

Frequency Mixer

HJK-551H+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB)		
		@LO (dBm)		
		+14	+17	+19
295.0	325.0	6.89	6.81	6.77
300.0	330.0	6.92	6.85	6.80
308.0	338.0	7.01	6.93	6.89
316.0	346.0	6.99	6.92	6.88
324.0	354.0	6.91	6.83	6.78
332.0	362.0	6.81	6.73	6.69
340.0	370.0	6.75	6.66	6.62
348.0	378.0	6.78	6.69	6.65
356.0	386.0	6.85	6.77	6.72
364.0	394.0	6.94	6.86	6.82
372.0	402.0	6.92	6.83	6.78
380.0	410.0	6.83	6.73	6.68
388.0	418.0	6.78	6.68	6.63
396.0	426.0	6.77	6.66	6.61
404.0	434.0	6.82	6.72	6.66
412.0	442.0	6.88	6.77	6.71
420.0	450.0	6.90	6.79	6.73
428.0	458.0	6.91	6.79	6.73
436.0	466.0	6.91	6.78	6.71
444.0	474.0	6.93	6.80	6.73
452.0	482.0	6.93	6.79	6.71
460.0	490.0	6.98	6.83	6.75
468.0	498.0	7.03	6.88	6.80
476.0	506.0	7.10	6.94	6.86
484.0	514.0	7.17	7.00	6.91
492.0	522.0	7.20	7.03	6.93
500.0	530.0	7.21	7.03	6.93
508.0	538.0	7.20	7.01	6.91
516.0	546.0	7.23	7.03	6.93
524.0	554.0	7.27	7.07	6.97
532.0	562.0	7.39	7.18	7.07
540.0	570.0	7.51	7.28	7.17
548.0	578.0	7.56	7.32	7.20
556.0	586.0	7.59	7.34	7.21
564.0	594.0	7.60	7.34	7.20
572.0	602.0	7.64	7.37	7.23
580.0	610.0	7.73	7.45	7.31
588.0	618.0	7.85	7.57	7.43
596.0	626.0	7.95	7.66	7.51
604.0	634.0	8.00	7.70	7.55

RF (IN) (MHz)	LO (MHz)	IP-3 INPUT (dBm)		
		@LO (dBm)		
		+14	+17	+19
295.0	325.0	28.76	32.49	35.09
300.0	330.0	29.49	33.29	35.82
308.0	338.0	30.04	34.03	37.40
316.0	346.0	30.13	33.76	36.47
324.0	354.0	29.74	33.49	36.13
332.0	362.0	29.95	33.71	36.30
340.0	370.0	30.10	33.77	36.09
348.0	378.0	30.61	34.30	37.14
356.0	386.0	30.96	34.07	36.65
364.0	394.0	30.22	33.64	36.49
372.0	402.0	30.20	33.63	36.04
380.0	410.0	30.14	33.84	36.26
388.0	418.0	30.31	34.02	35.00
396.0	426.0	29.82	32.89	33.91
404.0	434.0	29.58	32.31	33.06
412.0	442.0	29.39	32.00	32.67
420.0	450.0	28.81	32.35	33.25
428.0	458.0	28.04	31.63	32.67
436.0	466.0	27.16	31.26	32.41
444.0	474.0	26.76	30.32	31.15
452.0	482.0	25.99	29.75	30.51
460.0	490.0	25.26	29.35	29.88
468.0	498.0	24.38	28.77	29.32
476.0	506.0	23.80	28.30	28.96
484.0	514.0	23.54	28.22	28.69
492.0	522.0	23.11	28.16	28.83
500.0	530.0	22.96	27.40	27.74
508.0	538.0	22.46	26.84	27.53
516.0	546.0	22.24	26.55	27.31
524.0	554.0	21.84	26.33	27.44
532.0	562.0	21.32	25.92	27.52
540.0	570.0	20.84	25.26	27.10
548.0	578.0	20.30	24.54	26.78
556.0	586.0	20.07	24.21	26.31
564.0	594.0	19.58	23.72	26.26
572.0	602.0	19.15	23.19	25.60
580.0	610.0	18.83	22.74	25.12
588.0	618.0	18.80	22.79	25.32
596.0	626.0	18.73	22.99	25.60
604.0	634.0	18.48	22.40	24.82

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+20dBm (dB)		
		@LO (dBm)		
		+14	+17	+19
295.0	325.0	1.59	0.77	0.50
300.0	330.0	1.49	0.71	0.46
308.0	338.0	1.36	0.65	0.43
316.0	346.0	1.28	0.61	0.39
324.0	354.0	1.19	0.56	0.36
332.0	362.0	1.08	0.50	0.31
340.0	370.0	0.97	0.45	0.28
348.0	378.0	0.90	0.41	0.24
356.0	386.0	0.86	0.40	0.25
364.0	394.0	0.81	0.38	0.23
372.0	402.0	0.76	0.36	0.22
380.0	410.0	0.66	0.29	0.18
388.0	418.0	0.57	0.25	0.15
396.0	426.0	0.55	0.24	0.14
404.0	434.0	0.60	0.26	0.16
412.0	442.0	0.64	0.29	0.17
420.0	450.0	0.69	0.30	0.18
428.0	458.0	0.70	0.30	0.18
436.0	466.0	0.70	0.28	0.15
444.0	474.0	0.78	0.33	0.19
452.0	482.0	0.89	0.36	0.21
460.0	490.0	1.09	0.45	0.26
468.0	498.0	1.18	0.46	0.25
476.0	506.0	1.31	0.49	0.27
484.0	514.0	1.48	0.50	0.26
492.0	522.0	1.70	0.59	0.31
500.0	530.0	2.00	0.71	0.36
508.0	538.0	2.31	0.88	0.46
516.0	546.0	2.57	1.02	0.51
524.0	554.0	2.77	1.10	0.53
532.0	562.0	3.03	1.24	0.58
540.0	570.0	3.31	1.47	0.69
548.0	578.0	3.67	1.75	0.85
556.0	586.0	3.95	1.99	1.01
564.0	594.0	4.22	2.23	1.16
572.0	602.0	4.41	2.38	1.25
580.0	610.0	4.60	2.55	1.39
588.0	618.0	4.82	2.76	1.57
596.0	626.0	5.09	3.03	1.81
604.0	634.0	5.29	3.22	1.99

Frequency Mixer

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Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=620MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=40MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1200MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+17			+17			+17
602.0	18.0	10.19	11.0	51.0	8.52	900.0	300.0	8.94
567.0	53.0	8.30	56.0	96.0	7.84	846.0	354.0	8.24
532.0	88.0	7.67	116.0	156.0	7.43	774.0	426.0	8.10
469.0	151.0	7.34	161.0	201.0	7.29	720.0	480.0	7.78
420.0	200.0	6.89	221.0	261.0	7.17	648.0	552.0	8.29
371.0	249.0	6.60	269.0	309.0	7.12	584.3	615.8	8.66
315.0	305.0	6.44	301.0	341.0	7.07	561.3	638.8	8.70
266.0	354.0	6.48	333.0	373.0	7.01	538.3	661.8	8.81
176.0	444.0	6.73	365.0	405.0	7.05	521.0	679.0	8.99
162.0	458.0	6.78	389.0	429.0	7.06	498.0	702.0	9.17
148.0	472.0	6.86	413.0	453.0	7.06	480.8	719.3	9.22
134.0	486.0	6.91	445.0	485.0	7.09	457.8	742.3	9.29
118.0	502.0	7.03	477.0	517.0	7.16	434.8	765.3	9.41
104.0	516.0	7.09	501.0	541.0	7.21	417.5	782.5	9.51
90.0	530.0	7.14	533.0	573.0	7.23	394.5	805.5	9.62
76.0	544.0	7.18	557.0	597.0	7.36	377.3	822.8	9.72
62.0	558.0	7.21	610.0	650.0	7.55	259.0	941.0	10.11
46.0	574.0	7.33	626.0	666.0	7.59	247.0	953.0	10.11
32.0	588.0	7.38	638.0	678.0	7.72	238.0	962.0	10.13
18.0	602.0	7.42	654.0	694.0	7.83	226.0	974.0	10.16
20.0	640.0	7.50	666.0	706.0	7.89	217.0	983.0	10.23
34.0	654.0	7.58	682.0	722.0	8.01	205.0	995.0	10.28
48.0	668.0	7.58	694.0	734.0	8.10	196.0	1004.0	10.33
88.3	708.3	7.73	710.0	750.0	8.17	184.0	1016.0	10.39
130.6	750.6	7.87	726.0	766.0	8.21	172.0	1028.0	10.40
173.0	793.0	8.12	738.0	778.0	8.32	163.0	1037.0	10.42
221.4	841.4	8.30	754.0	794.0	8.46	151.0	1049.0	10.48
263.7	883.7	8.44	766.0	806.0	8.63	142.0	1058.0	10.47
324.0	944.0	8.53	782.0	822.0	8.77	130.0	1070.0	10.47
345.0	965.0	8.60	798.0	838.0	8.89	118.0	1082.0	10.52
366.0	986.0	8.64	810.0	850.0	8.86	109.0	1091.0	10.56
387.0	1007.0	8.68	826.0	866.0	8.97	97.0	1103.0	10.64
411.0	1031.0	8.69	838.0	878.0	9.02	88.0	1112.0	10.70
432.0	1052.0	8.75	854.0	894.0	9.22	76.0	1124.0	10.72
453.0	1073.0	8.83	870.0	910.0	9.41	64.0	1136.0	10.74
474.0	1094.0	8.88	882.0	922.0	9.59	55.0	1145.0	10.73
495.0	1115.0	8.96	898.0	938.0	9.69	43.0	1157.0	10.77
519.0	1139.0	8.97	910.0	950.0	9.76	34.0	1166.0	10.81
540.0	1160.0	9.01	926.0	966.0	9.82	22.0	1178.0	10.80
561.0	1181.0	9.06	942.0	982.0	10.03	10.0	1190.0	10.89

Frequency Mixer

HJK-551H+

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)			RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)					@LO (dBm)		
	+14	+17	+19	+14	+17	+19			+14	+17	+19
325.0	53.82	53.45	53.37	41.08	41.17	41.24	295.0	325.0	38.00	37.91	38.25
330.0	53.48	53.09	53.02	40.90	40.99	41.07	300.0	330.0	38.70	38.55	38.93
338.0	53.11	52.72	52.61	40.78	40.89	40.97	308.0	338.0	39.93	39.78	40.04
346.0	52.80	52.40	52.28	40.23	40.33	40.39	316.0	346.0	40.57	40.40	40.50
354.0	52.42	52.02	51.87	40.14	40.23	40.31	324.0	354.0	41.17	41.11	41.13
362.0	52.51	52.10	51.94	39.98	40.08	40.16	332.0	362.0	41.45	41.49	41.57
370.0	52.64	52.24	52.07	39.82	39.94	40.02	340.0	370.0	41.55	41.84	42.01
378.0	52.84	52.41	52.27	39.41	39.52	39.60	348.0	378.0	41.54	41.98	42.18
386.0	52.78	52.36	52.19	39.51	39.63	39.73	356.0	386.0	41.54	42.14	42.30
394.0	52.71	52.27	52.12	39.59	39.73	39.83	364.0	394.0	40.72	41.26	41.37
402.0	53.02	52.60	52.43	39.50	39.65	39.75	372.0	402.0	39.83	40.28	40.20
410.0	53.39	52.94	52.78	39.67	39.81	39.93	380.0	410.0	39.66	40.07	39.83
418.0	53.89	53.42	53.20	39.91	40.06	40.18	388.0	418.0	38.86	39.17	38.95
426.0	53.60	53.10	52.87	40.04	40.21	40.34	396.0	426.0	38.29	38.51	38.22
434.0	53.56	53.04	52.80	39.89	40.05	40.17	404.0	434.0	38.02	38.28	38.01
442.0	53.36	52.84	52.59	40.28	40.46	40.58	412.0	442.0	38.42	38.72	38.55
450.0	53.13	52.61	52.37	40.43	40.59	40.73	420.0	450.0	37.80	38.07	37.85
458.0	52.99	52.47	52.20	40.50	40.67	40.79	428.0	458.0	36.96	37.18	37.16
466.0	53.13	52.63	52.37	40.62	40.78	40.89	436.0	466.0	36.90	37.06	37.01
474.0	53.69	53.17	52.90	41.06	41.21	41.32	444.0	474.0	36.48	36.73	36.61
482.0	53.79	53.24	52.99	41.27	41.42	41.52	452.0	482.0	36.12	36.42	36.23
490.0	54.22	53.66	53.42	41.49	41.64	41.74	460.0	490.0	35.55	35.79	35.61
498.0	54.41	53.84	53.60	41.96	42.11	42.23	468.0	498.0	35.70	35.96	35.79
506.0	54.63	54.04	53.82	42.21	42.39	42.50	476.0	506.0	34.93	35.17	35.17
514.0	54.37	53.79	53.57	42.26	42.41	42.52	484.0	514.0	34.36	34.57	34.56
522.0	53.92	53.38	53.17	42.18	42.32	42.42	492.0	522.0	34.17	34.34	34.29
530.0	53.28	52.70	52.51	42.35	42.49	42.59	500.0	530.0	34.34	34.48	34.42
538.0	52.27	51.74	51.54	42.18	42.30	42.39	508.0	538.0	34.12	34.27	34.22
546.0	51.90	51.45	51.23	42.21	42.33	42.41	516.0	546.0	33.50	33.62	33.60
554.0	51.77	51.29	51.06	42.34	42.45	42.54	524.0	554.0	33.64	33.76	33.76
562.0	51.91	51.40	51.17	42.55	42.65	42.72	532.0	562.0	33.14	33.24	33.26
570.0	51.98	51.47	51.24	42.61	42.69	42.76	540.0	570.0	32.89	32.96	32.98
578.0	52.31	51.77	51.53	42.83	42.91	42.96	548.0	578.0	32.67	32.75	32.76
586.0	52.48	51.93	51.66	43.17	43.24	43.29	556.0	586.0	33.03	33.09	33.08
594.0	52.73	52.17	51.88	43.35	43.41	43.45	564.0	594.0	32.71	32.79	32.79
602.0	52.98	52.36	52.07	43.47	43.52	43.56	572.0	602.0	31.97	32.04	32.03
610.0	52.90	52.30	51.98	43.53	43.59	43.61	580.0	610.0	31.90	31.96	31.92
618.0	52.87	52.26	51.94	43.57	43.61	43.64	588.0	618.0	31.79	31.81	31.76
626.0	52.82	52.19	51.85	43.43	43.46	43.48	596.0	626.0	31.79	31.81	31.76
634.0	52.97	52.33	51.98	43.46	43.48	43.49	604.0	634.0	31.45	31.42	31.38

Frequency Mixer

HJK-551H+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)			IF (OUT) (MHz)	IF VSWR @LO=1200MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+14	+17	+19		+14	+17	+19		+14	+17	+19
295.0	325.0	1.96	2.01	2.04	325.0	2.25	2.24	2.24	10.0	1.42	1.43	1.45
300.0	330.0	1.96	2.01	2.04	330.0	2.16	2.15	2.15	11.2	1.42	1.42	1.45
308.0	338.0	1.96	2.01	2.04	338.0	2.02	2.01	2.00	12.8	1.41	1.41	1.44
316.0	346.0	1.95	2.00	2.03	346.0	1.87	1.86	1.86	14.0	1.41	1.41	1.43
324.0	354.0	1.93	1.98	2.01	354.0	1.74	1.73	1.72	18.0	1.40	1.40	1.43
332.0	362.0	1.89	1.93	1.96	362.0	1.61	1.60	1.60	20.1	1.39	1.40	1.42
340.0	370.0	1.86	1.90	1.93	370.0	1.50	1.50	1.49	28.3	1.39	1.39	1.42
348.0	378.0	1.85	1.89	1.92	378.0	1.42	1.41	1.41	36.5	1.38	1.38	1.41
356.0	386.0	1.86	1.90	1.92	386.0	1.36	1.36	1.35	42.6	1.37	1.37	1.39
364.0	394.0	1.84	1.88	1.91	394.0	1.34	1.34	1.34	50.8	1.35	1.35	1.37
372.0	402.0	1.82	1.86	1.88	402.0	1.35	1.35	1.35	57.0	1.34	1.34	1.37
380.0	410.0	1.80	1.83	1.86	410.0	1.39	1.39	1.39	65.2	1.34	1.35	1.37
388.0	418.0	1.78	1.81	1.84	418.0	1.45	1.45	1.45	73.4	1.34	1.35	1.38
396.0	426.0	1.79	1.83	1.85	426.0	1.52	1.52	1.52	79.5	1.34	1.35	1.38
404.0	434.0	1.80	1.83	1.85	434.0	1.59	1.59	1.59	87.7	1.33	1.34	1.37
412.0	442.0	1.81	1.84	1.86	442.0	1.66	1.66	1.67	93.9	1.32	1.33	1.36
420.0	450.0	1.80	1.83	1.85	450.0	1.73	1.74	1.74	104.0	1.32	1.33	1.36
428.0	458.0	1.80	1.83	1.85	458.0	1.80	1.81	1.81	120.0	1.30	1.31	1.34
436.0	466.0	1.81	1.83	1.85	466.0	1.87	1.87	1.87	132.0	1.30	1.31	1.34
444.0	474.0	1.83	1.85	1.87	474.0	1.93	1.93	1.93	148.0	1.29	1.30	1.33
452.0	482.0	1.86	1.88	1.89	482.0	1.99	1.99	1.99	160.0	1.27	1.27	1.30
460.0	490.0	1.86	1.88	1.89	490.0	2.04	2.04	2.05	176.0	1.26	1.27	1.30
468.0	498.0	1.87	1.89	1.90	498.0	2.09	2.09	2.09	188.0	1.25	1.27	1.30
476.0	506.0	1.89	1.90	1.92	506.0	2.14	2.14	2.14	212.0	1.22	1.24	1.26
484.0	514.0	1.92	1.93	1.94	514.0	2.18	2.18	2.18	220.0	1.21	1.22	1.24
492.0	522.0	1.95	1.96	1.97	522.0	2.21	2.22	2.22	232.0	1.20	1.21	1.23
500.0	530.0	1.98	2.00	2.01	530.0	2.25	2.26	2.26	248.0	1.20	1.21	1.23
508.0	538.0	2.02	2.03	2.04	538.0	2.29	2.29	2.29	260.0	1.18	1.18	1.21
516.0	546.0	2.03	2.04	2.05	546.0	2.32	2.32	2.33	276.0	1.16	1.17	1.19
524.0	554.0	2.07	2.08	2.08	554.0	2.35	2.35	2.35	292.0	1.15	1.15	1.17
532.0	562.0	2.10	2.11	2.12	562.0	2.37	2.38	2.38	304.0	1.13	1.14	1.16
540.0	570.0	2.15	2.16	2.16	570.0	2.40	2.40	2.40	320.0	1.11	1.12	1.14
548.0	578.0	2.18	2.19	2.19	578.0	2.42	2.42	2.42	332.0	1.09	1.09	1.11
556.0	586.0	2.22	2.22	2.23	586.0	2.44	2.44	2.45	348.0	1.09	1.09	1.11
564.0	594.0	2.24	2.25	2.25	594.0	2.45	2.46	2.46	364.0	1.07	1.07	1.09
572.0	602.0	2.29	2.29	2.29	602.0	2.47	2.47	2.48	376.0	1.06	1.06	1.07
580.0	610.0	2.33	2.33	2.33	610.0	2.48	2.49	2.49	392.0	1.04	1.04	1.05
588.0	618.0	2.37	2.38	2.38	618.0	2.50	2.50	2.50	404.0	1.03	1.03	1.03
596.0	626.0	2.42	2.42	2.42	626.0	2.51	2.51	2.52	420.0	1.02	1.01	1.03
604.0	634.0	2.46	2.46	2.46	634.0	2.52	2.52	2.53	436.0	1.03	1.03	1.03

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(dBc)										
0	---	--	14.81	30.39	28.85	29.70	43.13	61.25	58.47	61.39	43.07	59.12
1	---	34.66	--	42.71	10.90	50.78	23.13	68.81	42.42	63.44	64.48	68.87
2	100.31	75.09	60.22	68.88	67.79	60.85	69.30	68.04	77.06	79.44	96.43	103.81
3	108.75	89.84	67.06	88.05	76.47	95.32	64.49	90.03	72.34	104.55	80.92	107.80
4	118.45	108.18	107.80	108.43	107.26	113.48	105.33	112.54	100.87	109.21	107.86	117.68
5	116.70	117.68	107.44	117.11	97.02	112.74	96.93	112.77	96.35	116.23	101.55	115.66
6	116.86	117.24	116.87	117.39	104.10	116.26	99.89	113.83	102.65	112.86	102.09	117.42
7	117.05	117.00	117.43	118.84	113.99	117.90	106.82	114.18	105.65	113.73	106.36	118.62
8	117.07	117.60	116.74	117.97	118.77	117.71	112.60	118.35	104.88	112.92	111.28	113.88
9	117.34	117.35	117.56	117.72	118.17	117.04	118.27	118.48	117.40	113.38	113.70	113.64
10	116.93	117.36	117.78	116.62	117.63	118.41	117.71	118.76	116.31	118.60	113.50	114.47
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 395.00 MHz; 0 dBm.
 LO IN: 365.00 MHz; +17.00 dBm
 IF OUT: 30.00 MHz; -6.75 dBm

RF HARMONICS ORDER

	(-dBm)	(dBc)										
0	---	--	25.07	43.55	38.88	39.88	52.32	64.21	67.96	74.65	56.61	60.17
1	---	34.51	--	43.02	11.16	53.04	23.85	65.72	45.12	63.42	68.45	65.89
2	80.45	65.52	50.66	57.15	60.82	51.63	61.72	60.31	69.71	72.62	84.99	91.68
3	79.97	79.13	50.97	76.24	58.12	91.75	45.17	70.30	53.07	81.73	63.75	88.72
4	118.22	89.20	79.15	82.72	73.56	81.57	74.92	81.36	78.27	86.51	88.13	89.05
5	115.17	107.74	80.10	95.41	71.32	90.82	72.98	94.89	72.11	96.23	75.80	103.45
6	118.21	116.68	106.42	105.58	95.16	98.19	91.83	95.86	93.31	95.10	91.98	99.43
7	116.98	119.27	108.96	120.60	96.18	113.72	88.72	109.40	91.66	116.85	87.22	106.94
8	115.41	119.44	118.73	119.37	119.88	115.75	105.65	107.35	100.94	104.91	102.56	104.11
9	117.82	119.68	115.28	119.16	119.39	119.18	115.94	118.34	107.90	113.54	112.27	114.82
10	117.56	116.07	120.26	119.74	119.06	119.23	119.41	121.28	119.41	114.39	113.14	114.53
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 395.00 MHz; 10 dBm.
 LO IN: 365.00 MHz; +17.00 dBm
 IF OUT: 30.00 MHz; 3.27 dBm

- Notes:
1. All Harmonics are in (dBc) relative to IF OUTPUT
 2. + entry denotes harmonics are in (dBc) above IF OUTPUT
 3. RF Cal represents the Harmonics level of the RF Input Signal to the mixer