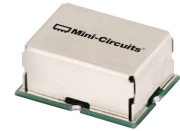


Up Converter Frequency Mixer

HJK-U232H+

Level 17 (LO Power +17 dBm) 850 to 2360 MHz



CASE STYLE: TTT881

Maximum Ratings

Operating Temperature	-20°C to 85°C
Storage Temperature	-55°C to 100°C
LO Power	+19dBm
IF Power	+20dBm
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
- very high IP3, 31 dBm typ.
- excellent L-R isolation, 46 dB typ;
L-I isolation, 35 dB typ.
- protected by US Patent 6,807,407

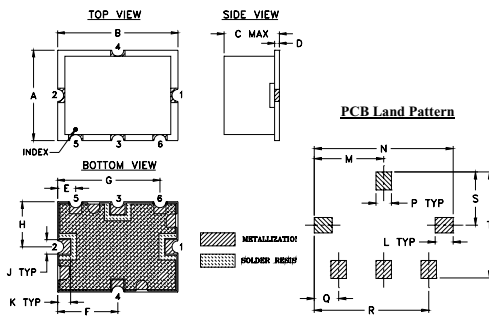
Applications

- base stations
- communication systems
- cellular
- mobile satellite
- GPS
- fixed microwave

+RoHS Compliant

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

Outline Drawing

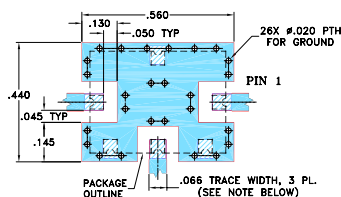


Suggested Layout,
Tolerance to be within ±.002

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		
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)



- NOTE:
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 TILLET AND CONNECTION AT GROUND PADS.
 3. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER). SEE NOTE 2.
- 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.
850-1850	370-510	1220-2360	6.8	0.1	8.8	35	28	46	40	31

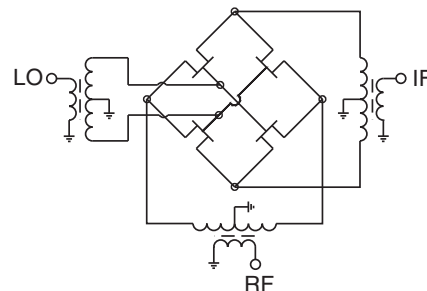
1 dB COMPR. +20 dBm typ.

* σ is a standard deviation.

Typical Performance Data

Frequency (MHz)			Conversion Loss (dB)	Isolation L-I (dB)	Isolation L-R (dB)	VSWR RF Port (:1)	VSWR LO Port (:1)	IP3 (dBm)
IF (IN)	LO	RF (OUT)	+17dBm	+17dBm	+17dBm	LO +17dBm	LO +17dBm	LO +17dBm
850.00	370.00	1220.00	7.23	36.84	48.48	2.40	3.96	28.09
910.00	380.00	1290.00	7.24	36.40	48.08	2.22	3.40	29.57
1030.00	400.00	1430.00	7.05	35.53	47.30	2.28	2.33	32.57
1071.00	405.50	1476.50	7.14	35.32	47.10	2.06	2.10	34.48
1112.00	411.00	1523.00	6.98	35.16	46.98	2.11	1.90	37.69
1194.00	422.00	1616.00	7.00	34.92	46.68	1.90	1.57	37.65
1276.00	433.00	1709.00	6.99	34.84	46.56	1.66	1.33	34.59
1358.00	444.00	1802.00	6.96	34.88	46.38	1.51	1.23	34.25
1440.00	455.00	1895.00	6.65	35.03	46.34	1.45	1.28	34.00
1481.00	460.50	1941.50	6.60	35.13	46.37	1.48	1.35	33.57
1563.00	471.50	2034.50	6.45	35.37	46.52	1.46	1.55	31.93
1645.00	482.50	2127.50	6.53	35.65	46.82	1.52	1.79	30.58
1768.00	499.00	2267.00	6.97	36.15	47.25	1.71	2.15	29.44
1809.00	504.50	2313.50	7.13	36.32	47.38	1.83	2.25	29.11
1850.00	510.00	2360.00	7.43	36.50	47.46	1.97	2.35	29.07

Electrical Schematic



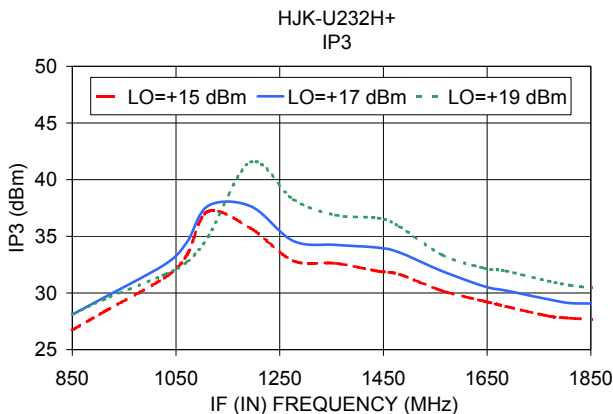
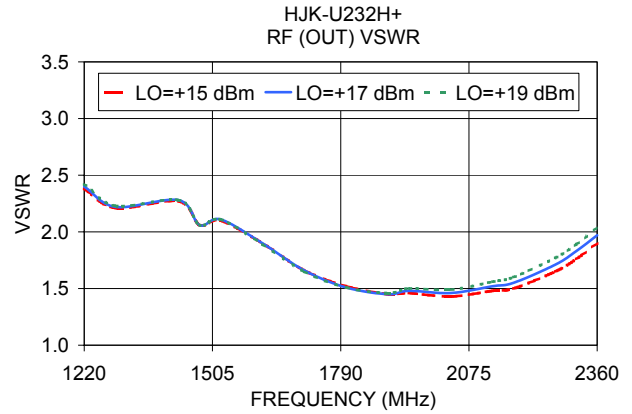
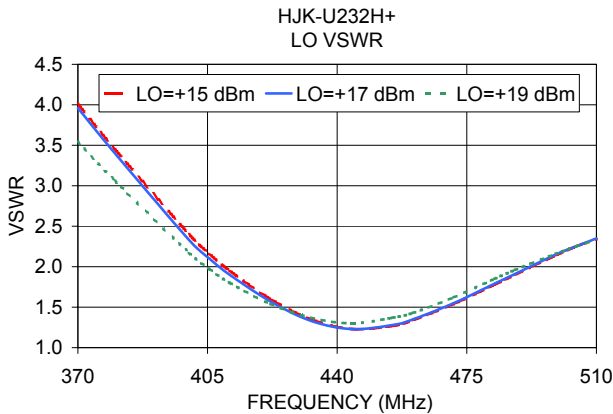
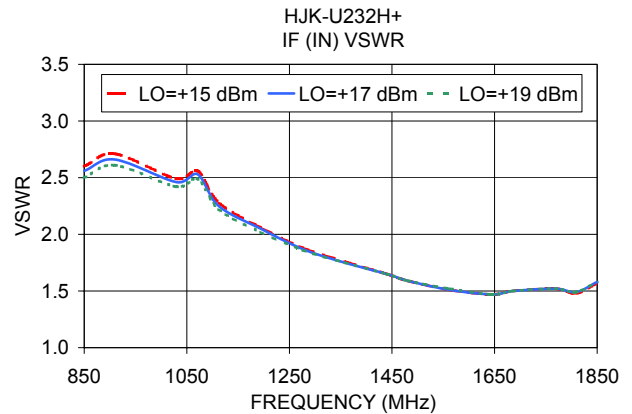
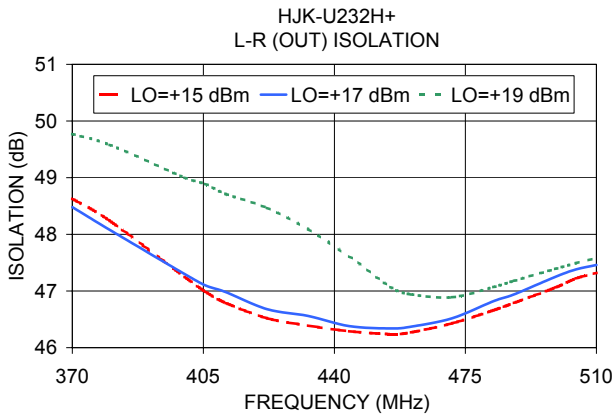
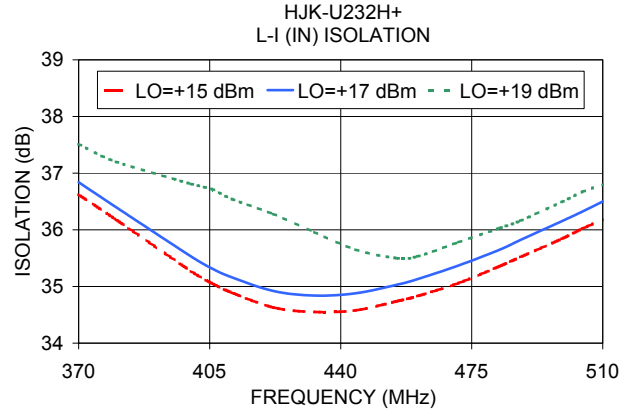
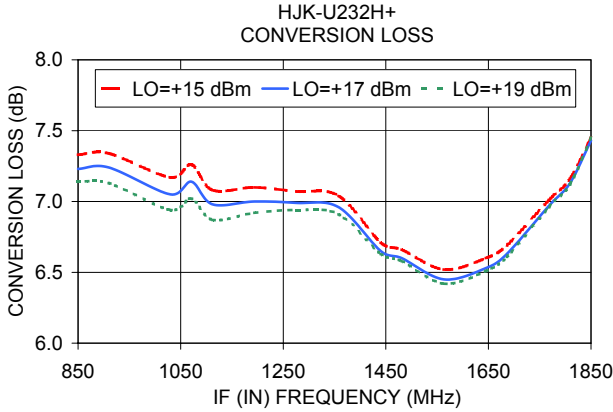
Notes

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Performance Charts

HJK-U232H+



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