

High IP3 Frequency Mixer

HJK-172H+

Level 17 (LO Power +17 dBm) 1250 to 1700 MHz



CASE STYLE: TTT881

Maximum Ratings

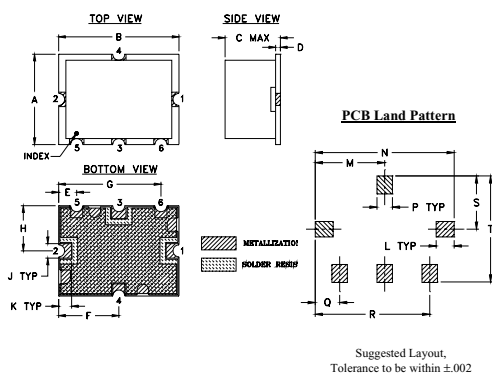
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
LO & RF Power	+20 dBm

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

Pad Connections

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

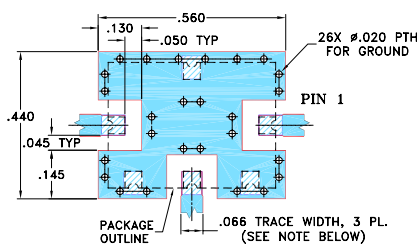
Outline Drawing



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)



NOTE:

- 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.
- 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.
- BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

Notes

- 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.
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Features

- very high IP3, 33 dBm typ.
- good L-R isolation, 45 dB typ.
- compression, 3 dB higher than LO power
- protected by US Patent 6,807,407

Applications

- base stations
- communication systems
- cellular
- amateur Radio
- GPS

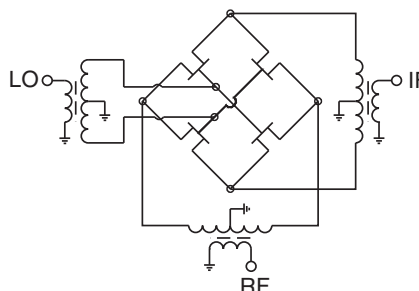
Electrical Specifications at 25°C

Parameter	Min.	Typ.	Max.	Unit
Frequency Range, RF	1250	—	1700	MHz
Frequency Range, LO	1850	—	2300	MHz
Frequency Range, IF	300	—	900	MHz
Conversion Loss	—	7.5	8.8	dB
LO to RF Isolation	33	42	—	dB
LO to IF Isolation	22	31	—	dB
IP3	—	30	—	dBm
RF Input Power at 1 dB Compression	—	+20	—	dBm

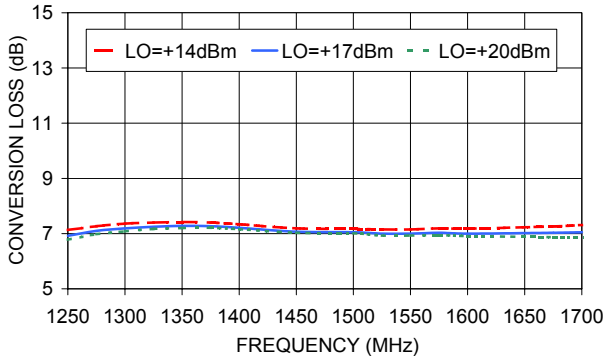
Typical Performance Data

Frequency (MHz)		Conversion Loss (dB)	Isolation L-R (dB)	Isolation L-I (dB)	VSWR RF Port (:1)	VSWR LO Port (:1)	IP3 (dBm)
RF	LO	LO +17dBm	LO +17dBm	LO +17dBm	LO +17dBm	LO +17dBm	LO +17dBm
1250.10	1850.10	6.92	50.30	35.63	1.42	2.45	30.17
1275.10	1875.10	7.10	49.55	35.64	1.44	2.36	31.22
1300.10	1900.10	7.19	48.72	35.57	1.43	2.28	32.01
1325.10	1925.10	7.25	48.19	35.70	1.40	2.18	33.47
1350.10	1950.10	7.28	48.29	36.13	1.39	2.09	33.84
1375.10	1975.10	7.27	48.70	36.26	1.42	2.03	33.11
1400.10	2000.10	7.21	49.27	36.35	1.44	1.98	33.97
1450.10	2050.10	7.07	50.89	37.45	1.42	1.93	35.05
1500.10	2100.10	7.05	50.73	37.85	1.42	1.96	38.80
1525.10	2125.10	7.00	48.56	38.35	1.39	2.00	38.78
1550.10	2150.10	7.00	47.40	38.84	1.36	2.06	38.73
1575.10	2175.10	7.03	46.43	38.78	1.35	2.14	37.43
1600.10	2200.10	7.00	45.75	38.68	1.32	2.21	35.56
1675.10	2275.10	7.03	43.78	38.05	1.22	2.49	30.98
1700.10	2300.10	7.05	42.86	37.53	1.20	2.56	30.43

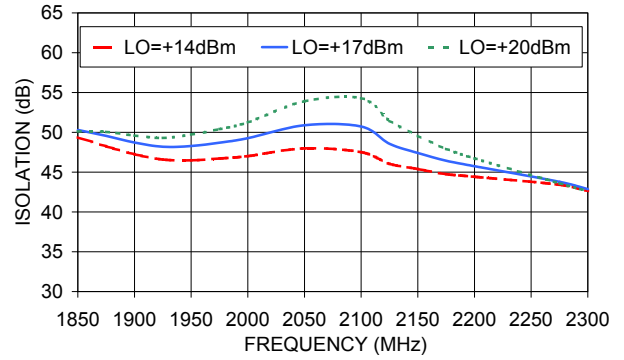
Electrical Schematic



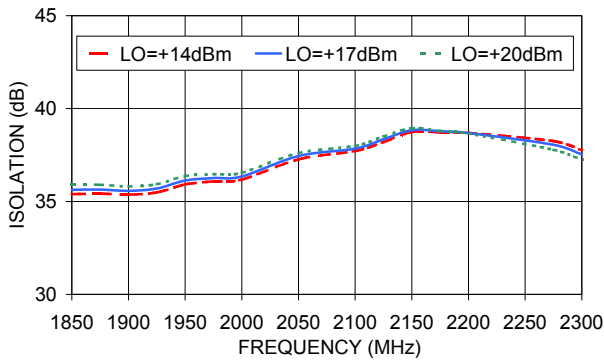
HJK-172H+
CONVERSION LOSS



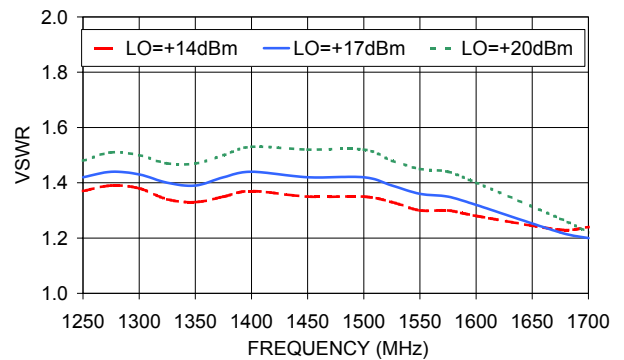
HJK-172H+
L-R ISOLATION



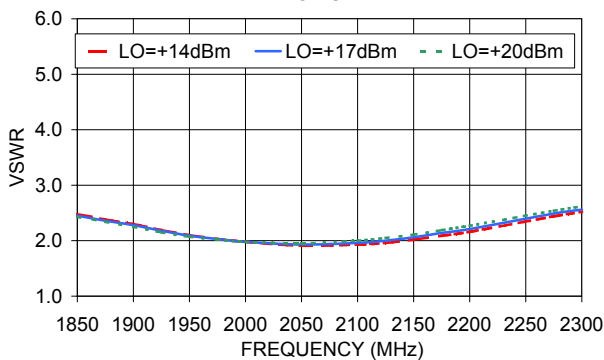
HJK-172H+
L-I ISOLATION



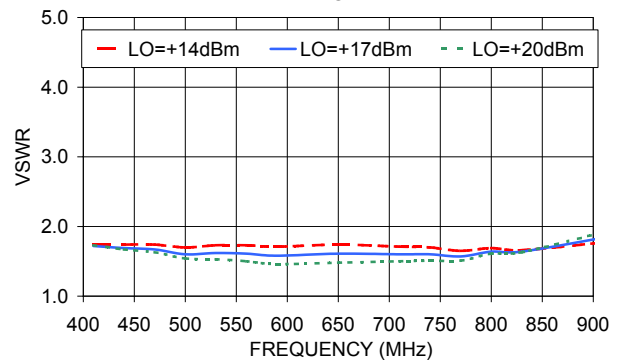
HJK-172H+
RF VSWR



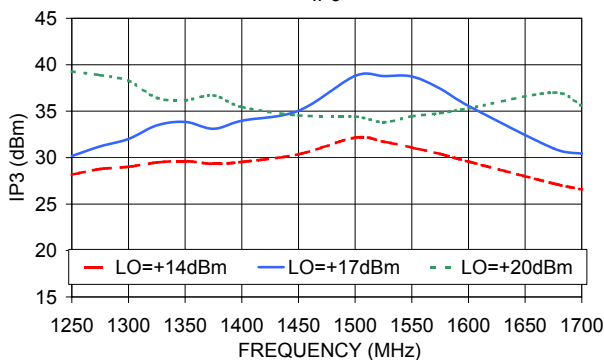
HJK-172H+
LO VSWR



HJK-172H+
IF VSWR



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IP3



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