Frequency Mixer SYM-22H+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB) @LO (dBm)		
		+14	+17	+20
500.1	530.1	13.75	10.99	9.12
580.7	610.7	12.07	9.38	8.08
661.3	691.3	9.61	7.96	7.13
741.8	771.8	8.51	7.26	6.62
822.4	852.4	8.33	6.81	6.16
903.0	933.0	7.78	6.28	5.66
983.6	1013.6	7.00	5.93	5.39
1044.0	1074.0	7.06	5.96	5.31
1124.6	1154.6	6.71	5.77	5.19
1185.0	1215.0	6.71	5.82	5.24
1265.6	1295.6	6.64	5.67	5.34
1326.0	1356.0	6.63	5.70	5.47
1406.6	1436.6	6.31	5.78	5.70
1467.0	1497.0	6.06	5.56	5.53
1547.6	1577.6	6.02	5.45	5.40
1608.0	1638.0	6.04	5.41	5.31
1688.6	1718.6	6.94	5.99	5.72
1749.0	1779.0	7.28	6.53	6.19
1829.6	1859.6	7.41	6.58	6.20
1890.0	1920.0	6.86	6.29	6.00
1970.6	2000.6	6.64	6.08	5.86
2031.0	2061.0	6.57	6.01	5.82
2111.6	2141.6	6.49	5.87	5.69
2172.0	2202.0	6.41	5.82	5.64
2252.6	2282.6	6.38	5.77	5.64
2313.0	2343.0	6.66	5.83	5.66
2393.6	2423.6	6.87	6.07	5.85
2454.1	2484.1	6.95	6.20	5.99
2534.6	2564.6	7.20	6.47	6.22
2595.1	2625.1	7.51	6.77	6.51
2675.6	2705.6	7.74	7.17	7.01
2736.1	2766.1	7.97	7.39	7.28
2816.6	2846.6	8.26	7.67	7.55
2877.1	2907.1	8.66	7.96	7.83
2957.7	2987.7	9.06	8.35	8.27
3018.1	3048.1	9.47	8.70	8.57
3098.7	3128.7	10.01	9.19	9.04
3159.1	3189.1	10.04	9.38	9.29
3239.7	3269.7	10.53	9.77	9.66
3300.1	3330.1	11.37	10.30	10.10

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm) @LO (dBm)		
		+14	+17	+20
500.1	530.1	17.49	17.81	21.42
580.7	610.7	14.56	17.05	20.54
661.3	691.3	13.24	17.21	19.74
741.8	771.8	13.10	16.96	19.39
822.4	852.4	12.86	17.08	20.21
903.0	933.0	14.92	16.32	18.37
983.6	1013.6	16.66	16.93	17.62
1044.0	1074.0	16.73	17.07	18.61
1124.6	1154.6	19.41	17.15	20.00
1185.0	1215.0	21.33	18.55	21.26
1265.6	1295.6	21.06	22.40	22.87
1326.0	1356.0	21.75	24.15	23.53
1406.6	1436.6	22.31	24.75	24.14
1467.0	1497.0	21.97	23.29	24.89
1547.6	1577.6	20.78	25.42	27.09
1608.0	1638.0	19.42	25.31	29.39
1688.6	1718.6	19.47	20.15	27.47
1749.0	1779.0	21.30	23.19	30.41
1829.6	1859.6	25.36	27.34	28.15
1890.0	1920.0	22.89	24.24	24.54
1970.6	2000.6	21.81	22.83	23.54
2031.0	2061.0	20.85	22.40	23.07
2111.6	2141.6	20.43	22.61	25.04
2172.0	2202.0	20.19	23.32	27.84
2252.6	2282.6	20.99	25.11	28.96
2313.0	2343.0	22.60	24.49	27.70
2393.6	2423.6	23.50	23.17	25.71
2454.1	2484.1	24.03	23.20	25.31
2534.6	2564.6	24.57	24.23	25.56
2595.1	2625.1	34.58	24.01	25.36
2675.6	2705.6	26.46	25.27	25.85
2736.1	2766.1	20.93	27.57	27.00
2816.6	2846.6	19.50	29.67	28.16
2877.1	2907.1	18.81	31.62	28.40
2957.7	2987.7	18.93	31.18	30.55
3018.1	3048.1	19.37	24.52	30.47
3098.7	3128.7	21.94	23.04	37.33
3159.1	3189.1	23.06	23.45	29.65
3239.7	3269.7	25.31	24.94	28.19
3300.1	3330.1	27.58	26.64	28.71

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+14dBm (dB) @LO (dBm)		
		+14	+17	+20
500.1	530.1	-1.18	-0.76	-0.26
580.7	610.7	-0.05	0.17	0.25
661.3	691.3	1.24	0.97	0.78
741.8	771.8	1.62	1.44	1.31
822.4	852.4	1.73	1.78	1.61
903.0	933.0	1.52	1.72	1.58
983.6	1013.6	1.50	1.52	1.42
1044.0	1074.0	1.49	1.43	1.35
1124.6	1154.6	1.44	1.20	1.09
1185.0	1215.0	1.40	1.11	0.93
1265.6	1295.6	1.37	1.13	0.78
1326.0	1356.0	1.30	1.02	0.70
1406.6	1436.6	1.30	0.79	0.54
1467.0	1497.0	1.16	0.64	0.42
1547.6	1577.6	1.04	0.44	0.22
1608.0	1638.0	0.95	0.50	0.27
1688.6	1718.6	0.66	0.53	0.39
1749.0	1779.0	0.60	0.39	0.35
1829.6	1859.6	0.66	0.39	0.36
1890.0	1920.0	0.80	0.52	0.41
1970.6	2000.6	0.77	0.49	0.39
2031.0	2061.0	0.91	0.60	0.45
2111.6	2141.6	0.97	0.62	0.49
2172.0	2202.0	0.96	0.61	0.48
2252.6	2282.6	0.80	0.51	0.37
2313.0	2343.0	0.80	0.51	0.33
2393.6	2423.6	0.71	0.40	0.31
2454.1	2484.1	0.73	0.35	0.26
2534.6	2564.6	0.63	0.32	0.22
2595.1	2625.1	0.68	0.26	0.19
2675.6	2705.6	0.51	0.19	0.16
2736.1	2766.1	0.49	0.17	0.14
2816.6	2846.6	0.41	0.15	0.12
2877.1	2907.1	0.42	0.17	0.12
2957.7	2987.7	0.39	0.15	0.09
3018.1	3048.1	0.32	0.13	0.08
3098.7	3128.7	0.40	0.15	0.10
3159.1	3189.1	0.38	0.19	0.12
3239.7	3269.7	0.36	0.21	0.16
3300.1	3330.1	0.25	0.15	0.13

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1850.1MHz (dB) @LO (dBm) +17
200.0	1650.1	7.30
190.0	1660.1	7.40
180.0	1670.1	7.54
170.0	1680.1	7.57
160.0	1690.1	7.56
150.0	1700.1	7.53
140.0	1710.1	7.45
130.0	1720.1	7.41
120.0	1730.1	7.34
110.0	1740.1	7.15
100.0	1750.1	6.99
90.0	1760.1	6.96
80.0	1770.1	6.88
70.0	1780.1	6.71
60.0	1790.1	6.61
50.0	1800.1	6.60
40.0	1810.1	6.52
30.0	1820.1	6.48
20.0	1830.1	6.49
10.0	1840.1	6.41
10.0	1860.1	6.46
20.0	1870.1	6.51
30.0	1880.1	6.46
40.0	1890.1	6.47
50.0	1900.1	6.48
60.0	1910.1	6.43
70.0	1920.1	6.41
80.0	1930.1	6.44
90.0	1940.1	6.42
100.0	1950.1	6.41
110.0	1960.1	6.45
120.0	1970.1	6.46
130.0	1980.1	6.49
140.0	1990.1	6.53
150.0	2000.1	6.54
160.0	2010.1	6.56
170.0	2020.1	6.62
180.0	2030.1	6.67
190.0	2040.1	6.67
200.0	2050.1	6.67

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1500.1MHz (dB) @LO (dBm) +17
10.0	1510.1	5.36
14.9	1515.0	5.42
19.7	1519.8	5.41
24.6	1524.7	5.41
29.5	1529.6	5.42
34.4	1534.5	5.41
39.2	1539.3	5.41
44.1	1544.2	5.41
49.0	1549.1	5.42
53.8	1553.9	5.41
58.7	1558.8	5.41
63.6	1563.7	5.42
68.5	1568.6	5.44
73.3	1573.4	5.46
78.2	1578.3	5.50
83.1	1583.2	5.52
87.9	1588.0	5.54
92.8	1592.9	5.54
97.7	1597.8	5.52
102.6	1602.7	5.51
107.4	1607.5	5.50
112.3	1612.4	5.49
117.2	1617.3	5.49
122.1	1622.2	5.49
126.9	1627.0	5.47
131.8	1631.9	5.44
136.7	1636.8	5.40
141.5	1641.6	5.35
146.4	1646.5	5.32
151.3	1651.4	5.29
156.2	1656.3	5.26
161.0	1661.1	5.24
165.9	1666.0	5.23
170.8	1670.9	5.22
175.6	1675.7	5.22
180.5	1680.6	5.22
185.4	1685.5	5.21
190.3	1690.4	5.20
195.1	1695.2	5.17
200.0	1700.1	5.16

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=2200.1MHz (dB) @LO (dBm) +17
200.0	2000.1	6.16
195.1	2005.0	6.16
190.3	2009.8	6.17
185.4	2014.7	6.17
180.5	2019.6	6.16
175.6	2024.5	6.15
170.8	2029.3	6.15
165.9	2034.2	6.13
161.0	2039.1	6.13
156.2	2043.9	6.12
151.3	2048.8	6.09
146.4	2053.7	6.06
141.5	2058.6	6.04
136.7	2063.4	6.04
131.8	2068.3	6.04
126.9	2073.2	6.04
122.1	2078.0	6.03
117.2	2082.9	5.99
112.3	2087.8	5.97
107.4	2092.7	5.95
102.6	2097.5	5.93
97.7	2102.4	5.92
92.8	2107.3	5.93
87.9	2112.2	5.92
83.1	2117.0	5.89
78.2	2121.9	5.88
73.3	2126.8	5.86
68.5	2131.6	5.85
63.6	2136.5	5.84
58.7	2141.4	5.84
53.8	2146.3	5.82
49.0	2151.1	5.81
44.1	2156.0	5.79
39.2	2160.9	5.79
34.4	2165.7	5.79
29.5	2170.6	5.80
24.6	2175.5	5.78
19.7	2180.4	5.76
14.9	2185.2	5.78
10.0	2190.1	5.71

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB) @LO (dBm)			LO-IF ISOLATION (dB) @LO (dBm)		
	+14	+17	+20	+14	+17	+20
500.1	24.64	24.16	25.35	10.71	10.23	11.27
580.7	24.07	23.70	24.89	10.67	10.10	11.13
661.3	23.63	23.52	24.85	10.56	9.97	11.10
741.8	23.48	24.34	25.46	10.05	10.00	11.13
822.4	25.02	26.54	27.38	10.03	10.87	11.81
903.0	27.17	29.03	29.83	11.77	12.83	13.91
983.6	28.41	30.55	31.18	14.17	15.31	16.35
1044.0	29.95	31.45	32.47	16.79	17.64	18.33
1124.6	29.84	30.87	32.15	19.78	20.68	21.25
1185.0	30.44	31.15	32.56	22.38	22.86	23.14
1265.6	29.83	31.40	33.13	25.23	25.56	25.65
1326.0	29.91	31.42	33.58	27.26	27.50	27.53
1406.6	29.18	31.45	33.74	29.35	29.68	29.53
1467.0	29.28	31.50	33.43	31.11	31.32	31.10
1547.6	28.05	31.13	34.22	32.83	33.10	32.71
1608.0	28.24	31.33	34.17	34.34	34.42	33.99
1688.6	28.34	31.72	34.43	35.83	36.07	35.41
1749.0	28.34	31.18	33.33	36.82	36.93	36.32
1829.6	27.37	30.02	32.43	37.86	37.94	37.55
1890.0	27.10	30.13	33.09	38.15	38.39	38.21
1970.6	27.01	29.86	32.70	39.31	39.42	39.13
2031.0	26.20	29.35	32.40	39.70	39.99	39.76
2111.6	26.10	29.23	32.38	40.37	40.64	40.55
2172.0	25.41	28.80	32.33	39.67	40.30	40.63
2252.6	25.22	28.71	32.18	39.34	40.29	40.92
2313.0	24.99	28.26	31.78	39.92	40.98	41.75
2393.6	24.79	27.15	30.07	39.67	40.57	41.54
2454.1	25.13	27.45	30.23	40.34	40.96	42.17
2534.6	25.17	27.61	30.09	40.91	41.94	42.95
2595.1	25.92	28.36	30.11	40.98	42.34	42.82
2675.6	26.01	29.41	31.59	40.24	42.62	43.05
2736.1	26.32	29.97	32.49	39.63	42.37	42.72
2816.6	26.13	30.40	33.31	38.43	41.97	42.23
2877.1	27.52	30.92	34.11	38.85	41.85	41.91
2957.7	27.84	31.73	34.77	38.29	41.81	41.52
3018.1	28.49	32.65	35.54	37.88	41.86	41.24
3098.7	29.67	34.82	38.81	37.27	41.93	41.29
3159.1	31.61	37.32	43.29	37.36	42.19	41.27
3239.7	32.64	38.87	46.98	35.84	41.49	41.42
3300.1	34.11	39.38	45.30	35.03	40.74	42.05

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB) @LO (dBm)		
		+14	+17	+20
500.1	530.1	13.35	15.47	17.38
580.7	610.7	12.50	14.31	15.49
661.3	691.3	12.72	13.46	13.99
741.8	771.8	12.51	12.67	12.93
822.4	852.4	13.23	13.23	13.03
903.0	933.0	15.04	15.03	14.54
983.6	1013.6	16.80	16.23	15.68
1044.0	1074.0	17.16	16.49	15.85
1124.6	1154.6	16.33	15.70	15.37
1185.0	1215.0	16.00	15.34	15.11
1265.6	1295.6	15.67	15.13	15.06
1326.0	1356.0	15.74	15.24	15.18
1406.6	1436.6	16.03	15.70	15.72
1467.0	1497.0	16.73	16.63	16.67
1547.6	1577.6	17.24	17.58	17.74
1608.0	1638.0	17.51	18.08	18.49
1688.6	1718.6	17.86	18.37	18.81
1749.0	1779.0	18.05	18.28	18.52
1829.6	1859.6	18.59	18.80	19.04
1890.0	1920.0	19.47	19.67	19.90
1970.6	2000.6	20.93	21.18	21.47
2031.0	2061.0	22.08	22.40	22.80
2111.6	2141.6	24.20	24.69	25.26
2172.0	2202.0	26.25	26.92	27.73
2252.6	2282.6	30.00	31.38	32.66
2313.0	2343.0	32.51	35.41	37.40
2393.6	2423.6	35.28	37.63	38.41
2454.1	2484.1	34.46	34.15	33.47
2534.6	2564.6	29.78	29.08	28.45
2595.1	2625.1	27.02	26.21	25.68
2675.6	2705.6	23.79	23.28	22.92
2736.1	2766.1	21.91	21.50	21.21
2816.6	2846.6	19.77	19.61	19.45
2877.1	2907.1	18.29	18.25	18.16
2957.7	2987.7	16.74	16.82	16.75
3018.1	3048.1	15.64	15.79	15.85
3098.7	3128.7	14.32	14.49	14.63
3159.1	3189.1	13.59	13.76	13.88
3239.7	3269.7	12.66	12.88	13.03
3300.1	3330.1	12.05	12.27	12.48

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1) @LO (dBm)		
		+14	+17	+20
500.1	530.1	8.95	8.01	7.11
580.7	610.7	7.11	6.13	5.51
661.3	691.3	4.92	4.48	4.13
741.8	771.8	3.67	3.36	3.15
822.4	852.4	2.90	2.65	2.48
903.0	933.0	2.29	2.10	1.95
983.6	1013.6	1.91	1.75	1.61
1044.0	1074.0	1.77	1.62	1.47
1124.6	1154.6	1.65	1.51	1.39
1185.0	1215.0	1.69	1.53	1.42
1265.6	1295.6	1.71	1.56	1.51
1326.0	1356.0	1.73	1.62	1.59
1406.6	1436.6	1.65	1.63	1.64
1467.0	1497.0	1.63	1.51	1.52
1547.6	1577.6	1.70	1.44	1.39
1608.0	1638.0	1.81	1.46	1.32
1688.6	1718.6	2.05	1.72	1.55
1749.0	1779.0	2.32	2.11	1.97
1829.6	1859.6	2.60	2.40	2.23
1890.0	1920.0	2.46	2.30	2.17
1970.6	2000.6	2.25	2.11	2.01
2031.0	2061.0	2.13	1.99	1.89
2111.6	2141.6	2.01	1.87	1.74
2172.0	2202.0	1.89	1.76	1.65
2252.6	2282.6	1.73	1.60	1.56
2313.0	2343.0	1.75	1.59	1.55
2393.6	2423.6	1.85	1.75	1.71
2454.1	2484.1	1.94	1.88	1.84
2534.6	2564.6	2.05	2.02	2.01
2595.1	2625.1	2.12	2.12	2.16
2675.6	2705.6	2.29	2.34	2.40
2736.1	2766.1	2.49	2.56	2.60
2816.6	2846.6	2.79	2.81	2.82
2877.1	2907.1	2.97	2.94	2.95
2957.7	2987.7	3.18	3.11	3.14
3018.1	3048.1	3.44	3.34	3.32
3098.7	3128.7	3.88	3.76	3.63
3159.1	3189.1	4.10	4.00	3.79
3239.7	3269.7	4.27	4.11	3.92
3300.1	3330.1	4.33	4.15	4.01

LO (MHz)	LO VSWR (:1) @LO (dBm)		
	+14	+17	+20
500.1	7.05	4.22	2.70
580.7	6.78	3.95	2.40
661.3	6.17	3.63	2.21
741.8	5.25	3.10	2.09
822.4	4.16	2.58	1.99
903.0	4.03	2.52	1.88
983.6	4.23	2.50	1.88
1044.0	3.90	2.39	1.89
1124.6	4.20	2.40	1.87
1185.0	3.37	2.25	1.86
1265.6	3.79	2.30	1.78
1326.0	3.25	2.06	1.72
1406.6	3.73	2.05	1.65
1467.0	3.00	1.83	1.61
1547.6	3.16	1.75	1.51
1608.0	2.48	1.54	1.47
1688.6	2.47	1.50	1.46
1749.0	2.40	1.48	1.44
1829.6	2.27	1.37	1.37
1890.0	2.22	1.31	1.37
1970.6	1.96	1.23	1.35
2031.0	2.19	1.23	1.34
2111.6	2.03	1.20	1.30
2172.0	2.19	1.22	1.26
2252.6	2.10	1.20	1.23
2313.0	2.13	1.23	1.23
2393.6	2.24	1.33	1.22
2454.1	2.24	1.35	1.26
2534.6	2.51	1.44	1.24
2595.1	2.40	1.46	1.23
2675.6	2.59	1.49	1.24
2736.1	2.62	1.51	1.23
2816.6	3.03	1.59	1.20
2877.1	2.65	1.62	1.17
2957.7	2.90	1.64	1.16
3018.1	3.07	1.66	1.18
3098.7	3.31	1.73	1.18
3159.1	3.03	1.71	1.21
3239.7	3.50	1.78	1.28
3300.1	3.56	1.83	1.34

IF (OUT) (MHz)	IF VSWR @LO=2200.1MHz (:1) @LO (dBm)		
	+14	+17	+20
10.0	1.23	1.03	1.08
14.9	1.33	1.09	1.03
19.7	1.39	1.13	1.06
24.6	1.34	1.11	1.07
29.5	1.46	1.21	1.14
34.4	1.35	1.14	1.15
39.2	1.36	1.16	1.17
44.1	1.37	1.17	1.18
49.0	1.38	1.17	1.15
53.8	1.33	1.14	1.16
58.7	1.37	1.18	1.19
63.6	1.36	1.19	1.20
68.5	1.40	1.21	1.18
73.3	1.38	1.21	1.20
78.2	1.42	1.25	1.22
83.1	1.41	1.25	1.23
87.9	1.41	1.25	1.22
92.8	1.43	1.27	1.24
97.7	1.43	1.28	1.26
102.6	1.44	1.30	1.27
107.4	1.44	1.30	1.29
112.3	1.44	1.32	1.31
117.2	1.45	1.32	1.31
122.1	1.45	1.33	1.34
126.9	1.47	1.35	1.35
131.8	1.46	1.34	1.36
136.7	1.46	1.35	1.36
141.5	1.47	1.36	1.39
146.4	1.47	1.37	1.39
151.3	1.48	1.38	1.41
156.2	1.49	1.40	1.42
161.0	1.51	1.42	1.43
165.9	1.51	1.42	1.43
170.8	1.51	1.43	1.43
175.6	1.53	1.44	1.44
180.5	1.53	1.44	1.44
185.4	1.52	1.45	1.45
190.3	1.52	1.45	1.46
195.1	1.53	1.48	1.48
200.0	1.55	1.50	1.51

Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	15	23	11	23	16	28	58	43	50	86
1	-	13	+0	32	32	37	34	31	35	54	44	61
2	>100	67	66	48	72	69	59	63	62	59	77	74
3	>100	69	79	82	62	81	76	77	64	68	66	80
4	>100	>92	>92	>92	>92	86	>92	>92	>92	89	88	86
5	>100	>92	>92	>92	>92	>92	>92	>92	>92	>92	>92	>92
6	>100	>92	>92	>92	>92	>92	>92	88	>92	>92	>92	>92
7	>100	>92	>92	>92	>92	>92	>92	>92	87	>92	>92	>92
8	>100	>92	>92	>92	>92	>92	>92	>92	>92	92	>92	>92
9	>100	>92	>92	>92	>92	>92	>92	>92	>92	>92	>92	>92
10	>100	>92	>92	>92	>92	>92	>92	>92	>92	>92	>92	>92
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: **RF IN: 1850.1 MHz; -1.00 dBm.**
LO IN: 1880.01 MHz; +17.00 dBm
IF OUT: 29.91 MHz; -7.52 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	25	33	21	34	28	44	58	65	64	77
1	-	13	+0	33	31	39	35	33	41	58	48	75
2	91	59	58	40	68	67	50	53	48	54	82	63
3	>100	49	57	61	48	59	58	57	47	52	49	75
4	>100	75	73	72	80	59	78	73	70	66	60	65
5	>100	76	67	77	77	77	57	81	75	73	62	62
6	>100	89	85	91	>102	98	96	72	95	88	82	74
7	>100	>102	90	97	87	94	100	92	73	96	92	84
8	>100	>102	>102	98	99	96	>102	102	>102	81	>102	98
9	>100	>102	>102	>102	>102	>102	97	>102	>102	>102	>102	>102
10	>100	>102	>102	>102	>102	>102	>102	>102	>102	>102	>102	>102
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: **RF IN: 1850.1 MHz; 9.00 dBm.**
LO IN: 1880.01 MHz; +17.00 dBm
IF OUT: 29.91 MHz; 2.36 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.