Frequency Mixer HJK-ED13140/1

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=46MHz (dB) @LO (dBm)		
		+15	+17	+19
532.0	486.0	11.05	11.10	11.12
592.0	546.0	7.54	7.42	7.35
652.0	606.0	6.60	6.57	6.58
712.0	666.0	6.43	6.43	6.46
772.0	726.0	6.44	6.44	6.47
832.0	786.0	6.61	6.61	6.64
892.0	846.0	6.63	6.64	6.67
952.0	906.0	6.69	6.68	6.69
1012.0	966.0	6.79	6.79	6.80
1072.0	1026.0	6.94	6.93	6.95
1132.0	1086.0	7.06	7.03	7.01
1192.0	1146.0	7.17	7.12	7.09
1252.0	1206.0	7.27	7.22	7.19
1312.0	1266.0	7.30	7.26	7.23
1372.0	1326.0	7.47	7.41	7.38
1432.0	1386.0	7.45	7.39	7.36
1512.0	1466.0	7.44	7.38	7.33
1572.0	1526.0	7.56	7.50	7.46
1652.0	1606.0	7.50	7.44	7.42
1712.0	1666.0	7.47	7.40	7.38
1792.0	1746.0	7.36	7.26	7.23
1852.0	1806.0	7.32	7.20	7.14
1932.0	1886.0	7.34	7.19	7.11
1992.0	1946.0	7.39	7.23	7.15
2072.0	2026.0	7.42	7.25	7.15
2132.0	2086.0	7.43	7.23	7.11
2212.0	2166.0	7.53	7.33	7.20
2272.0	2226.0	7.80	7.59	7.45
2352.0	2306.0	8.03	7.80	7.64
2412.0	2366.0	8.09	7.85	7.69
2492.0	2446.0	8.34	8.10	7.95
2552.0	2506.0	8.71	8.49	8.34
2632.0	2586.0	9.05	8.81	8.67
2692.0	2646.0	9.08	8.86	8.73
2772.0	2726.0	9.33	9.10	8.96
2832.0	2786.0	9.73	9.50	9.34
2912.0	2866.0	10.13	9.83	9.65
2972.0	2926.0	10.28	9.95	9.75
3052.0	3006.0	10.63	10.36	10.17
3112.0	3066.0	11.04	10.77	10.61

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm) @LO (dBm)		
		+15	+17	+19
532.0	486.0	18.46	18.27	18.26
592.0	546.0	20.02	20.99	22.67
652.0	606.0	22.26	24.17	26.21
712.0	666.0	24.39	26.24	27.99
772.0	726.0	26.50	28.14	29.96
832.0	786.0	27.75	29.67	31.52
892.0	846.0	27.97	30.29	32.53
952.0	906.0	29.23	31.99	34.01
1012.0	966.0	28.68	31.49	33.73
1072.0	1026.0	27.72	30.09	32.75
1132.0	1086.0	27.31	29.49	32.61
1192.0	1146.0	25.45	26.93	29.49
1252.0	1206.0	25.45	26.24	27.95
1312.0	1266.0	24.91	25.52	26.58
1372.0	1326.0	25.23	25.78	26.37
1432.0	1386.0	25.04	25.82	26.32
1512.0	1466.0	23.86	25.33	26.02
1572.0	1526.0	23.58	25.59	26.61
1652.0	1606.0	22.16	24.67	26.63
1712.0	1666.0	21.32	23.90	26.05
1792.0	1746.0	20.04	22.63	25.05
1852.0	1806.0	19.30	21.83	24.38
1932.0	1886.0	18.91	21.35	23.96
1992.0	1946.0	18.70	21.05	23.63
2072.0	2026.0	18.28	20.51	23.25
2132.0	2086.0	17.94	20.18	22.76
2212.0	2166.0	17.97	20.04	22.45
2272.0	2226.0	17.86	19.87	22.38
2352.0	2306.0	17.64	19.63	21.94
2412.0	2366.0	17.63	19.67	22.00
2492.0	2446.0	17.98	20.40	22.86
2552.0	2506.0	18.11	20.41	22.82
2632.0	2586.0	18.01	20.33	23.01
2692.0	2646.0	17.83	20.30	22.93
2772.0	2726.0	18.04	20.05	22.61
2832.0	2786.0	17.89	19.71	22.18
2912.0	2866.0	17.34	18.94	21.03
2972.0	2926.0	16.98	18.71	20.34
3052.0	3006.0	16.94	18.63	20.67
3112.0	3066.0	17.43	19.34	21.85

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+17dBm (dB) @LO (dBm)		
		+15	+17	+19
532.0	486.0	2.18	1.36	0.53
592.0	546.0	2.75	2.15	1.48
652.0	606.0	2.50	1.66	0.98
712.0	666.0	1.64	1.00	0.62
772.0	726.0	1.01	0.63	0.40
832.0	786.0	0.65	0.41	0.26
892.0	846.0	0.48	0.32	0.22
952.0	906.0	0.37	0.25	0.18
1012.0	966.0	0.38	0.25	0.18
1072.0	1026.0	0.42	0.29	0.20
1132.0	1086.0	0.51	0.32	0.21
1192.0	1146.0	0.66	0.42	0.28
1252.0	1206.0	0.82	0.49	0.32
1312.0	1266.0	1.21	0.67	0.42
1372.0	1326.0	1.47	0.82	0.50
1432.0	1386.0	1.84	1.01	0.57
1512.0	1466.0	2.61	1.54	0.86
1572.0	1526.0	2.75	1.72	1.00
1652.0	1606.0	3.18	2.07	1.22
1712.0	1666.0	3.60	2.40	1.47
1792.0	1746.0	4.22	2.97	1.88
1852.0	1806.0	4.73	3.44	2.27
1932.0	1886.0	5.00	3.76	2.54
1992.0	1946.0	5.17	3.94	2.71
2072.0	2026.0	5.56	4.38	3.09
2132.0	2086.0	5.82	4.60	3.39
2212.0	2166.0	5.85	4.72	3.52
2272.0	2226.0	5.73	4.62	3.44
2352.0	2306.0	5.99	4.87	3.60
2412.0	2366.0	6.05	4.90	3.62
2492.0	2446.0	5.87	4.62	3.43
2552.0	2506.0	5.66	4.55	3.38
2632.0	2586.0	5.68	4.49	3.30
2692.0	2646.0	5.69	4.53	3.37
2772.0	2726.0	5.65	4.52	3.23
2832.0	2786.0	5.46	4.41	3.17
2912.0	2866.0	5.46	4.36	3.23
2972.0	2926.0	5.76	4.58	3.57
3052.0	3006.0	5.55	4.52	3.41
3112.0	3066.0	5.45	4.39	3.23

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1380MHz (dB) @LO (dBm) +17
870.0	510.0	10.29
820.9	559.1	7.87
771.7	608.3	7.14
722.6	657.4	7.21
673.4	706.6	8.38
624.3	755.7	8.13
575.1	804.9	7.39
526.0	854.0	6.93
476.9	903.1	6.70
427.7	952.3	6.63
378.6	1001.4	6.58
341.7	1038.3	6.66
292.6	1087.4	6.74
255.7	1124.3	6.87
206.6	1173.4	7.02
169.7	1210.3	7.11
120.6	1259.4	7.27
83.7	1296.3	7.35
34.6	1345.4	7.40
10.0	1390.0	7.66
120.9	1500.9	7.50
204.0	1584.0	7.54
314.9	1694.9	7.56
398.0	1778.0	7.73
508.9	1888.9	7.94
592.0	1972.0	8.15
702.9	2082.9	8.28
786.0	2166.0	8.38
896.9	2276.9	8.56
980.0	2360.0	8.65
1090.9	2470.9	8.78
1174.0	2554.0	8.76
1284.9	2664.9	8.80
1368.0	2748.0	8.80
1478.9	2858.9	9.17
1562.0	2942.0	9.43
1672.9	3052.9	9.72
1756.0	3136.0	9.93
1866.9	3246.9	10.29
1950.0	3330.0	10.60

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1172MHz (dB) @LO (dBm) +17
10.1	1182.1	7.42
70.1	1242.1	7.40
130.1	1302.1	7.39
190.1	1362.1	7.49
250.1	1422.1	7.42
310.1	1482.1	7.42
350.1	1522.1	7.53
410.1	1582.1	7.54
450.1	1622.1	7.62
510.1	1682.1	7.70
550.1	1722.1	7.83
610.1	1782.1	8.06
650.1	1822.1	8.22
710.1	1882.1	8.29
750.1	1922.1	8.45
810.1	1982.1	8.48
850.1	2022.1	8.59
910.1	2082.1	8.65
950.1	2122.1	8.75
1010.1	2182.1	8.69
1050.1	2222.1	8.74
1110.1	2282.1	8.73
1150.1	2322.1	8.74
1210.1	2382.1	8.92
1250.1	2422.1	8.82
1310.1	2482.1	8.84
1350.1	2522.1	8.83
1410.1	2582.1	8.83
1450.1	2622.1	8.83
1510.1	2682.1	8.88
1550.1	2722.1	8.84
1610.1	2782.1	9.04
1650.1	2822.1	9.09
1710.1	2882.1	9.34
1750.1	2922.1	9.46
1810.1	2982.1	9.67
1850.1	3022.1	9.84
1910.1	3082.1	9.99
1950.1	3122.1	10.08
2010.1	3182.1	10.17

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1588.1MHz (dB) @LO (dBm) +17
1110.1	478.0	13.22
1090.1	498.0	11.01
1070.1	518.0	9.06
1050.1	538.0	8.20
1030.1	558.0	7.94
1010.1	578.0	7.74
990.1	598.0	7.60
970.1	618.0	7.40
930.1	658.0	7.02
910.1	678.0	6.88
870.1	718.0	6.65
850.1	738.0	6.67
810.1	778.0	7.28
790.1	798.0	7.81
750.1	838.0	8.10
730.1	858.0	7.74
690.1	898.0	7.20
670.1	918.0	7.00
630.1	958.0	6.65
610.1	978.0	6.66
570.1	1018.0	6.58
550.1	1038.0	6.50
510.1	1078.0	6.42
490.1	1098.0	6.58
450.1	1138.0	6.58
430.1	1158.0	6.63
390.1	1198.0	6.69
370.1	1218.0	6.77
330.1	1258.0	6.82
310.1	1278.0	6.92
270.1	1318.0	7.03
250.1	1338.0	7.06
210.1	1378.0	7.13
190.1	1398.0	7.19
150.1	1438.0	7.19
130.1	1458.0	7.25
90.1	1498.0	7.40
70.1	1518.0	7.46
30.1	1558.0	7.47
10.1	1578.0	7.56

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB) @LO (dBm)			LO-IF ISOLATION (dB) @LO (dBm)		
	+15	+17	+19	+15	+17	+19
486.0	44.85	45.42	46.14	48.55	48.12	47.67
546.0	52.92	53.03	53.11	44.72	44.57	44.47
606.0	56.12	56.06	56.04	42.52	42.50	42.51
666.0	47.19	46.98	46.86	40.51	40.56	40.66
726.0	49.61	49.43	49.31	39.15	39.21	39.28
786.0	50.58	50.38	50.20	37.97	38.05	38.16
846.0	49.84	49.50	49.19	36.45	36.58	36.72
906.0	49.49	49.10	48.81	35.17	35.36	35.65
966.0	50.07	49.56	49.08	34.18	34.35	34.60
1026.0	52.83	51.94	51.06	33.58	33.83	34.06
1086.0	52.00	50.80	49.86	33.21	33.43	33.63
1146.0	51.07	49.73	48.73	33.09	33.31	33.56
1206.0	52.49	51.17	50.16	32.75	32.96	33.17
1266.0	53.73	51.87	50.41	32.05	32.17	32.37
1326.0	60.62	58.22	55.51	31.20	31.36	31.59
1386.0	53.63	53.31	52.31	31.78	32.00	32.21
1466.0	53.81	52.49	51.04	32.22	32.39	32.54
1526.0	55.44	51.95	49.68	32.95	33.09	33.30
1606.0	46.11	46.76	47.60	34.56	34.85	35.11
1666.0	45.00	45.54	46.27	34.59	34.82	35.13
1746.0	44.32	44.79	45.48	34.82	35.06	35.36
1806.0	43.74	44.13	44.67	34.92	35.15	35.41
1886.0	43.51	43.89	44.36	35.22	35.49	35.75
1946.0	43.14	43.51	43.85	35.55	35.82	36.04
2026.0	42.78	43.12	43.27	36.17	36.46	36.61
2086.0	43.20	43.30	43.38	36.33	36.45	36.54
2166.0	43.48	43.45	43.23	35.67	35.74	35.76
2226.0	41.45	41.17	40.87	35.60	35.76	35.82
2306.0	39.30	38.98	38.57	35.74	35.95	35.93
2366.0	38.65	38.34	37.95	36.33	36.48	36.44
2446.0	37.21	36.74	36.56	37.55	37.57	37.67
2506.0	36.07	35.96	35.76	38.94	39.18	39.27
2586.0	34.98	34.90	34.75	41.43	41.72	41.87
2646.0	34.43	34.25	34.13	44.49	44.78	44.95
2726.0	33.57	33.42	33.05	48.58	48.22	47.52
2786.0	33.01	32.88	32.50	45.03	44.62	44.12
2866.0	33.03	32.84	32.57	39.37	38.96	38.62
2926.0	33.21	32.88	32.78	35.83	35.21	35.00
3006.0	33.21	33.29	33.17	32.14	31.85	31.42
3066.0	33.93	34.12	34.10	31.00	30.80	30.38

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB) @LO (dBm)		
		+15	+17	+19
532.0	486.0	17.42	17.14	16.97
592.0	546.0	23.65	22.95	22.39
652.0	606.0	28.83	29.05	29.00
712.0	666.0	33.08	33.57	33.58
772.0	726.0	35.84	36.04	35.58
832.0	786.0	39.06	39.15	38.24
892.0	846.0	39.40	38.98	38.01
952.0	906.0	38.92	38.51	37.67
1012.0	966.0	38.13	37.81	37.27
1072.0	1026.0	37.38	37.12	36.58
1132.0	1086.0	36.29	36.44	36.42
1192.0	1146.0	34.72	34.77	34.68
1252.0	1206.0	33.73	33.75	33.68
1312.0	1266.0	31.80	31.73	31.59
1372.0	1326.0	29.80	29.78	29.64
1432.0	1386.0	32.47	32.58	32.65
1512.0	1466.0	34.64	34.83	34.90
1572.0	1526.0	34.40	34.66	34.86
1652.0	1606.0	33.87	34.05	34.21
1712.0	1666.0	34.74	34.99	35.21
1792.0	1746.0	35.95	36.45	37.00
1852.0	1806.0	36.69	37.26	37.93
1932.0	1886.0	38.13	39.40	40.80
1992.0	1946.0	38.81	40.68	43.04
2072.0	2026.0	37.00	39.05	42.26
2132.0	2086.0	33.38	34.62	36.37
2212.0	2166.0	30.62	31.15	31.91
2272.0	2226.0	31.62	32.19	33.02
2352.0	2306.0	34.34	34.97	36.01
2412.0	2366.0	35.74	36.39	37.50
2492.0	2446.0	36.54	37.23	38.17
2552.0	2506.0	36.08	36.56	37.22
2632.0	2586.0	35.08	35.42	35.89
2692.0	2646.0	34.47	34.84	35.23
2772.0	2726.0	36.68	36.77	37.31
2832.0	2786.0	31.39	30.94	30.69
2912.0	2866.0	30.19	29.37	28.74
2972.0	2926.0	28.71	27.74	27.03
3052.0	3006.0	26.12	25.33	24.57
3112.0	3066.0	25.31	24.69	24.09

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1) @LO (dBm)		
		+15	+17	+19
532.0	486.0	1.92	2.00	2.08
592.0	546.0	2.07	2.17	2.28
652.0	606.0	2.01	2.08	2.15
712.0	666.0	2.03	2.08	2.14
772.0	726.0	2.06	2.09	2.12
832.0	786.0	2.10	2.11	2.13
892.0	846.0	2.12	2.12	2.13
952.0	906.0	2.17	2.16	2.15
1012.0	966.0	2.19	2.17	2.16
1072.0	1026.0	2.19	2.17	2.15
1132.0	1086.0	2.22	2.19	2.15
1192.0	1146.0	2.25	2.21	2.17
1252.0	1206.0	2.25	2.20	2.15
1312.0	1266.0	2.21	2.17	2.13
1372.0	1326.0	2.17	2.13	2.08
1432.0	1386.0	2.12	2.07	2.03
1512.0	1466.0	1.99	1.95	1.91
1572.0	1526.0	1.86	1.83	1.79
1652.0	1606.0	1.67	1.64	1.61
1712.0	1666.0	1.58	1.55	1.53
1792.0	1746.0	1.51	1.48	1.46
1852.0	1806.0	1.47	1.44	1.42
1932.0	1886.0	1.46	1.43	1.41
1992.0	1946.0	1.47	1.44	1.42
2072.0	2026.0	1.51	1.48	1.46
2132.0	2086.0	1.57	1.55	1.53
2212.0	2166.0	1.68	1.66	1.65
2272.0	2226.0	1.78	1.77	1.76
2352.0	2306.0	1.94	1.93	1.93
2412.0	2366.0	2.08	2.07	2.07
2492.0	2446.0	2.28	2.28	2.29
2552.0	2506.0	2.46	2.47	2.47
2632.0	2586.0	2.67	2.69	2.71
2692.0	2646.0	2.81	2.84	2.87
2772.0	2726.0	3.00	3.03	3.07
2832.0	2786.0	3.11	3.14	3.18
2912.0	2866.0	3.21	3.22	3.25
2972.0	2926.0	3.36	3.37	3.37
3052.0	3006.0	3.56	3.56	3.56
3112.0	3066.0	3.67	3.66	3.67

LO (MHz)	LO VSWR (:1) @LO (dBm)		
	+15	+17	+19
486.0	3.45	3.46	3.47
546.0	3.70	3.70	3.70
606.0	3.85	3.85	3.85
666.0	3.86	3.86	3.86
726.0	3.80	3.80	3.79
786.0	3.62	3.61	3.60
846.0	3.34	3.33	3.32
906.0	2.99	2.98	2.96
966.0	2.66	2.66	2.65
1026.0	2.49	2.49	2.50
1086.0	2.48	2.49	2.50
1146.0	2.57	2.58	2.59
1206.0	2.69	2.70	2.72
1266.0	2.79	2.80	2.82
1326.0	2.87	2.89	2.89
1386.0	3.03	3.04	3.05
1466.0	3.18	3.18	3.19
1526.0	3.24	3.23	3.22
1606.0	3.40	3.40	3.39
1666.0	3.51	3.51	3.52
1746.0	3.58	3.58	3.58
1806.0	3.62	3.62	3.61
1886.0	3.70	3.69	3.68
1946.0	3.73	3.73	3.73
2026.0	3.72	3.71	3.70
2086.0	3.67	3.66	3.63
2166.0	3.62	3.61	3.60
2226.0	3.56	3.56	3.55
2306.0	3.45	3.44	3.43
2366.0	3.36	3.36	3.35
2446.0	3.23	3.24	3.24
2506.0	3.12	3.12	3.11
2586.0	2.97	2.96	2.95
2646.0	2.89	2.89	2.89
2726.0	2.78	2.78	2.78
2786.0	2.71	2.70	2.69
2866.0	2.65	2.65	2.63
2926.0	2.63	2.63	2.63
3006.0	2.61	2.61	2.60
3066.0	2.61	2.60	2.59

IF (OUT) (MHz)	IF VSWR @LO=1588MHz (:1) @LO (dBm)		
	+15	+17	+19
10.0	2.03	2.16	2.30
50.0	2.01	2.14	2.28
90.0	1.99	2.12	2.25
130.0	1.99	2.11	2.24
170.0	1.95	2.06	2.18
210.0	1.91	2.01	2.12
250.0	1.89	1.98	2.07
290.0	1.85	1.92	2.00
330.0	1.88	1.94	2.01
370.0	1.85	1.90	1.95
410.0	1.89	1.92	1.97
450.0	1.87	1.88	1.90
490.0	1.94	1.93	1.94
530.0	1.95	1.93	1.93
570.0	2.03	2.00	1.98
610.0	2.04	2.00	1.97
650.0	2.07	2.02	1.97
690.0	2.14	2.08	2.03
730.0	2.18	2.11	2.04
770.0	2.32	2.25	2.18
810.0	2.27	2.19	2.13
850.0	2.35	2.27	2.20
890.0	2.31	2.24	2.17
930.0	2.42	2.33	2.26
970.0	2.41	2.33	2.26
1010.0	2.36	2.29	2.22
1050.0	2.34	2.27	2.21
1090.0	2.29	2.22	2.15
1130.0	2.36	2.29	2.23
1170.0	2.26	2.20	2.15
1210.0	2.27	2.22	2.17
1250.0	2.15	2.10	2.06
1290.0	2.12	2.08	2.04
1330.0	2.09	2.06	2.03
1370.0	2.01	2.00	1.98
1390.0	1.97	1.96	1.96
1430.0	1.90	1.91	1.92
1450.0	1.83	1.85	1.87
1490.0	1.76	1.80	1.85
1510.0	1.71	1.77	1.83

Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	9	22	27	32	42	54	43	43	49	55
1	-	22	+0	38	16	34	28	40	46	47	48	49
2	50	53	45	63	46	58	52	52	63	54	73	62
3	>90	68	51	71	47	68	50	64	57	68	72	70
4	>90	83	>85	83	73	>85	77	82	79	80	>85	>85
5	>90	>85	>85	>85	>85	80	82	84	82	>85	>85	>85
6	>90	>85	>85	>85	>85	>85	>85	>85	84	>85	>85	>85
7	>90	>85	>85	>85	>85	>85	>85	>85	>85	>85	>85	>85
8	>90	>85	>85	>85	>85	>85	>85	>85	>85	>85	>85	>85
9	>90	>85	>85	>85	>85	>85	>85	>85	>85	>85	>85	>85
10	>90	>85	>85	>85	>85	>85	>85	>85	>85	>85	>85	>85
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: **RF IN: 1380 MHz; 2.00 dBm.**
LO IN: 1334 MHz; +17.00 dBm
IF OUT: 46 MHz; -5.44 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	20	33	35	51	49	43	55	53	70	68
1	-	22	+0	36	18	34	35	42	53	51	54	54
2	30	45	39	54	43	52	49	50	62	54	64	63
3	70	51	34	54	30	56	34	48	43	54	60	60
4	83	71	59	63	51	66	54	69	59	62	68	63
5	>90	90	63	70	51	63	46	61	48	59	54	64
6	>90	79	82	91	73	74	64	76	66	77	68	74
7	>90	93	85	90	76	74	65	66	60	66	62	67
8	>90	92	>94	94	>94	89	88	80	81	82	80	84
9	>90	>94	90	91	>94	>94	92	81	76	72	68	72
10	>90	>94	>94	>94	>94	>94	>94	>94	>94	>94	>94	83
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: **RF IN: 1380 MHz; 12.00 dBm.**
LO IN: 1334 MHz; +17.00 dBm
IF OUT: 46 MHz; 4.33 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.