35	7476.10	4118.75	9.08	7530.00	15.28	21.99	6.61	7500.00	5.23

#### Electrical Schematic



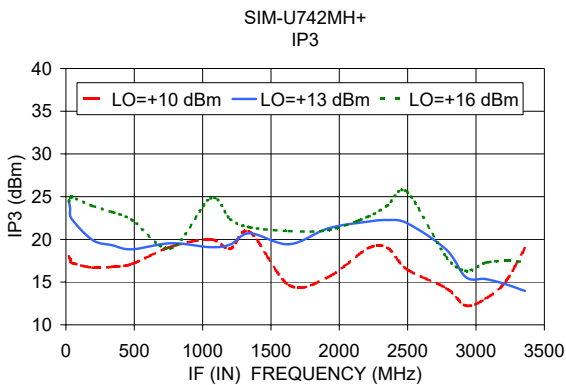
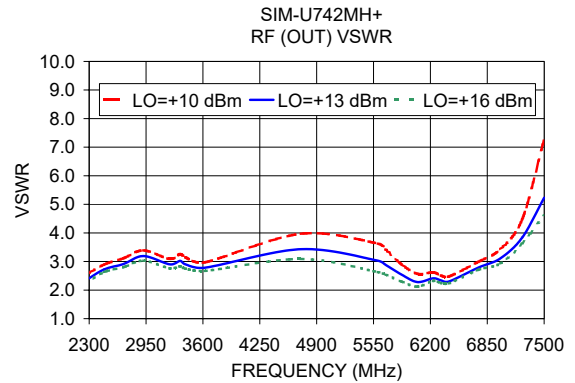
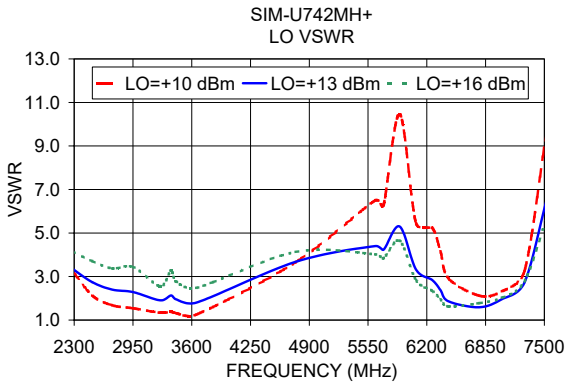
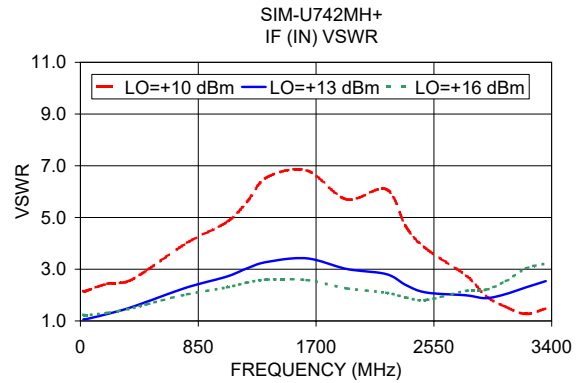
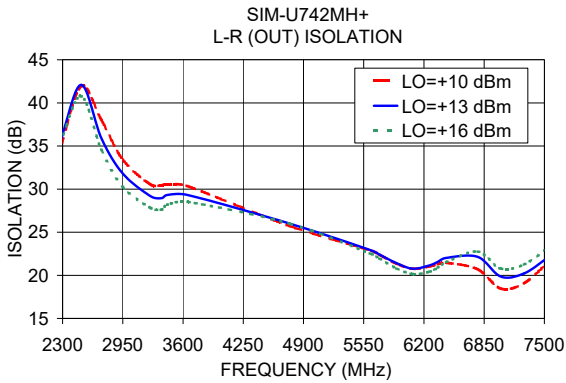
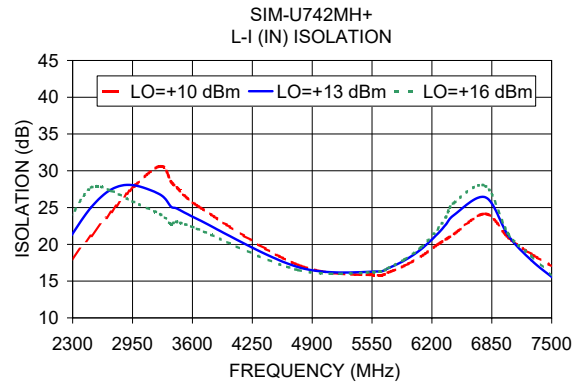
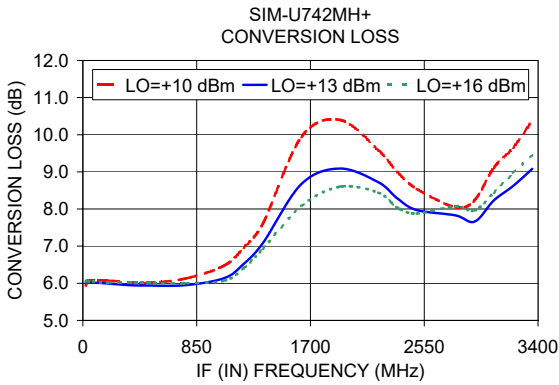
#### Notes

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Page 1 of 2



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