Frequency Mixer SYM-11MH

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=50MHz (dB) @LO (dBm)		
		+10	+13	+16
10.1	60.1	6.50	6.19	6.01
90.4	140.4	6.38	6.12	5.97
170.7	220.7	6.43	6.19	6.03
251.0	301.0	6.55	6.27	6.09
331.3	381.3	6.70	6.39	6.18
411.5	461.5	6.76	6.41	6.23
491.8	541.8	6.89	6.50	6.29
552.0	602.0	6.98	6.58	6.36
632.3	682.3	7.02	6.63	6.41
692.5	742.5	6.98	6.64	6.44
772.8	822.8	6.90	6.61	6.43
833.0	883.0	6.88	6.62	6.48
913.3	963.3	6.86	6.62	6.49
973.6	1023.6	6.93	6.65	6.50
1053.8	1103.8	7.03	6.73	6.57
1114.1	1164.1	7.15	6.83	6.66
1194.3	1244.3	7.54	7.13	6.89
1254.6	1304.6	7.72	7.32	7.07
1334.8	1384.8	7.75	7.44	7.26
1395.1	1445.1	7.83	7.51	7.36
1475.4	1525.4	7.91	7.53	7.36
1535.6	1585.6	7.98	7.58	7.42
1615.9	1665.9	8.08	7.67	7.50
1676.1	1726.1	8.23	7.76	7.60
1756.4	1806.4	8.48	7.95	7.78
1816.6	1866.6	8.67	8.16	7.91
1896.9	1946.9	8.95	8.39	8.13
1957.1	2007.1	9.27	8.65	8.30
2037.4	2087.4	9.60	8.98	8.53
2097.6	2147.6	9.86	9.14	8.63
2177.9	2227.9	10.05	9.19	8.66
2238.1	2288.1	9.98	9.14	8.70
2318.4	2368.4	9.70	8.90	8.43
2378.6	2428.6	9.53	8.85	8.47
2458.9	2508.9	9.52	8.84	8.47
2519.1	2569.1	9.56	9.00	8.68
2599.4	2649.4	9.81	9.29	9.00
2659.6	2709.6	9.95	9.43	9.14
2739.9	2789.9	10.23	9.73	9.45
2800.1	2850.1	10.46	9.95	9.72

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm) @LO (dBm)		
		+10	+13	+16
10.1	60.1	23.55	25.13	27.46
90.4	140.4	36.23	31.67	32.12
170.7	220.7	26.08	25.65	25.95
251.0	301.0	23.96	25.73	25.37
331.3	381.3	21.45	22.73	25.07
411.5	461.5	22.23	23.35	27.23
491.8	541.8	21.90	24.66	25.49
552.0	602.0	20.60	22.48	22.72
632.3	682.3	22.21	24.50	23.87
692.5	742.5	21.29	25.82	30.28
772.8	822.8	23.66	22.38	26.29
833.0	883.0	22.40	23.66	35.29
913.3	963.3	21.12	22.30	23.58
973.6	1023.6	21.09	20.40	20.83
1053.8	1103.8	32.58	22.70	19.80
1114.1	1164.1	20.25	23.25	21.61
1194.3	1244.3	24.07	20.20	18.62
1254.6	1304.6	20.59	22.67	18.85
1334.8	1384.8	19.15	21.81	22.99
1395.1	1445.1	17.75	20.86	24.94
1475.4	1525.4	17.07	21.24	23.74
1535.6	1585.6	16.44	21.94	22.30
1615.9	1665.9	16.65	21.10	21.11
1676.1	1726.1	17.61	19.59	27.37
1756.4	1806.4	18.30	21.79	22.49
1816.6	1866.6	18.23	20.60	24.10
1896.9	1946.9	16.88	19.12	21.12
1957.1	2007.1	15.28	17.82	20.25
2037.4	2087.4	14.60	16.28	18.31
2097.6	2147.6	14.18	16.35	19.24
2177.9	2227.9	14.34	16.98	19.64
2238.1	2288.1	14.83	16.39	16.89
2318.4	2368.4	14.81	14.94	15.01
2378.6	2428.6	13.73	13.67	13.69
2458.9	2508.9	11.54	12.31	12.46
2519.1	2569.1	10.33	11.09	11.77
2599.4	2649.4	9.80	10.85	11.77
2659.6	2709.6	10.15	11.21	11.92
2739.9	2789.9	11.00	12.45	13.60
2800.1	2850.1	12.31	13.78	14.66

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+9dBm (dB) @LO (dBm)		
		+10	+13	+16
10.1	60.1	1.44	0.96	0.68
90.4	140.4	1.61	1.19	0.86
170.7	220.7	1.61	1.20	0.89
251.0	301.0	1.63	1.25	0.95
331.3	381.3	1.64	1.28	0.98
411.5	461.5	1.71	1.33	1.01
491.8	541.8	1.76	1.37	1.05
552.0	602.0	1.73	1.38	1.07
632.3	682.3	1.83	1.45	1.13
692.5	742.5	1.84	1.44	1.12
772.8	822.8	1.85	1.43	1.14
833.0	883.0	1.91	1.50	1.21
913.3	963.3	1.94	1.56	1.29
973.6	1023.6	1.91	1.59	1.35
1053.8	1103.8	1.79	1.50	1.29
1114.1	1164.1	1.73	1.45	1.27
1194.3	1244.3	1.38	1.17	1.05
1254.6	1304.6	1.45	1.15	1.00
1334.8	1384.8	1.34	0.96	0.80
1395.1	1445.1	1.36	0.94	0.74
1475.4	1525.4	1.33	0.93	0.73
1535.6	1585.6	1.31	0.93	0.72
1615.9	1665.9	1.32	0.89	0.67
1676.1	1726.1	1.31	0.88	0.61
1756.4	1806.4	1.19	0.80	0.54
1816.6	1866.6	1.13	0.72	0.49
1896.9	1946.9	1.05	0.69	0.44
1957.1	2007.1	1.00	0.68	0.47
2037.4	2087.4	0.98	0.64	0.51
2097.6	2147.6	0.97	0.72	0.59
2177.9	2227.9	1.02	0.91	0.82
2238.1	2288.1	1.20	1.09	0.99
2318.4	2368.4	1.58	1.48	1.39
2378.6	2428.6	1.83	1.67	1.52
2458.9	2508.9	2.12	1.90	1.69
2519.1	2569.1	2.15	1.85	1.60
2599.4	2649.4	2.19	1.86	1.60
2659.6	2709.6	2.17	1.81	1.56
2739.9	2789.9	2.02	1.64	1.40
2800.1	2850.1	1.96	1.54	1.26

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1000.1MHz (dB) @LO (dBm) +13
950.0	50.1	6.48
930.0	70.1	6.54
910.0	90.1	6.55
890.0	110.1	6.58
870.0	130.1	6.57
850.0	150.1	6.62
830.0	170.1	6.63
810.0	190.1	6.62
790.0	210.1	6.66
770.0	230.1	6.63
750.0	250.1	6.47
730.0	270.1	6.63
710.0	290.1	6.63
690.0	310.1	6.66
670.0	330.1	6.63
650.0	350.1	6.65
630.0	370.1	6.62
610.0	390.1	6.63
590.0	410.1	6.62
570.0	430.1	6.59
550.0	450.1	6.56
530.0	470.1	6.52
510.0	490.1	6.53
490.0	510.1	6.47
470.0	530.1	6.52
450.0	550.1	6.56
430.0	570.1	6.57
410.0	590.1	6.56
370.0	630.1	6.58
350.0	650.1	6.58
310.0	690.1	6.61
290.0	710.1	6.61
250.0	750.1	6.61
230.0	770.1	6.59
190.0	810.1	6.54
170.0	830.1	6.54
130.0	870.1	6.53
110.0	890.1	6.54
70.0	930.1	6.54
50.0	950.1	6.54

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=50.1MHz (dB) @LO (dBm) +13
50.0	100.1	6.12
70.2	120.3	6.14
90.4	140.5	6.13
110.6	160.7	6.12
130.9	181.0	6.16
151.1	201.2	6.15
171.3	221.4	6.16
191.5	241.6	6.20
211.7	261.8	6.19
231.9	282.0	6.21
252.1	302.2	6.23
272.3	322.4	6.23
292.6	342.7	6.25
312.8	362.9	6.25
333.0	383.1	6.28
353.2	403.3	6.24
373.4	423.5	6.26
393.6	443.7	6.27
413.8	463.9	6.24
434.0	484.1	6.28
454.3	504.4	6.23
474.5	524.6	6.26
494.7	544.8	6.26
514.9	565.0	6.28
555.3	605.4	6.28
575.5	625.6	6.32
616.0	666.1	6.32
636.2	686.3	6.28
676.6	726.7	6.23
696.8	746.9	6.17
737.2	787.3	6.20
757.4	807.5	6.17
797.9	848.0	6.19
818.1	868.2	6.19
858.5	908.6	6.18
878.7	928.8	6.18
919.1	969.2	6.15
939.4	989.5	6.16
979.8	1029.9	6.19
1000.0	1050.1	6.18

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=2000.1MHz (dB) @LO (dBm) +13
1000.0	1000.1	8.14
979.8	1020.3	8.16
959.6	1040.5	8.17
939.4	1060.7	8.16
919.1	1081.0	8.18
898.9	1101.2	8.16
878.7	1121.4	8.15
858.5	1141.6	8.10
838.3	1161.8	8.10
818.1	1182.0	8.08
797.9	1202.2	8.06
777.7	1222.4	8.03
757.4	1242.7	7.98
737.2	1262.9	8.02
717.0	1283.1	8.04
696.8	1303.3	8.05
676.6	1323.5	8.06
656.4	1343.7	8.04
636.2	1363.9	8.06
616.0	1384.1	8.04
595.7	1404.4	8.04
575.5	1424.6	8.05
555.3	1444.8	8.05
535.1	1465.0	8.10
494.7	1505.4	8.13
474.5	1525.6	8.12
434.0	1566.1	8.17
413.8	1586.3	8.19
373.4	1626.7	8.15
353.2	1646.9	8.11
312.8	1687.3	8.07
292.6	1707.5	8.04
252.1	1748.0	8.03
231.9	1768.2	8.06
191.5	1808.6	8.12
171.3	1828.8	8.13
130.9	1869.2	8.11
110.6	1889.5	8.12
70.2	1929.9	8.11
50.0	1950.1	8.08

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB) @LO (dBm)			LO-IF ISOLATION (dB) @LO (dBm)		
	+10	+13	+16	+10	+13	+16
10.1	36.53	41.03	45.55	27.48	29.50	31.39
90.4	56.83	60.28	61.38	37.34	40.32	42.82
170.7	62.39	65.06	62.61	38.04	39.64	39.91
251.0	58.80	68.62	62.16	37.65	37.86	37.13
331.3	55.74	70.41	60.46	37.13	36.36	35.21
411.5	53.95	74.20	57.51	36.58	35.23	33.90
491.8	53.05	74.23	55.39	35.83	34.10	32.66
552.0	52.75	73.98	53.45	35.58	33.62	32.16
632.3	52.04	66.39	52.56	35.45	33.16	31.60
692.5	51.56	62.51	50.24	35.23	32.91	31.38
772.8	51.87	59.45	48.25	34.37	32.28	30.94
833.0	53.09	54.41	46.18	33.88	32.13	30.94
913.3	55.44	48.79	43.11	32.87	31.38	30.36
973.6	52.21	45.59	41.73	32.40	30.95	29.86
1053.8	47.56	43.53	39.74	31.71	30.51	29.53
1114.1	45.06	43.21	39.38	31.24	29.97	29.05
1194.3	42.26	42.26	38.92	31.18	29.75	28.72
1254.6	40.95	40.52	37.45	31.09	29.76	28.77
1334.8	39.20	39.11	36.31	31.80	30.49	29.40
1395.1	37.50	38.01	35.88	32.27	31.11	29.93
1475.4	36.24	36.45	34.96	32.24	31.29	30.00
1535.6	35.72	36.21	34.70	31.86	30.98	29.53
1615.9	34.95	37.43	35.55	31.83	31.30	30.15
1676.1	34.46	38.04	36.04	32.19	32.44	31.71
1756.4	33.69	38.18	37.34	33.40	35.32	36.21
1816.6	33.19	37.60	37.55	33.34	35.92	37.74
1896.9	32.77	37.64	40.08	31.71	33.37	35.06
1957.1	32.19	36.36	41.80	30.66	31.93	32.81
2037.4	31.37	34.28	39.20	29.34	30.11	30.36
2097.6	31.16	33.48	37.08	28.71	29.56	30.08
2177.9	30.77	32.53	35.44	27.96	28.14	28.15
2238.1	30.43	32.07	35.02	27.55	27.64	27.72
2318.4	29.46	30.57	32.76	27.15	27.06	26.95
2378.6	28.55	29.58	31.50	26.79	26.56	26.39
2458.9	27.54	28.87	31.05	26.32	25.90	25.74
2519.1	26.91	28.62	30.88	26.09	25.69	25.38
2599.4	25.90	27.87	30.39	25.54	25.32	25.08
2659.6	25.79	27.87	30.44	25.02	24.76	24.62
2739.9	26.05	28.40	31.00	24.95	24.60	24.32
2800.1	26.34	28.79	31.37	24.75	24.37	24.16

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB) @LO (dBm)		
		+10	+13	+16
10.1	60.1	18.97	19.23	19.19
90.4	140.4	23.97	24.24	24.49
170.7	220.7	24.50	24.74	25.08
251.0	301.0	25.10	25.41	25.79
331.3	381.3	25.77	26.17	26.71
411.5	461.5	26.81	27.33	27.99
491.8	541.8	28.22	28.99	30.03
552.0	602.0	29.58	30.45	31.47
632.3	682.3	32.21	33.48	34.85
692.5	742.5	35.84	37.11	38.03
772.8	822.8	42.18	39.27	36.25
833.0	883.0	37.81	35.12	33.00
913.3	963.3	36.05	34.09	31.90
973.6	1023.6	34.11	32.15	30.31
1053.8	1103.8	32.79	30.49	28.33
1114.1	1164.1	31.93	29.44	26.54
1194.3	1244.3	30.22	28.21	25.34
1254.6	1304.6	28.04	26.60	24.38
1334.8	1384.8	26.22	25.01	23.05
1395.1	1445.1	25.15	24.31	22.95
1475.4	1525.4	24.30	23.61	22.67
1535.6	1585.6	23.85	23.69	23.49
1615.9	1665.9	23.54	23.39	23.27
1676.1	1726.1	23.64	23.42	23.25
1756.4	1806.4	24.78	24.34	23.96
1816.6	1866.6	26.32	26.14	25.25
1896.9	1946.9	30.53	32.43	34.49
1957.1	2007.1	35.00	36.40	38.16
2037.4	2087.4	41.43	39.39	40.70
2097.6	2147.6	35.55	32.12	30.60
2177.9	2227.9	30.26	28.74	27.85
2238.1	2288.1	28.26	27.33	26.85
2318.4	2368.4	26.37	25.73	25.42
2378.6	2428.6	25.46	24.92	24.66
2458.9	2508.9	24.50	23.53	22.95
2519.1	2569.1	23.78	22.66	21.64
2599.4	2649.4	23.16	21.60	20.42
2659.6	2709.6	22.86	21.30	19.97
2739.9	2789.9	22.17	20.70	19.56
2800.1	2850.1	21.61	20.31	19.37

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1) @LO (dBm)		
		+10	+13	+16
10.1	60.1	1.44	1.43	1.43
90.4	140.4	1.16	1.09	1.07
170.7	220.7	1.17	1.10	1.06
251.0	301.0	1.19	1.11	1.04
331.3	381.3	1.21	1.12	1.05
411.5	461.5	1.19	1.10	1.03
491.8	541.8	1.20	1.10	1.03
552.0	602.0	1.22	1.12	1.05
632.3	682.3	1.23	1.13	1.07
692.5	742.5	1.21	1.13	1.09
772.8	822.8	1.22	1.16	1.14
833.0	883.0	1.24	1.20	1.18
913.3	963.3	1.28	1.23	1.22
973.6	1023.6	1.31	1.25	1.24
1053.8	1103.8	1.35	1.27	1.25
1114.1	1164.1	1.40	1.30	1.25
1194.3	1244.3	1.54	1.41	1.34
1254.6	1304.6	1.59	1.46	1.39
1334.8	1384.8	1.60	1.47	1.41
1395.1	1445.1	1.61	1.48	1.42
1475.4	1525.4	1.61	1.45	1.39
1535.6	1585.6	1.60	1.44	1.37
1615.9	1665.9	1.57	1.39	1.32
1676.1	1726.1	1.57	1.37	1.29
1756.4	1806.4	1.55	1.33	1.25
1816.6	1866.6	1.55	1.33	1.25
1896.9	1946.9	1.57	1.35	1.27
1957.1	2007.1	1.62	1.42	1.34
2037.4	2087.4	1.69	1.52	1.45
2097.6	2147.6	1.76	1.59	1.52
2177.9	2227.9	1.87	1.68	1.61
2238.1	2288.1	1.92	1.74	1.66
2318.4	2368.4	1.95	1.77	1.68
2378.6	2428.6	1.92	1.76	1.67
2458.9	2508.9	1.87	1.71	1.60
2519.1	2569.1	1.77	1.65	1.55
2599.4	2649.4	1.63	1.52	1.43
2659.6	2709.6	1.51	1.42	1.33
2739.9	2789.9	1.37	1.30	1.22
2800.1	2850.1	1.28	1.23	1.18

LO (MHz)	LO VSWR (:1) @LO (dBm)		
	+10	+13	+16
10.1	1.81	2.37	3.12
90.4	1.53	2.16	2.94
170.7	1.51	2.10	2.84
251.0	1.52	2.09	2.79
331.3	1.54	2.08	2.76
411.5	1.54	2.06	2.72
491.8	1.53	2.02	2.63
552.0	1.54	2.02	2.63
632.3	1.51	1.96	2.54
692.5	1.49	1.92	2.48
772.8	1.44	1.86	2.38
833.0	1.45	1.84	2.36
913.3	1.47	1.81	2.29
973.6	1.51	1.78	2.22
1053.8	1.57	1.77	2.16
1114.1	1.59	1.74	2.11
1194.3	1.63	1.69	2.01
1254.6	1.64	1.68	1.97
1334.8	1.69	1.62	1.86
1395.1	1.74	1.61	1.79
1475.4	1.77	1.57	1.71
1535.6	1.80	1.53	1.62
1615.9	1.80	1.47	1.52
1676.1	1.82	1.44	1.43
1756.4	1.82	1.39	1.33
1816.6	1.84	1.37	1.24
1896.9	1.84	1.34	1.12
1957.1	1.86	1.34	1.04
2037.4	1.89	1.36	1.07
2097.6	1.92	1.41	1.17
2177.9	1.95	1.49	1.32
2238.1	1.98	1.55	1.41
2318.4	1.98	1.60	1.50
2378.6	1.94	1.62	1.58
2458.9	1.89	1.67	1.69
2519.1	1.92	1.73	1.76
2599.4	1.92	1.81	1.88
2659.6	1.92	1.87	1.97
2739.9	1.94	1.95	2.07
2800.1	1.97	2.01	2.14

IF (OUT) (MHz)	IF VSWR @LO=2000.1MHz (:1) @LO (dBm)		
	+10	+13	+16
50.1	1.30	1.17	1.20
69.9	1.28	1.12	1.16
89.7	1.29	1.12	1.15
109.5	1.28	1.11	1.15
129.3	1.29	1.11	1.15
149.1	1.27	1.11	1.16
168.9	1.27	1.11	1.17
188.6	1.29	1.12	1.17
208.4	1.29	1.12	1.17
228.2	1.29	1.14	1.18
248.0	1.30	1.16	1.20
267.8	1.31	1.16	1.20
287.6	1.30	1.17	1.21
307.4	1.31	1.18	1.22
327.2	1.32	1.19	1.22
347.0	1.32	1.19	1.23
366.8	1.32	1.20	1.23
386.6	1.34	1.21	1.24
406.4	1.34	1.21	1.24
426.1	1.34	1.21	1.24
445.9	1.34	1.23	1.26
465.7	1.34	1.23	1.25
505.3	1.35	1.24	1.26
525.1	1.36	1.25	1.27
564.7	1.35	1.25	1.28
584.5	1.36	1.26	1.29
624.1	1.37	1.26	1.27
643.9	1.38	1.28	1.29
683.4	1.38	1.27	1.27
703.2	1.38	1.27	1.27
742.8	1.41	1.28	1.26
762.6	1.40	1.27	1.25
802.2	1.42	1.29	1.26
822.0	1.41	1.27	1.24
861.6	1.42	1.28	1.24
881.4	1.42	1.27	1.22
920.9	1.42	1.27	1.22
940.7	1.43	1.27	1.21
980.3	1.42	1.26	1.19
1000.1	1.43	1.27	1.19

Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	4	11	20	23	30	27	28	29	37	54
1	-	27	+0	26	12	26	19	39	45	35	37	45
2	92	54	50	72	51	57	48	49	56	56	52	55
3	>100	63	61	68	61	74	57	63	65	62	68	63
4	>100	84	82	83	82	80	78	75	75	75	78	82
5	>100	>87	>87	>87	>87	>87	86	>87	85	84	>87	>87
6	>100	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87
7	>100	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87
8	>100	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87
9	>100	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87
10	>100	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:
RF IN: 1000.1 MHz; -6.00 dBm.
LO IN: 1050.01 MHz; +13.00 dBm
IF OUT: 49.91 MHz; -12.74 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	15	22	37	44	38	40	46	49	61	78
1	-	25	+0	25	13	30	22	56	42	47	44	57
2	73	48	38	40	38	42	42	48	56	57	50	56
3	>100	43	41	45	39	56	45	41	43	50	60	49
4	>100	52	50	48	49	55	55	57	50	50	58	69
5	>100	65	51	72	51	61	54	67	58	61	59	59
6	92	77	69	83	62	60	61	59	61	72	62	58
7	>100	74	84	72	64	70	63	64	68	65	65	61
8	>100	94	81	76	74	74	80	67	77	66	72	70
9	>100	87	83	91	86	80	79	70	77	72	75	71
10	>100	>97	88	89	>97	85	81	82	78	77	85	82
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:
RF IN: 1000.1 MHz; 4.00 dBm.
LO IN: 1050.01 MHz; +13.00 dBm
IF OUT: 49.91 MHz; -2.97 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.