

# Up Converter Frequency Mixer

## HJK-U151H+

Level 17 (LO Power +17 dBm) 10 to 280 MHz



Generic photo used for illustration purposes only

CASE STYLE: TTT881

**+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
13"	500

### Maximum Ratings

Operating Temperature	-20°C to 85°C
Storage Temperature	-55°C to 100°C
LO Power	+19 dBm
IF Power	+19 dBm

Permanent damage may occur if any of these limits are exceeded.

### Pin Connections

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

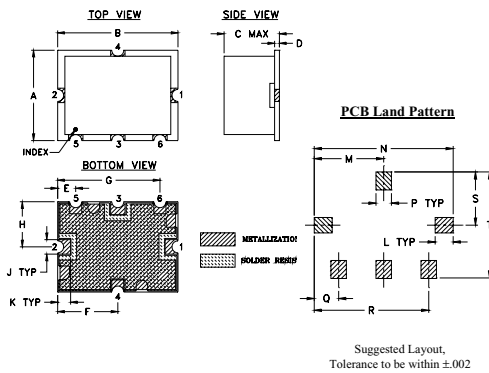
### Features

- up converter mixer
- high IP3, 28 dBm typ.
- excellent L-R isolation, 55 dB typ;  
L-I isolation, 40 dB typ.
- protected by US Patent 6,807,407

### Applications

- mobile satellite
- differential GPS
- amateur radio
- aeronautical communications

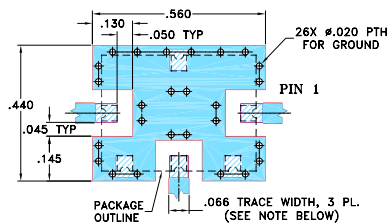
### Outline Drawing



### Outline Dimensions ( inch )

A	B	C	D	E	F	G	H	J	K
.38	.50	.23	.020	.075	.250	.425	.187	.050	.050
9.65	12.70	5.84	0.51	1.91	6.35	10.80	4.75	1.27	1.27
L	M	N	P	Q	R	S	T	wt.	
.070	.270	.540	.060	.095	.445	.208	.415	grams	
1.78	6.86	13.72	1.52	2.41	11.30	5.28	10.54	0.8	

### Demo Board MCL P/N: TB-12 Suggested PCB Layout (PL-079)



1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS .030" ± .002". COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. THE USE OF SOLDER MASK OVER THE GROUND AREA UNDER THE UNIT AS SHOWN IS RECOMMENDED TO PREVENT POTENTIAL SHORTING. IF USER CHOOSES TO EXPOSE METAL UNDER THE ENTIRE UNIT GROUND PAD FOR IMPROVED GROUNDING, IT IS RECOMMENDED A SOLDER MASK DAM BE APPLIED AROUND EACH GROUND PAD TO ENSURE FILLET AND CONNECTION AT GROUND PADS.
3. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE. DENOTES PCB COPPER LAYOUT WITH SOLDER (SOLDER

### 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.
10-130	140-280	70-150	7.6	0.1	9.2	40	30	55	48	28

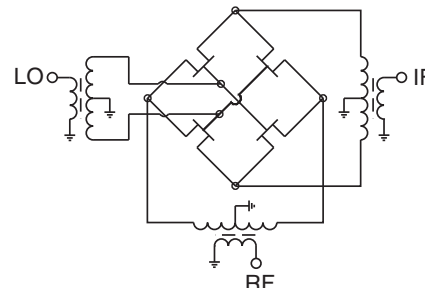
1 dB COMPR. +17 dBm typ.

\* σ is a standard deviation

### Typical Performance Data

Frequency (MHz)			Conversion Loss (dB)	Isolation L-I (dB)	Isolation L-R (dB)	VSWR LO Port (:1)	IP3 (dBm)	Freq. (MHz)	VSWR RF (OUT) Port (:1)
IF (IN)	LO	RF (OUT)	LO +17dBm	LO +17dBm	LO +17dBm	LO +17dBm	LO +17dBm	LO +17dBm	LO +17dBm
10.10	140.10	130.00	7.72	42.54	55.17	2.34	30.47	70.00	1.98
15.10	146.10	131.00	7.67	42.45	54.87	2.32	30.11	74.00	1.97
20.10	152.10	132.00	7.65	42.26	54.66	2.31	29.50	78.00	1.96
25.10	158.10	133.00	7.65	41.96	54.39	2.31	29.62	82.00	1.95
30.10	164.10	134.00	7.67	41.63	54.02	2.32	31.07	86.00	1.95
35.10	170.10	135.00	7.72	41.21	53.70	2.34	32.74	90.00	1.94
40.10	176.10	136.00	7.75	40.74	53.58	2.37	31.71	94.00	1.94
45.10	182.10	137.00	7.79	40.29	53.70	2.41	29.81	98.00	1.93
50.10	188.10	138.00	7.80	39.99	53.96	2.46	27.61	102.00	1.92
55.10	194.10	139.00	7.80	39.90	54.05	2.52	26.14	106.00	1.92
60.10	200.10	140.00	7.80	40.10	53.73	2.59	28.38	110.00	1.91
65.10	206.10	141.00	7.79	40.43	53.15	2.67	28.84	114.00	1.91
70.10	212.10	142.00	7.75	40.61	52.79	2.76	29.95	118.00	1.91
80.10	224.10	144.00	7.72	40.76	52.57	2.91	28.32	126.00	1.90
85.10	230.10	145.00	7.71	40.73	52.57	2.98	27.67	130.00	1.90
90.10	236.10	146.00	7.74	40.64	52.64	3.02	27.27	134.00	1.90
100.10	247.10	147.00	7.75	40.38	52.74	3.03	26.72	138.00	1.90
110.10	258.10	148.00	7.80	39.93	52.45	3.00	26.55	142.00	1.90
120.10	269.10	149.00	7.83	39.35	51.90	3.00	27.14	146.00	1.90
130.10	280.10	150.00	7.88	38.74	51.55	3.11	27.66	150.00	1.90

### Electrical Schematic



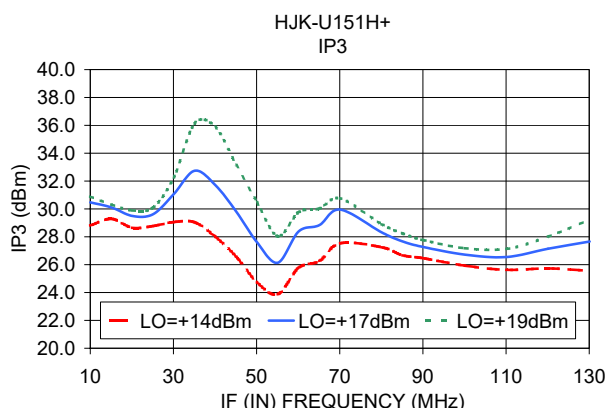
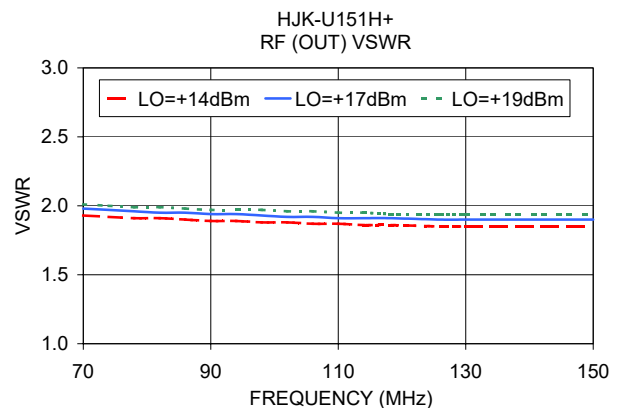
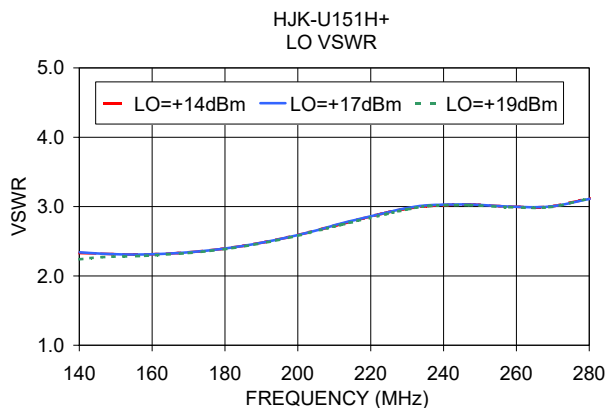
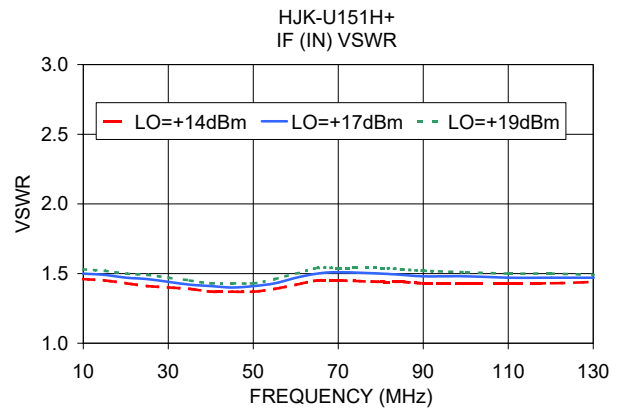
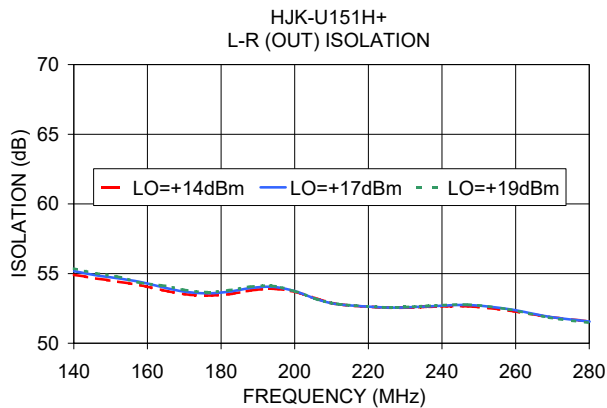
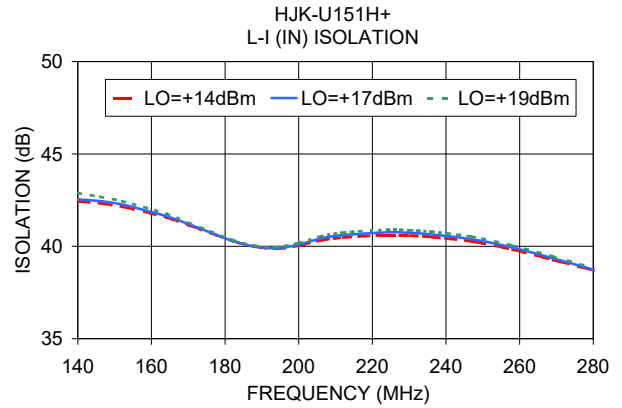
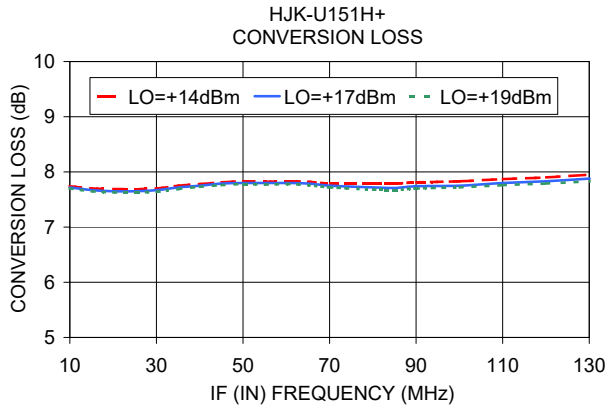
#### Notes

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[www.minicircuits.com](http://www.minicircuits.com) P.O. Box 350166, Brooklyn, NY 11235-0003 (718) 934-4500 sales@minicircuits.com

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