Frequency Mixer HJK-ED12998/1

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=1732MHz (dB) @LO (dBm)		
		+13	+16	+19
1752.1	20.1	12.10	11.52	10.99
1787.1	55.1	9.27	8.92	8.69
1822.1	90.1	8.09	7.84	7.66
1857.1	125.1	7.77	7.53	7.37
1892.1	160.1	7.38	7.14	6.98
1927.1	195.1	7.09	6.88	6.76
1962.1	230.1	7.09	6.88	6.76
1997.1	265.1	6.83	6.64	6.55
2032.1	300.1	6.86	6.72	6.67
2067.1	335.1	6.82	6.70	6.69
2102.1	370.1	6.78	6.68	6.71
2137.1	405.1	6.90	6.82	6.86
2172.1	440.1	6.63	6.54	6.58
2207.1	475.1	7.02	6.95	6.98
2242.1	510.1	7.09	7.01	7.02
2277.1	545.1	7.17	7.10	7.13
2312.1	580.1	7.67	7.63	7.68
2347.1	615.1	7.60	7.44	7.42
2382.1	650.1	7.66	7.48	7.43
2417.1	685.1	8.06	7.86	7.79
2452.1	720.1	8.01	7.79	7.70
2487.1	755.1	8.34	8.12	8.02
2522.1	790.1	8.62	8.35	8.22
2557.1	825.1	8.64	8.36	8.22
2592.1	860.1	8.89	8.57	8.39
2627.1	895.1	8.86	8.50	8.30
2667.1	935.1	9.09	8.72	8.58
2702.1	970.1	9.47	9.09	8.92
2742.1	1010.1	9.41	8.98	8.78
2777.1	1045.1	9.77	9.36	9.16
2817.1	1085.1	9.90	9.41	9.16
2852.1	1120.1	9.94	9.41	9.16
2892.1	1160.1	10.41	9.86	9.59
2927.1	1195.1	10.30	9.69	9.38
2967.1	1235.1	10.72	10.10	9.78
3002.1	1270.1	10.91	10.24	9.88
3042.1	1310.1	11.00	10.27	9.89
3077.1	1345.1	11.50	10.75	10.30
3117.1	1385.1	11.49	10.61	10.10
3152.1	1420.1	11.63	10.73	10.28

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm) @LO (dBm)		
		+13	+16	+19
1752.1	20.1	12.73	12.65	13.15
1787.1	55.1	16.60	18.06	20.28
1822.1	90.1	19.56	21.03	23.37
1857.1	125.1	22.96	25.70	28.51
1892.1	160.1	24.17	26.13	27.04
1927.1	195.1	24.75	26.89	29.51
1962.1	230.1	24.37	26.32	28.03
1997.1	265.1	25.49	27.56	28.56
2032.1	300.1	24.67	25.86	27.48
2067.1	335.1	24.44	26.34	27.75
2102.1	370.1	26.94	28.90	30.55
2137.1	405.1	27.56	29.66	30.60
2172.1	440.1	27.79	29.43	30.30
2207.1	475.1	26.66	28.52	30.52
2242.1	510.1	25.81	27.59	29.18
2277.1	545.1	24.56	26.20	27.47
2312.1	580.1	24.07	25.92	27.94
2347.1	615.1	24.15	27.07	29.77
2382.1	650.1	23.19	25.47	27.29
2417.1	685.1	22.62	24.25	25.89
2452.1	720.1	21.33	23.28	25.28
2487.1	755.1	21.01	23.22	25.41
2522.1	790.1	20.90	23.34	25.72
2557.1	825.1	20.47	23.18	25.76
2592.1	860.1	20.03	23.11	25.96
2627.1	895.1	18.81	21.56	24.23
2667.1	935.1	18.43	21.31	24.03
2702.1	970.1	18.53	21.86	24.90
2742.1	1010.1	17.71	21.27	24.96
2777.1	1045.1	17.51	21.20	24.92
2817.1	1085.1	16.92	20.58	23.83
2852.1	1120.1	16.02	19.75	23.29
2892.1	1160.1	15.98	19.53	22.80
2927.1	1195.1	15.53	19.01	22.31
2967.1	1235.1	15.26	18.72	22.06
3002.1	1270.1	15.13	18.47	21.82
3042.1	1310.1	14.52	17.87	21.47
3077.1	1345.1	14.83	17.83	21.63
3117.1	1385.1	13.85	16.37	20.01
3152.1	1420.1	13.63	16.55	20.13

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+17dBm (dB) @LO (dBm)		
		+13	+16	+19
1752.1	20.1	0.82	0.66	0.83
1787.1	55.1	1.81	1.42	0.90
1822.1	90.1	1.55	0.96	0.55
1857.1	125.1	1.58	0.91	0.51
1892.1	160.1	1.38	0.74	0.42
1927.1	195.1	1.22	0.64	0.37
1962.1	230.1	0.97	0.51	0.28
1997.1	265.1	0.74	0.41	0.23
2032.1	300.1	0.63	0.36	0.23
2067.1	335.1	0.42	0.24	0.15
2102.1	370.1	0.32	0.17	0.10
2137.1	405.1	0.35	0.20	0.15
2172.1	440.1	0.49	0.28	0.19
2207.1	475.1	0.53	0.31	0.18
2242.1	510.1	0.73	0.43	0.25
2277.1	545.1	0.96	0.58	0.34
2312.1	580.1	1.05	0.58	0.33
2347.1	615.1	1.52	0.71	0.39
2382.1	650.1	1.99	1.02	0.55
2417.1	685.1	2.41	1.25	0.66
2452.1	720.1	2.93	1.61	0.82
2487.1	755.1	3.19	1.77	0.89
2522.1	790.1	3.53	1.97	0.92
2557.1	825.1	4.00	2.30	1.03
2592.1	860.1	4.35	2.61	1.21
2627.1	895.1	4.89	3.12	1.59
2667.1	935.1	5.13	3.36	1.69
2702.1	970.1	5.28	3.45	1.69
2742.1	1010.1	5.61	3.81	1.98
2777.1	1045.1	5.68	3.91	1.98
2817.1	1085.1	5.90	4.10	2.24
2852.1	1120.1	6.18	4.49	2.52
2892.1	1160.1	6.12	4.41	2.52
2927.1	1195.1	6.51	4.85	2.95
2967.1	1235.1	6.52	4.87	2.98
3002.1	1270.1	6.50	4.90	3.04
3042.1	1310.1	6.74	5.16	3.32
3077.1	1345.1	6.54	5.05	3.22
3117.1	1385.1	6.69	5.30	3.60
3152.1	1420.1	6.76	5.27	3.69

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=2157MHz (dB)
		@LO (dBm)
		+16
2140.0	17.0	12.46
2021.7	135.3	7.86
1903.3	253.7	7.09
1785.0	372.0	7.03
1666.7	490.3	6.70
1548.3	608.7	7.16
1430.0	727.0	7.25
1311.7	845.3	7.98
1193.3	963.7	7.86
1075.0	1082.0	8.37
956.7	1200.3	8.63
838.3	1318.7	8.74
720.0	1437.0	8.40
601.7	1555.3	8.26
483.3	1673.7	8.30
365.0	1792.0	8.45
246.7	1910.3	8.23
128.3	2028.7	8.84
10.0	2147.0	23.43
31.4	2188.4	14.16
74.2	2231.2	9.98
106.2	2263.3	9.13
149.0	2306.0	8.71
181.1	2338.1	8.54
223.9	2380.9	8.32
256.0	2413.0	8.44
298.7	2455.8	8.60
330.8	2487.8	8.81
373.6	2530.6	9.06
405.7	2562.7	9.18
448.5	2605.5	9.36
480.6	2637.6	9.52
523.3	2680.3	9.76
555.4	2712.4	9.97
598.2	2755.2	10.14
630.3	2787.3	10.35
673.1	2830.1	10.46
705.1	2862.1	10.49
747.9	2904.9	10.55
780.0	2937.0	10.81

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=2071.89MHz (dB)
		@LO (dBm)
		+16
10.1	2082.0	23.12
30.6	2102.5	14.22
51.0	2122.9	11.15
71.5	2143.4	10.02
92.0	2163.9	9.37
112.4	2184.3	8.91
132.9	2204.8	8.75
153.4	2225.3	8.67
173.8	2245.7	8.55
194.3	2266.2	8.55
214.8	2286.7	8.37
235.2	2307.1	8.33
255.7	2327.6	8.42
276.1	2348.0	8.56
296.6	2368.5	8.54
317.1	2389.0	8.62
337.5	2409.4	8.76
358.0	2429.9	8.88
378.5	2450.4	8.95
398.9	2470.8	8.98
419.4	2491.3	9.16
439.9	2511.8	9.18
460.3	2532.2	9.25
480.8	2552.7	9.29
501.3	2573.2	9.43
521.7	2593.6	9.59
542.2	2614.1	9.70
562.7	2634.6	9.87
583.1	2655.0	9.92
603.6	2675.5	9.99
624.1	2696.0	10.15
644.5	2716.4	10.15
685.4	2757.3	10.29
705.9	2777.8	10.37
746.8	2818.7	10.41
767.3	2839.2	10.40
808.2	2880.1	10.69
828.7	2900.6	10.79
869.6	2941.5	10.92
890.1	2962.0	11.05

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=2242.1MHz (dB)
		@LO (dBm)
		+16
2190.1	52.0	10.11
2130.1	112.0	8.65
2070.1	172.0	8.00
2010.1	232.0	7.65
1950.1	292.0	7.39
1890.1	352.0	7.43
1830.1	412.0	7.24
1770.1	472.0	7.07
1710.1	532.0	7.05
1650.1	592.0	7.33
1590.1	652.0	7.40
1530.1	712.0	7.94
1470.1	772.0	7.75
1410.1	832.0	8.12
1350.1	892.0	8.29
1290.1	952.0	8.17
1230.1	1012.0	8.05
1170.1	1072.0	8.07
1110.1	1132.0	8.84
1050.1	1192.0	8.83
990.1	1252.0	8.85
930.1	1312.0	9.01
870.1	1372.0	8.95
810.1	1432.0	8.61
770.1	1472.0	8.40
710.1	1532.0	8.40
670.1	1572.0	8.51
610.1	1632.0	8.62
570.1	1672.0	8.53
510.1	1732.0	8.49
470.1	1772.0	8.43
410.1	1832.0	8.53
370.1	1872.0	8.51
310.1	1932.0	8.42
270.1	1972.0	8.43
210.1	2032.0	8.30
170.1	2072.0	8.47
110.1	2132.0	8.89
70.1	2172.0	10.13
10.1	2232.0	23.46

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB) @LO (dBm)			LO-IF ISOLATION (dB) @LO (dBm)		
	+13	+16	+19	+13	+16	+19
20.1	64.25	64.47	64.39	59.59	59.46	59.41
55.1	73.36	72.51	72.71	57.90	57.88	57.76
90.1	74.23	73.91	72.95	55.04	55.32	55.36
125.1	69.78	68.92	68.10	52.20	52.36	52.50
160.1	65.32	64.60	63.95	48.81	48.94	49.07
195.1	63.21	62.10	60.90	45.53	45.75	45.78
230.1	58.72	58.12	57.32	43.32	43.66	43.88
265.1	56.31	55.60	55.17	42.14	42.38	42.79
300.1	53.87	53.68	53.28	39.91	40.37	40.60
335.1	51.20	50.87	51.17	38.21	38.43	39.13
370.1	49.33	48.97	50.64	36.88	37.23	38.66
405.1	49.10	48.91	51.10	35.28	35.55	37.22
440.1	47.17	47.05	48.81	34.56	34.77	35.87
475.1	47.66	47.60	48.04	35.10	35.34	35.89
510.1	48.31	48.54	48.58	36.02	36.50	36.81
545.1	48.72	48.87	49.17	37.35	37.67	38.13
580.1	47.88	48.02	48.31	38.65	38.99	39.46
615.1	48.47	48.56	48.80	39.82	40.10	40.57
650.1	47.79	47.55	47.65	41.71	41.94	42.46
685.1	44.43	43.58	43.27	46.77	47.59	48.66
720.1	54.13	52.89	51.73	43.01	43.43	43.75
755.1	66.23	67.66	66.12	42.41	42.43	42.73
790.1	58.89	60.40	61.37	42.76	42.75	42.90
825.1	57.21	58.47	59.45	43.10	43.16	43.11
860.1	59.00	60.37	61.89	43.96	43.98	43.87
895.1	57.18	58.15	59.18	44.60	44.61	44.48
935.1	56.26	57.21	58.20	45.13	45.04	44.83
970.1	57.27	58.52	60.01	45.91	45.71	45.49
1010.1	56.55	57.29	58.28	46.58	46.38	46.02
1045.1	54.77	55.13	55.60	47.59	47.40	47.05
1085.1	52.93	52.83	52.81	48.93	48.68	48.35
1120.1	52.55	52.11	51.61	50.44	50.31	50.10
1160.1	53.52	53.41	53.35	51.88	51.78	51.50
1195.1	54.28	54.48	54.98	53.25	53.06	52.87
1235.1	56.38	56.49	56.85	56.60	56.39	55.93
1270.1	58.46	57.99	57.50	63.49	62.12	59.70
1310.1	55.87	54.37	52.99	62.14	58.92	55.46
1345.1	50.88	49.35	47.89	51.57	50.33	48.54
1385.1	48.46	47.03	45.58	47.67	46.90	45.48
1420.1	50.06	48.63	47.18	49.63	49.80	48.89

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB) @LO (dBm)		
		+13	+16	+19
1752.1	20.1	32.02	29.10	26.05
1787.1	55.1	31.93	30.39	29.01
1822.1	90.1	31.32	31.58	31.41
1857.1	125.1	31.20	31.67	32.06
1892.1	160.1	32.00	32.39	32.55
1927.1	195.1	30.55	29.88	28.72
1962.1	230.1	30.71	29.98	29.04
1997.1	265.1	31.88	31.21	30.43
2032.1	300.1	33.00	32.96	32.73
2067.1	335.1	32.66	32.56	32.84
2102.1	370.1	33.63	33.19	33.09
2137.1	405.1	34.33	33.80	34.22
2172.1	440.1	34.15	33.76	34.37
2207.1	475.1	33.36	32.89	32.62
2242.1	510.1	32.71	31.95	31.15
2277.1	545.1	34.58	33.64	32.69
2312.1	580.1	37.27	36.34	35.31
2347.1	615.1	37.72	37.14	36.32
2382.1	650.1	38.04	37.97	37.31
2417.1	685.1	39.66	40.16	39.78
2452.1	720.1	53.85	60.54	49.77
2487.1	755.1	50.77	60.48	51.13
2522.1	790.1	47.25	55.25	59.16
2557.1	825.1	45.85	51.59	55.17
2592.1	860.1	42.37	45.37	48.97
2627.1	895.1	42.05	46.36	53.24
2667.1	935.1	39.85	43.13	46.78
2702.1	970.1	38.02	40.50	42.80
2742.1	1010.1	36.58	38.58	39.98
2777.1	1045.1	35.43	37.19	38.37
2817.1	1085.1	33.94	35.38	36.28
2852.1	1120.1	32.44	33.63	34.21
2892.1	1160.1	31.32	32.14	32.43
2927.1	1195.1	30.60	31.31	31.43
2967.1	1235.1	30.05	30.71	30.89
3002.1	1270.1	29.71	30.26	30.36
3042.1	1310.1	29.24	29.79	29.88
3077.1	1345.1	29.10	29.55	29.67
3117.1	1385.1	29.66	30.19	30.48
3152.1	1420.1	30.45	31.29	31.72

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1) @LO (dBm)		
		+13	+16	+19
1752.1	20.1	1.61	1.59	1.55
1787.1	55.1	1.55	1.50	1.47
1822.1	90.1	1.47	1.44	1.40
1857.1	125.1	1.42	1.39	1.37
1892.1	160.1	1.41	1.38	1.38
1927.1	195.1	1.40	1.39	1.39
1962.1	230.1	1.38	1.38	1.41
1997.1	265.1	1.45	1.48	1.51
2032.1	300.1	1.48	1.52	1.57
2067.1	335.1	1.54	1.60	1.66
2102.1	370.1	1.64	1.73	1.80
2137.1	405.1	1.67	1.73	1.81
2172.1	440.1	1.75	1.83	1.89
2207.1	475.1	1.75	1.83	1.91
2242.1	510.1	1.74	1.80	1.90
2277.1	545.1	1.74	1.84	1.93
2312.1	580.1	1.72	1.83	1.94
2347.1	615.1	1.71	1.81	1.94
2382.1	650.1	1.71	1.82	1.92
2417.1	685.1	1.71	1.81	1.93
2452.1	720.1	1.81	1.91	2.06
2487.1	755.1	1.81	1.94	2.06
2522.1	790.1	1.81	1.91	2.06
2557.1	825.1	1.88	2.00	2.14
2592.1	860.1	1.94	2.08	2.23
2627.1	895.1	1.98	2.09	2.26
2667.1	935.1	2.04	2.19	2.33
2702.1	970.1	2.07	2.18	2.34
2742.1	1010.1	2.13	2.24	2.39
2777.1	1045.1	2.20	2.32	2.45
2817.1	1085.1	2.27	2.34	2.50
2852.1	1120.1	2.38	2.49	2.62
2892.1	1160.1	2.46	2.54	2.67
2927.1	1195.1	2.55	2.61	2.74
2967.1	1235.1	2.68	2.77	2.86
3002.1	1270.1	2.77	2.80	2.93
3042.1	1310.1	2.92	2.99	3.06
3077.1	1345.1	3.04	3.11	3.17
3117.1	1385.1	3.20	3.21	3.33
3152.1	1420.1	3.37	3.45	3.50

LO (MHz)	LO VSWR (:1) @LO (dBm)		
	+13	+16	+19
20.1	6.42	6.44	6.44
55.1	66.82	66.82	66.82
90.1	24.83	24.83	24.48
125.1	28.96	28.96	28.49
160.1	23.81	23.49	23.18
195.1	23.18	22.87	22.58
230.1	20.22	19.98	19.98
265.1	15.67	15.67	15.53
300.1	11.77	11.69	11.53
335.1	7.34	7.25	6.71
370.1	4.29	4.22	3.58
405.1	2.27	2.24	2.03
440.1	1.31	1.30	1.39
475.1	1.59	1.61	1.67
510.1	2.36	2.38	2.40
545.1	3.17	3.19	3.21
580.1	3.95	3.97	3.99
615.1	4.60	4.60	4.60
650.1	5.16	5.14	5.14
685.1	5.59	5.58	5.58
720.1	5.89	5.87	5.85
755.1	6.21	6.19	6.17
790.1	6.32	6.30	6.28
825.1	6.39	6.37	6.32
860.1	6.53	6.53	6.51
895.1	6.44	6.42	6.37
935.1	6.49	6.46	6.44
970.1	6.49	6.46	6.44
1010.1	6.24	6.21	6.17
1045.1	6.32	6.30	6.28
1085.1	6.07	6.05	6.01
1120.1	5.95	5.93	5.91
1160.1	5.89	5.89	5.87
1195.1	5.61	5.59	5.54
1235.1	5.61	5.59	5.59
1270.1	5.36	5.36	5.34
1310.1	5.16	5.14	5.12
1345.1	5.12	5.10	5.10
1385.1	4.80	4.79	4.77
1420.1	4.74	4.73	4.73

IF (OUT) (MHz)	IF VSWR @LO=450MHz (:1) @LO (dBm)		
	+13	+16	+19
10.1	18.11	17.93	17.93
20.1	16.56	16.11	15.81
30.1	10.31	10.02	9.74
40.1	7.38	7.17	7.00
50.1	5.72	5.54	5.41
60.1	3.81	3.70	3.61
70.1	2.71	2.67	2.64
80.1	2.50	2.48	2.48
90.1	2.19	2.17	2.17
100.1	1.77	1.77	1.78
110.1	1.66	1.68	1.71
120.1	1.58	1.59	1.62
130.1	1.27	1.29	1.32
140.1	1.27	1.32	1.38
150.1	1.40	1.47	1.53
160.1	1.33	1.39	1.44
170.1	1.51	1.56	1.61
180.1	1.74	1.80	1.86
190.1	1.67	1.73	1.79
200.1	1.66	1.70	1.75
210.1	1.97	2.03	2.07
220.1	2.12	2.19	2.24
230.1	2.07	2.13	2.18
240.1	2.39	2.46	2.51
250.1	2.78	2.87	2.94
260.1	2.78	2.89	2.96
270.1	2.73	2.83	2.90
280.1	3.06	3.18	3.26
290.1	3.23	3.37	3.48
300.1	3.07	3.21	3.31
310.1	3.15	3.30	3.40
320.1	3.50	3.68	3.82
330.1	3.66	3.87	4.03
340.1	3.62	3.84	4.00
350.1	3.75	3.99	4.17
360.1	3.91	4.18	4.39
370.1	3.86	4.13	4.35
385.1	3.58	3.82	4.04
395.1	3.59	3.85	4.07
410.1	3.52	3.78	4.00

Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	12	33	19	38	26	39	31	58	32	50
1	-	27	+0	35	10	32	23	38	39	37	38	37
2	69	70	65	73	67	70	60	72	58	70	60	69
3	>90	>83	75	>83	73	78	68	82	71	81	74	81
4	>90	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83
5	>90	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83
6	>90	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83
7	>90	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83
8	>90	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83	>83
9	>90	>83	>83	79	>83	82	>83	82	>83	>83	>83	>83
10	85	79	>83	>83	>83	>83	82	>83	79	>83	>83	>83
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 2157 MHz; 0.00 dBm.
LO IN: 425 MHz; +16.00 dBm
IF OUT: 1732 MHz; -6.58 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	23	44	29	45	35	47	41	55	42	55
1	-	27	+0	36	10	33	24	39	36	38	37	39
2	49	61	58	68	57	59	51	58	50	56	54	57
3	89	72	57	78	55	65	50	64	54	69	57	66
4	>90	>93	93	85	89	89	86	89	78	90	74	85
5	>90	>93	>93	>93	>93	>93	87	92	87	>93	85	90
6	>90	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93
7	>90	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93
8	>90	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93
9	>90	90	92	>93	93	>93	>93	>93	>93	>93	>93	>93
10	89	84	>93	>93	91	89	>93	>93	93	>93	>93	>93
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 2157 MHz; 10.00 dBm.
LO IN: 425 MHz; +16.00 dBm
IF OUT: 1732 MHz; 3.41 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 represent the Harmonics level of the RF input signal to the mixer.