

High IP3

Frequency Mixer

Level 17 (LO Power +17 dBm) 238 to 428 MHz

HJK-421H+



Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
LO Power	+19 dBm
RF Power	+20 dBm
Permanent damage may occur if any of these limits are exceeded.	

Pad Connections

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

Features

- high IP3, 31 dBm typ.
- excellent L-R isolation, 52 dB typ.;
- L-I isolation, 39 dB typ.

Applications

- base stations
- mobile satellite
- aeronautical
- weather instruments/radar/satellites
- emergency locator transmitters
- land mobile radio

CASE STYLE: TTT881

+RoHS Compliant

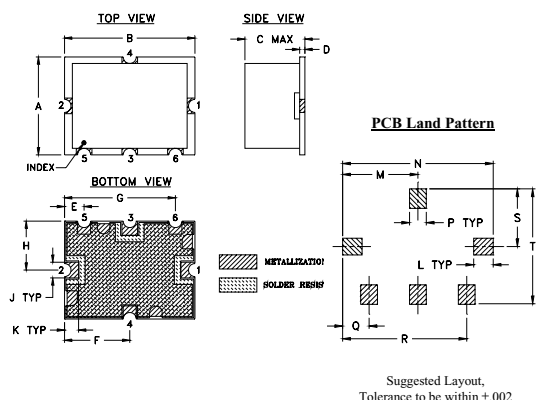
The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Reel Size	Devices/Reel
7"	10, 20, 50, 100, 200
13"	500

Electrical Specifications at 25°C

Parameter	Min.	Typ.	Max.	Unit
Frequency Range, RF	238	—	428	MHz
Frequency Range, LO	268	—	458	MHz
Frequency Range, IF	10	—	150	MHz
Conversion Loss	—	7.2	8.3	dB
LO to RF Isolation	40	52	—	dB
LO to IF Isolation	30	39	—	dB
IP3	—	31	—	dBm
RF Input Power at 1 dB Compression	—	+20	—	dBm

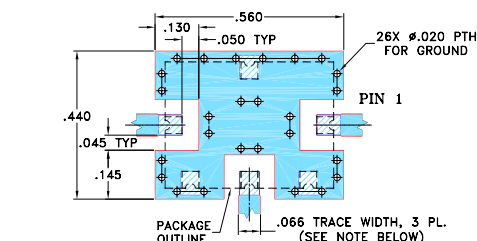
Outline Drawing



Outline Dimensions (inch)

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

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

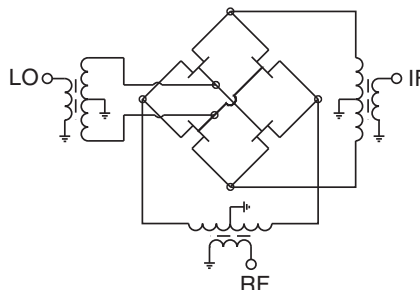


1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS .030" ± .002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. THE USE OF SOLDER MASK OVER THE GROUND AREA UNDER THE UNIT AS SHOWN IS RECOMMENDED TO PREVENT POTENTIAL SHORTING. IF USER CHOOSES 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.

Typical Performance Data

Frequency		Conversion Loss (dB)	Isolation L-R	Isolation L-I	VSWR RF Port	VSWR LO Port	IP3 (dBm)
RF MHz	LO MHz	LO +17dBm	LO +17dBm	LO +17dBm	LO +17dBm	LO +17dBm	LO +17dBm
238.00	268.00	6.93	56.95	45.22	2.10	3.06	30.17
257.00	287.00	7.03	55.89	44.25	2.08	2.84	30.58
276.00	306.00	6.84	54.95	42.82	2.07	2.57	31.01
295.00	325.00	6.81	53.45	41.17	2.01	2.24	32.49
300.00	330.00	6.85	53.09	40.99	2.01	2.15	33.29
308.00	338.00	6.93	52.72	40.89	2.01	2.01	34.03
316.00	346.00	6.92	52.40	40.33	2.00	1.86	33.76
324.00	354.00	6.83	52.02	40.23	1.98	1.73	33.49
340.00	370.00	6.66	52.24	39.94	1.90	1.50	33.77
348.00	378.00	6.69	52.41	39.52	1.89	1.41	34.30
364.00	394.00	6.86	52.27	39.73	1.88	1.34	33.64
372.00	402.00	6.83	52.60	39.65	1.86	1.35	33.63
380.00	410.00	6.73	52.94	39.81	1.83	1.39	34.02
388.00	418.00	6.68	53.42	40.06	1.81	1.45	32.89
396.00	426.00	6.66	53.10	40.21	1.83	1.52	32.31
404.00	434.00	6.72	53.04	40.05	1.83	1.59	32.00
412.00	442.00	6.77	52.84	40.46	1.84	1.66	32.35
420.00	450.00	6.79	52.61	40.59	1.83	1.74	31.63
428.00	458.00	6.79	52.47	40.67	1.83	1.81	31.26

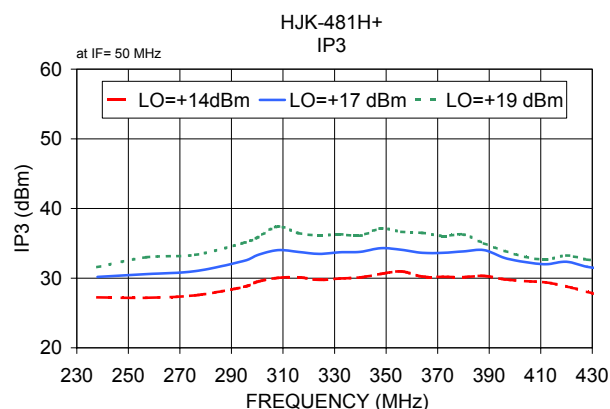
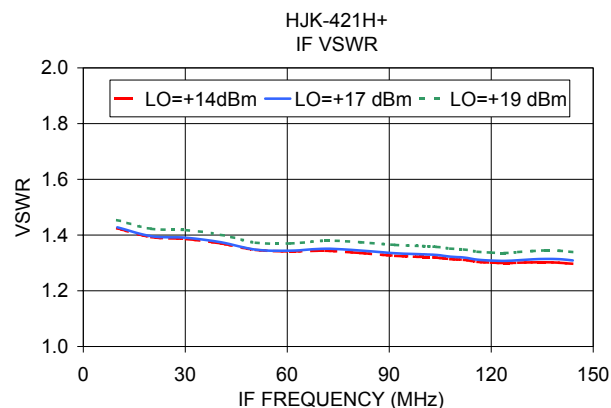
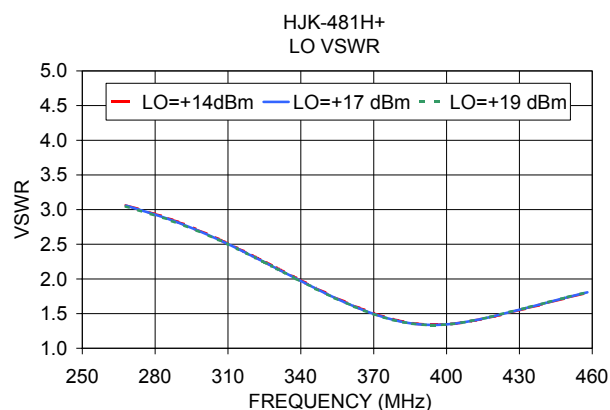
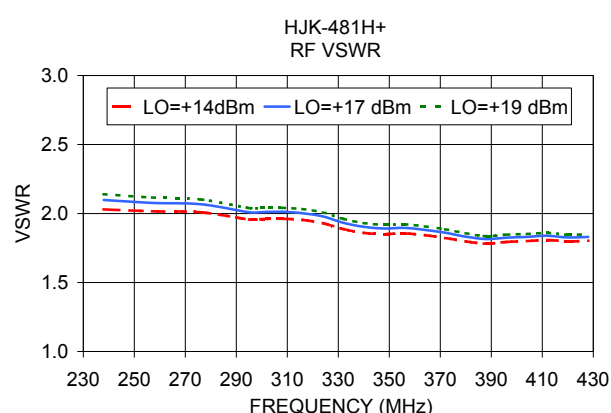
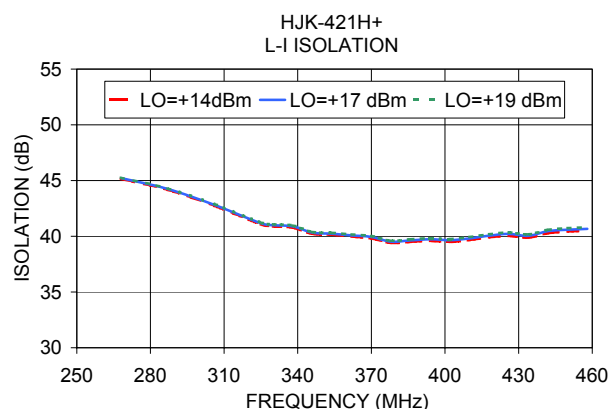
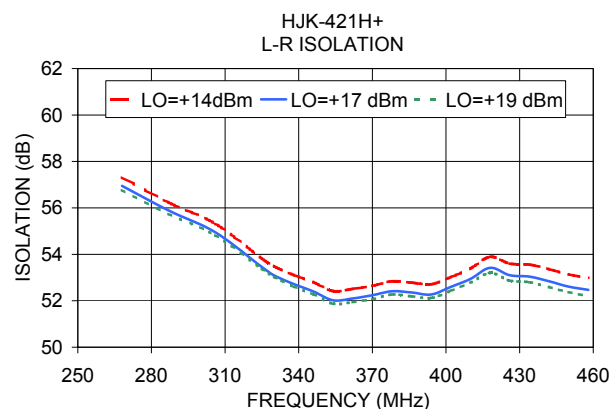
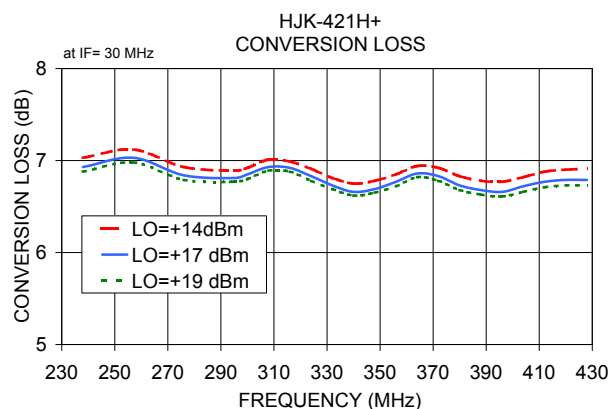
Electrical Schematic



Notes

- A. 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.
- B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
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