High IP3

Frequency Mixer

HJK-151MH+

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

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	-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

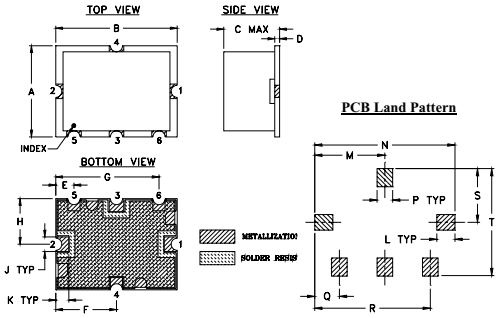
Features

- 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

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	grams
1.78	6.86	13.72	1.52	2.41	11.30	5.28	10.54	0.8

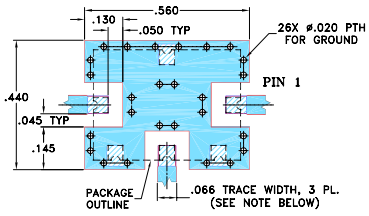
Electrical Specifications at 25°C

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

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

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

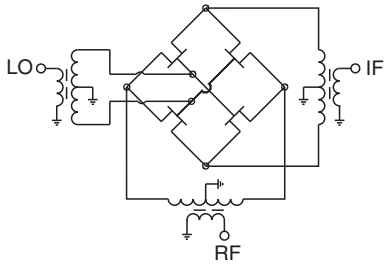


NOTE:

1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B 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 SMOBC (SOLDER MASK OVER BARE COPPER), SEE NOTE 2.

Electrical Schematic



Notes

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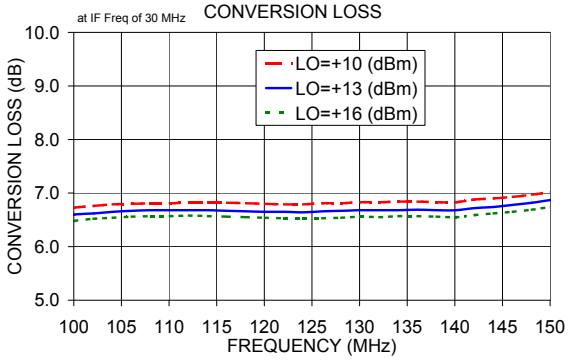
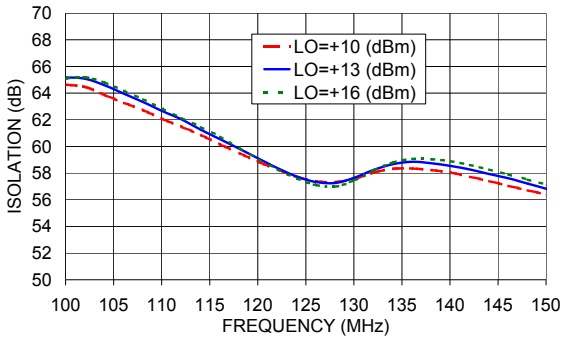
Performance Charts

HJK-151MH+

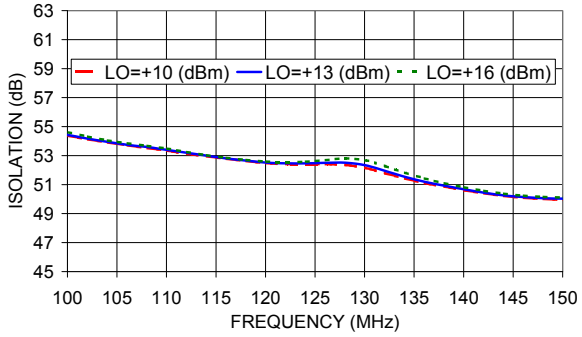
HJK-151MH+
CONVERSION LOSS
at IF Freq of 30 MHz



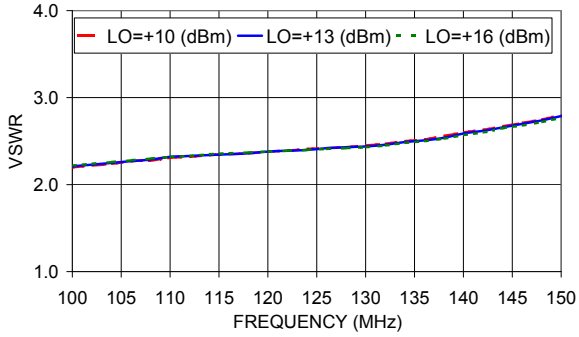
HJK-151MH+
L-R ISOLATION



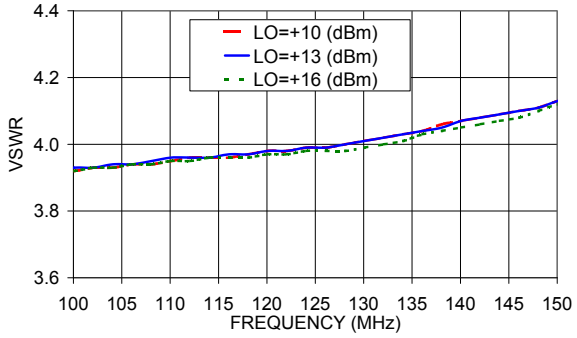
HJK-151MH+
L-I ISOLATION



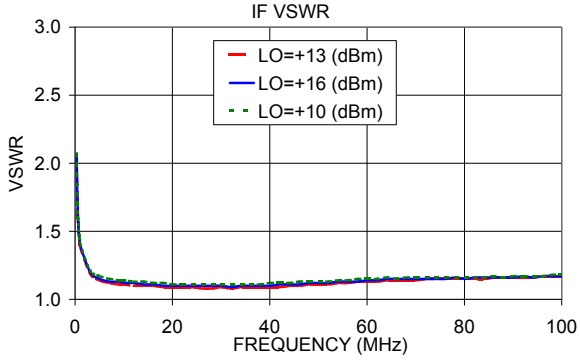
HJK-151MH+
RF VSWR



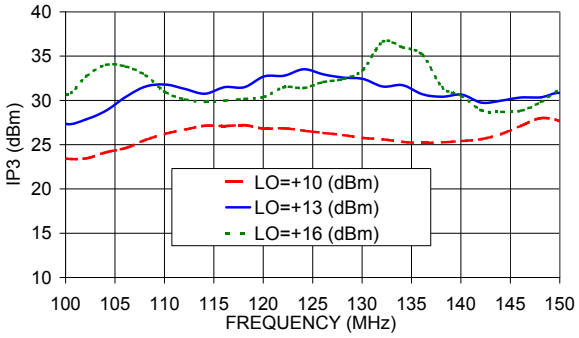
HJK-151MH+
LO VSWR



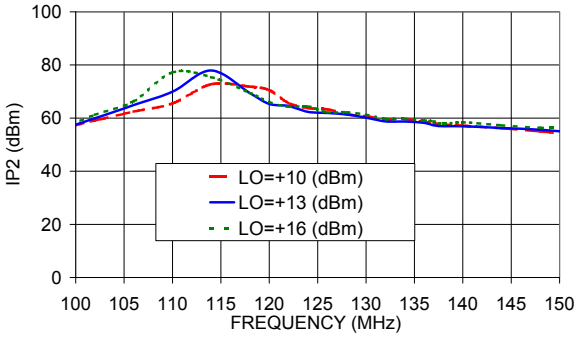
HJK-151MH+
IF VSWR



HJK-151MH+
IP3



HJK-151MH+
IP2



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