

High IP3 Frequency Mixer

Level13 (LO Power +13dBm) 100 to 150 MHz

HJK-151MH+



CASE STYLE: TTT881

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.

Pin Connections

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

Features

- high IP2, 60 dBm typ.
- high IP3, 30 dBm typ.
- excellent L-R isolation, 55 dB typ.; L-I isolation, 50 dB typ.
- compression, 3 dB higher than LO power
- protected by US Patent 6,807,407

Applications

- amateur radio
- mobile radio
- paging
- non-geostationary mobile

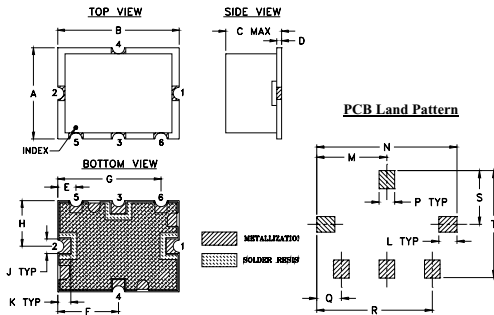
Electrical Specifications at 25°C

Parameter	Min.	Typ.	Max.	Unit
Frequency Range, RF	100	—	150	MHz
Frequency Range, LO	130	—	180	MHz
Frequency Range, IF	10	—	100	MHz
Conversion Loss	—	6.8	8.2	dB
LO to RF Isolation	40	55	—	dB
LO to IF Isolation	38	50	—	dB
IP2	—	60	—	dBm
IP3	—	30	—	dBm
RF Input at 1 dB Compression	—	+16	—	dBm

+RoHS Compliant

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

Outline Drawing

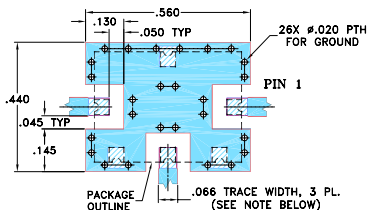


Suggested Layout, Tolerance to be within ±.002

Outline Dimensions (inch/mm)

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)



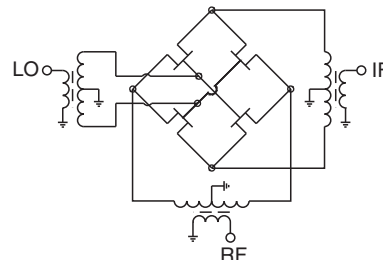
NOTE:

1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .039" ± .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 SMOBC (SOLDER MASK OVER BARE COPPER), SEE NOTE 2.

Typical Performance Data

Frequency		Conversion Loss (dB)	Isolation L-R (dB)	Isolation L-I (dB)	VSWR RF Port (:1)	VSWR LO Port (:1)	IP3 (dBm)	IP2 (dBm)
RF MHz	LO MHz	LO +13dBm	LO +13dBm	LO +13dBm	LO +13dBm	LO +13dBm	LO +13dBm	LO +13dBm
100.1	130.10	6.60	57.67	52.33	2.21	4.01	27.33	59.95
102.1	132.10	6.62	58.25	51.94	2.23	4.02	27.87	64.91
104.1	134.10	6.65	58.68	51.53	2.25	4.03	28.85	69.94
106.1	136.10	6.67	58.85	51.19	2.27	4.04	30.40	77.94
108.1	138.10	6.68	58.74	50.92	2.29	4.05	31.56	69.41
110.1	140.10	6.68	58.53	50.67	2.32	4.07	31.78	65.32
112.1	142.10	6.68	58.27	50.44	2.33	4.08	31.29	64.56
114.1	144.10	6.68	57.93	50.25	2.34	4.09	30.75	62.36
116.1	146.10	6.67	57.61	50.14	2.35	4.10	31.49	61.91
118.1	148.10	6.66	57.21	50.06	2.36	4.11	31.50	61.34
120.1	150.10	6.65	56.81	50.03	2.38	4.13	32.71	60.17
122.1	152.10	6.65	56.37	50.02	2.39	4.14	32.78	58.77
124.1	154.10	6.64	55.90	50.02	2.40	4.16	33.52	58.73
126.1	156.10	6.66	55.45	49.99	2.42	4.17	32.93	58.21
128.1	158.10	6.67	55.05	49.96	2.43	4.18	32.57	57.27
130.1	160.10	6.68	54.66	49.90	2.44	4.20	32.42	56.94
132.1	162.10	6.68	54.28	49.82	2.46	4.23	31.57	56.93
134.1	164.10	6.68	53.93	49.75	2.49	4.23	31.71	56.29
146.1	176.10	6.78	51.22	49.35	2.70	4.32	30.33	55.60
150.1	180.10	6.87	50.19	49.43	2.79	4.34	30.82	54.33

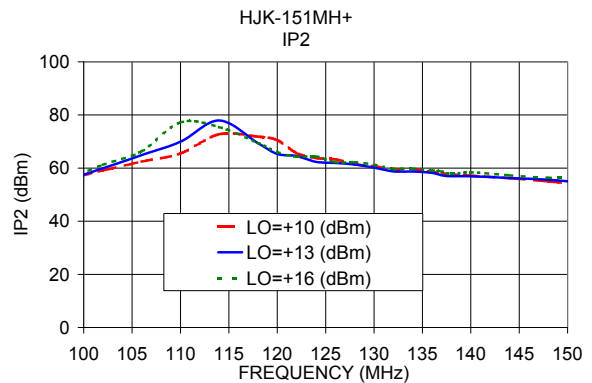
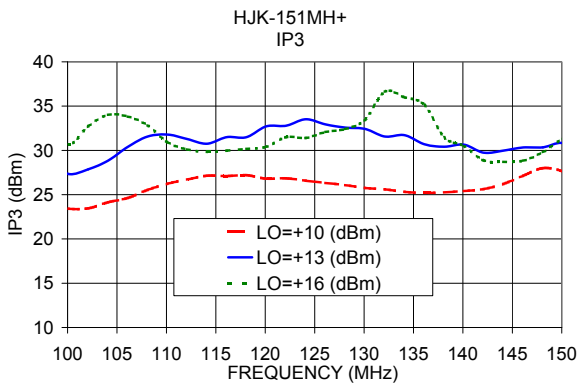
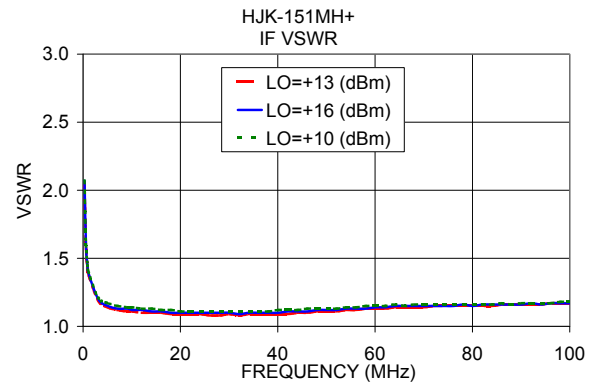
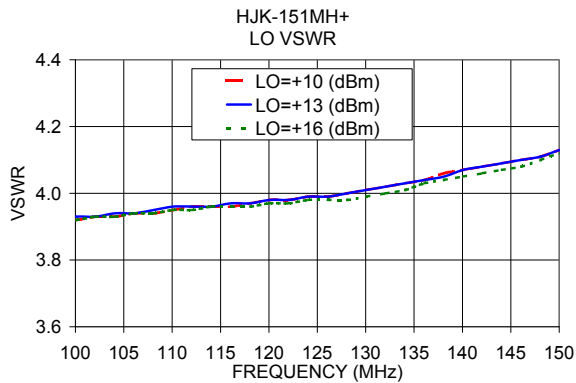
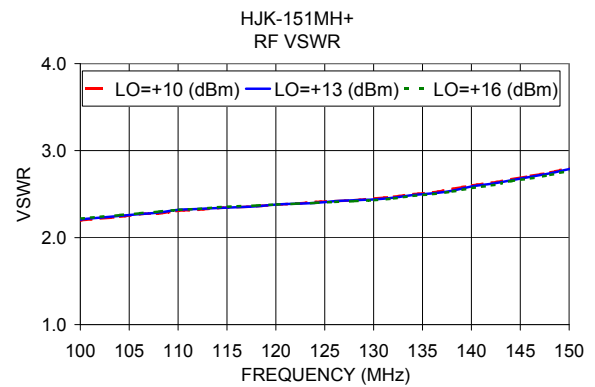
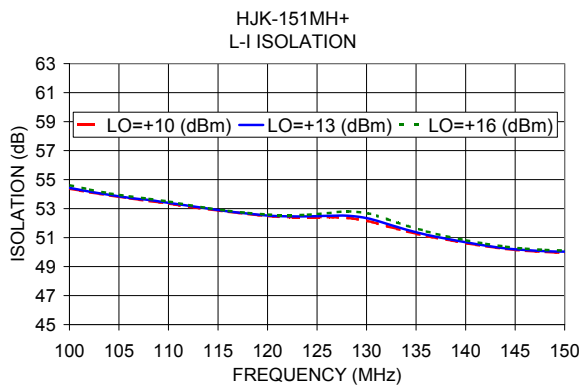
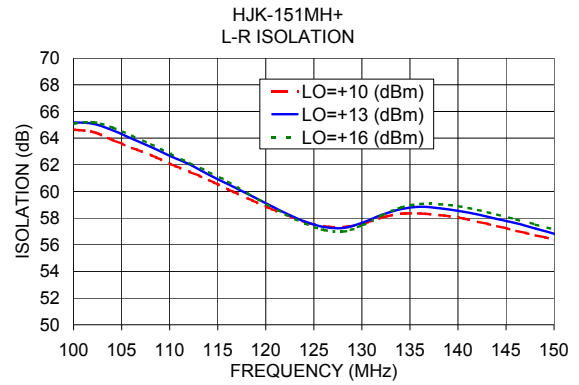
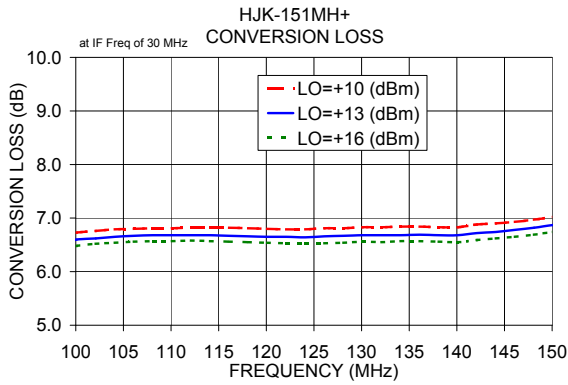
Electrical Schematic



Notes

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