Frequency Mixer SYM-ED9434/1

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=140MHz (dB) @LO (dBm)		
		+17	+20	+23
10.1	150.1	7.94	6.71	6.23
50.1	190.1	8.48	7.23	6.64
90.1	230.1	8.41	7.01	6.42
130.1	270.1	8.72	7.38	6.74
170.1	310.1	8.78	7.24	6.63
210.1	350.1	8.69	7.31	6.69
250.1	390.1	8.77	7.32	6.67
290.1	430.1	8.84	7.41	6.73
330.1	470.1	8.92	7.48	6.76
370.1	510.1	8.91	7.34	6.55
410.1	550.1	9.05	7.52	6.71
450.1	590.1	9.32	7.42	6.66
490.1	630.1	9.42	7.48	6.77
530.1	670.1	9.62	7.35	6.67
570.1	710.1	9.80	7.43	6.75
610.1	750.1	9.97	7.48	6.82
650.1	790.1	10.38	7.61	6.93
690.1	830.1	10.49	7.73	7.02
730.1	870.1	11.02	7.82	7.08
770.1	910.1	11.22	7.94	7.21
810.1	950.1	11.74	8.04	7.30
850.1	990.1	12.07	8.19	7.43
890.1	1030.1	12.64	8.31	7.47
930.1	1070.1	13.01	8.40	7.52
970.1	1110.1	13.67	8.57	7.63
1010.1	1150.1	14.07	8.77	7.77
1050.1	1190.1	14.85	9.07	7.93
1090.1	1230.1	15.50	9.32	8.12
1130.1	1270.1	15.73	9.57	8.30
1160.1	1300.1	16.71	9.90	8.43
1200.1	1340.1	16.59	10.10	8.56
1230.1	1370.1	16.88	10.30	8.63
1270.1	1410.1	18.16	10.66	8.78
1300.1	1440.1	17.53	10.67	8.88
1340.1	1480.1	18.79	11.03	9.00
1370.1	1510.1	19.20	11.19	9.08
1410.1	1550.1	18.78	11.23	9.16
1440.1	1580.1	20.08	11.46	9.22
1480.1	1620.1	19.72	11.41	9.33
1510.1	1650.1	19.72	11.45	9.45

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm) @LO (dBm)		
		+17	+20	+23
10.1	150.1	25.53	26.94	28.90
50.1	190.1	24.03	26.50	29.13
90.1	230.1	23.36	26.53	31.10
130.1	270.1	23.29	27.05	31.31
170.1	310.1	23.33	27.96	30.97
210.1	350.1	24.38	28.92	29.08
250.1	390.1	25.25	29.69	28.88
290.1	430.1	25.66	27.01	36.30
330.1	470.1	26.40	27.62	39.75
370.1	510.1	25.78	25.55	30.22
410.1	550.1	26.82	27.26	29.19
450.1	590.1	25.34	30.98	27.59
490.1	630.1	25.29	29.98	26.61
530.1	670.1	25.25	29.71	26.93
570.1	710.1	23.92	30.98	27.55
610.1	750.1	23.96	29.03	28.14
650.1	790.1	22.90	29.31	28.66
690.1	830.1	25.36	28.96	28.96
730.1	870.1	25.74	29.90	29.02
770.1	910.1	24.95	28.22	30.53
810.1	950.1	23.34	26.67	33.86
850.1	990.1	22.12	26.52	33.10
890.1	1030.1	21.75	26.92	32.60
930.1	1070.1	21.23	27.05	32.22
970.1	1110.1	21.02	26.27	32.12
1010.1	1150.1	19.86	25.45	32.63
1050.1	1190.1	17.97	24.62	33.10
1090.1	1230.1	17.15	24.57	33.48
1130.1	1270.1	16.97	24.78	33.77
1160.1	1300.1	16.73	25.11	33.91
1200.1	1340.1	16.91	25.12	32.28
1230.1	1370.1	15.78	24.83	30.39
1270.1	1410.1	14.39	25.43	29.01
1300.1	1440.1	15.56	25.26	29.03
1340.1	1480.1	13.92	25.00	27.96
1370.1	1510.1	13.08	24.74	27.22
1410.1	1550.1	13.75	24.51	27.05
1440.1	1580.1	12.51	24.81	26.80
1480.1	1620.1	13.09	24.01	27.00
1510.1	1650.1	13.34	23.77	28.09

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+16dBm (dB) @LO (dBm)		
		+17	+20	+23
10.1	150.1	0.35	0.04	0.00
50.1	190.1	0.05	-0.13	-0.09
90.1	230.1	0.07	-0.06	-0.03
130.1	270.1	-0.06	-0.13	-0.07
170.1	310.1	0.06	-0.03	-0.01
210.1	350.1	0.11	-0.08	-0.05
250.1	390.1	0.14	-0.06	-0.03
290.1	430.1	0.12	-0.06	0.02
330.1	470.1	0.12	-0.07	0.02
370.1	510.1	0.12	-0.03	0.07
410.1	550.1	0.19	0.00	0.09
450.1	590.1	0.19	0.13	0.10
490.1	630.1	0.15	0.17	0.11
530.1	670.1	0.08	0.23	0.10
570.1	710.1	-0.14	0.20	0.10
610.1	750.1	-0.13	0.23	0.10
650.1	790.1	-0.38	0.23	0.10
690.1	830.1	-0.27	0.24	0.11
730.1	870.1	-0.58	0.22	0.11
770.1	910.1	-0.60	0.22	0.10
810.1	950.1	-0.94	0.21	0.07
850.1	990.1	-1.16	0.18	0.07
890.1	1030.1	-1.42	0.19	0.09
930.1	1070.1	-1.58	0.25	0.11
970.1	1110.1	-1.79	0.31	0.12
1010.1	1150.1	-1.89	0.34	0.11
1050.1	1190.1	-2.28	0.31	0.11
1090.1	1230.1	-2.54	0.29	0.09
1130.1	1270.1	-2.58	0.23	0.06
1160.1	1300.1	-3.09	0.21	0.07
1200.1	1340.1	-2.84	0.16	0.08
1230.1	1370.1	-3.03	0.09	0.09
1270.1	1410.1	-3.82	0.07	0.12
1300.1	1440.1	-3.22	0.15	0.15
1340.1	1480.1	-4.02	0.09	0.18
1370.1	1510.1	-4.35	0.08	0.22
1410.1	1550.1	-3.89	0.13	0.25
1440.1	1580.1	-4.86	0.15	0.28
1480.1	1620.1	-4.47	0.28	0.28
1510.1	1650.1	-4.42	0.29	0.26

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=312.5MHz (dB) @LO (dBm) +20
302.4	10.1	6.88
286.2	26.3	6.92
269.9	42.6	7.06
253.7	58.8	7.10
237.4	75.1	7.05
221.2	91.3	7.01
204.9	107.6	7.18
188.7	123.8	7.26
172.4	140.1	7.28
156.2	156.3	7.13
140.0	172.5	7.36
123.7	188.8	7.32
107.5	205.0	7.43
91.2	221.3	7.28
75.0	237.5	7.36
58.7	253.8	7.25
42.5	270.0	7.41
26.2	286.3	7.32
10.0	302.5	8.05
81.9	394.4	7.26
225.6	538.1	7.24
333.5	646.0	7.04
477.2	789.7	6.85
585.0	897.5	6.93
728.8	1041.3	6.86
836.6	1149.1	7.04
980.4	1292.9	7.48
1088.2	1400.7	8.03
1231.9	1544.4	8.18
1339.7	1652.2	8.23
1483.5	1796.0	8.22
1591.3	1903.8	8.25
1735.1	2047.6	8.51
1842.9	2155.4	8.78
1986.6	2299.1	8.83
2094.5	2407.0	9.03
2238.2	2550.7	9.58
2346.0	2658.5	9.85
2489.8	2802.3	10.36
2597.6	2910.1	10.71

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=225.1MHz (dB) @LO (dBm) +20
10.0	235.1	8.06
70.0	295.1	7.18
130.0	355.1	7.33
190.0	415.1	7.11
250.0	475.1	7.25
310.0	535.1	7.23
370.0	595.1	7.13
430.0	655.1	6.89
490.0	715.1	6.79
550.0	775.1	6.76
610.0	835.1	6.77
670.0	895.1	6.83
730.0	955.1	6.79
790.0	1015.1	6.79
850.0	1075.1	6.89
910.0	1135.1	7.00
970.0	1195.1	7.14
1030.0	1255.1	7.23
1090.0	1315.1	7.68
1150.0	1375.1	7.90
1210.0	1435.1	8.01
1270.0	1495.1	8.39
1330.0	1555.1	8.30
1390.0	1615.1	8.41
1470.0	1695.1	8.43
1530.0	1755.1	8.19
1610.0	1835.1	8.12
1670.0	1895.1	8.28
1750.0	1975.1	8.50
1810.0	2035.1	8.61
1890.0	2115.1	8.65
1950.0	2175.1	8.81
2030.0	2255.1	8.96
2090.0	2315.1	8.93
2170.0	2395.1	9.08
2230.0	2455.1	9.35
2310.0	2535.1	9.59
2370.0	2595.1	9.76
2450.0	2675.1	10.10
2510.0	2735.1	10.44

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=400.1MHz (dB) @LO (dBm) +20
390.0	10.1	7.00
380.0	20.1	7.07
370.0	30.1	7.12
360.0	40.1	7.19
350.0	50.1	7.18
340.0	60.1	7.27
330.0	70.1	7.00
320.0	80.1	7.25
310.0	90.1	7.11
300.0	100.1	7.14
290.0	110.1	7.27
280.0	120.1	7.24
270.0	130.1	7.15
260.0	140.1	7.30
250.0	150.1	7.21
240.0	160.1	7.20
230.0	170.1	7.32
220.0	180.1	7.12
210.0	190.1	7.39
200.0	200.1	7.24
190.0	210.1	7.30
180.0	220.1	7.26
170.0	230.1	7.27
160.0	240.1	7.31
150.0	250.1	7.46
140.0	260.1	7.27
130.0	270.1	7.45
120.0	280.1	7.40
110.0	290.1	7.35
100.0	300.1	7.58
90.0	310.1	7.26
80.0	320.1	7.25
70.0	330.1	7.49
60.0	340.1	7.54
50.0	350.1	7.47
40.0	360.1	7.66
30.0	370.1	7.46
25.0	375.1	7.58
15.0	385.1	7.77
10.0	390.1	8.28

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB) @LO (dBm)			LO-IF ISOLATION (dB) @LO (dBm)		
	+17	+20	+23	+17	+20	+23
150.1	42.59	50.73	62.57	33.02	36.11	38.04
190.1	41.80	49.93	58.88	32.92	35.49	36.89
230.1	39.80	47.91	54.04	32.65	35.17	36.24
270.1	39.89	47.47	52.03	32.83	34.53	35.25
310.1	37.64	44.54	49.68	32.64	34.46	34.77
350.1	37.15	43.32	48.05	32.68	33.97	34.15
390.1	35.89	41.94	46.38	32.59	33.67	33.58
430.1	34.60	40.08	44.79	32.60	33.12	32.77
470.1	33.87	38.98	43.81	32.79	33.07	32.53
510.1	32.47	37.20	43.15	32.41	32.51	31.95
550.1	32.00	36.51	42.95	32.28	32.06	31.73
590.1	30.89	35.70	41.99	32.11	31.54	31.31
630.1	30.33	35.36	40.83	31.76	30.97	30.81
670.1	29.48	34.53	39.57	31.79	30.96	30.60
710.1	28.83	33.75	38.41	31.57	30.62	30.07
750.1	28.45	33.22	37.98	31.57	30.47	29.84
790.1	27.94	32.42	37.09	31.59	30.19	29.36
830.1	27.74	32.15	36.47	31.64	29.95	29.03
870.1	27.29	31.54	35.69	32.05	29.72	28.71
910.1	26.96	31.13	34.96	32.02	29.27	28.24
950.1	26.74	30.85	34.34	32.39	28.84	27.92
990.1	26.53	30.40	33.52	32.64	28.61	27.73
1030.1	26.53	30.26	33.20	33.38	28.56	27.61
1070.1	26.48	30.05	32.79	33.90	28.34	27.33
1110.1	26.42	29.96	32.60	34.91	28.53	27.46
1150.1	26.40	29.90	32.44	35.42	28.40	27.17
1190.1	26.27	29.74	32.32	36.33	28.71	27.22
1230.1	26.23	29.72	32.28	37.09	28.66	27.05
1270.1	26.26	29.57	31.97	37.36	28.62	26.91
1300.1	26.15	29.26	31.78	38.51	29.04	27.10
1340.1	26.27	29.35	31.69	38.04	29.02	27.18
1370.1	26.24	29.32	31.63	38.36	29.18	27.29
1410.1	26.13	29.01	31.41	39.98	29.85	27.73
1440.1	26.18	29.17	31.36	37.97	29.39	27.58
1480.1	25.83	28.87	31.05	38.84	29.39	27.56
1510.1	25.54	28.54	30.58	38.42	29.44	27.82
1550.1	25.52	28.60	30.47	36.82	28.92	27.76
1580.1	25.29	28.47	30.46	36.89	29.06	27.89
1620.1	25.28	28.60	30.54	35.70	28.77	28.14
1650.1	25.19	28.46	30.21	34.95	28.44	28.08

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB) @LO (dBm)		
		+17	+20	+23
10.1	150.1	27.90	27.52	27.06
50.1	190.1	27.86	27.70	27.49
90.1	230.1	27.62	27.33	27.14
130.1	270.1	27.89	27.78	27.86
170.1	310.1	27.78	27.63	27.42
210.1	350.1	28.07	28.17	28.59
250.1	390.1	28.15	27.99	28.57
290.1	430.1	28.67	28.26	28.51
330.1	470.1	28.75	28.52	28.69
370.1	510.1	29.12	29.01	28.21
410.1	550.1	29.98	29.85	28.82
450.1	590.1	30.92	30.52	29.85
490.1	630.1	32.35	31.04	30.53
530.1	670.1	32.86	31.45	31.02
570.1	710.1	33.50	31.86	31.36
610.1	750.1	33.20	32.72	32.19
650.1	790.1	32.87	33.58	32.60
690.1	830.1	33.16	34.13	33.37
730.1	870.1	33.59	35.16	34.79
770.1	910.1	35.19	36.72	36.55
810.1	950.1	36.48	39.40	39.43
850.1	990.1	37.04	40.03	40.57
890.1	1030.1	36.55	39.43	40.03
930.1	1070.1	35.61	39.38	39.23
970.1	1110.1	36.03	39.02	38.28
1010.1	1150.1	36.81	38.90	38.17
1050.1	1190.1	38.47	40.09	38.95
1090.1	1230.1	39.53	41.66	39.45
1130.1	1270.1	40.30	42.59	40.15
1160.1	1300.1	37.11	44.06	39.16
1200.1	1340.1	38.14	43.20	38.55
1230.1	1370.1	40.74	41.63	38.49
1270.1	1410.1	38.93	40.79	36.96
1300.1	1440.1	38.07	40.19	36.07
1340.1	1480.1	36.65	41.98	36.10
1370.1	1510.1	35.32	42.31	36.23
1410.1	1550.1	33.90	41.90	36.06
1440.1	1580.1	33.19	41.83	35.81
1480.1	1620.1	32.81	39.46	34.90
1510.1	1650.1	32.41	37.75	34.21

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1) @LO (dBm)		
		+17	+20	+23
10.1	150.1	2.31	1.76	1.53
50.1	190.1	1.97	1.57	1.35
90.1	230.1	2.16	1.65	1.39
130.1	270.1	2.09	1.64	1.40
170.1	310.1	2.18	1.65	1.39
210.1	350.1	2.15	1.67	1.41
250.1	390.1	2.18	1.69	1.41
290.1	430.1	2.20	1.70	1.40
330.1	470.1	2.18	1.69	1.40
370.1	510.1	2.26	1.70	1.37
410.1	550.1	2.18	1.66	1.35
450.1	590.1	2.33	1.67	1.38
490.1	630.1	2.34	1.68	1.40
530.1	670.1	2.41	1.67	1.41
570.1	710.1	2.46	1.69	1.43
610.1	750.1	2.44	1.67	1.43
650.1	790.1	2.58	1.72	1.48
690.1	830.1	2.55	1.73	1.49
730.1	870.1	2.70	1.77	1.52
770.1	910.1	2.72	1.79	1.53
810.1	950.1	2.73	1.77	1.52
850.1	990.1	2.80	1.81	1.56
890.1	1030.1	2.76	1.79	1.53
930.1	1070.1	2.79	1.81	1.55
970.1	1110.1	2.80	1.83	1.55
1010.1	1150.1	2.69	1.80	1.53
1050.1	1190.1	2.73	1.86	1.56
1090.1	1230.1	2.58	1.80	1.51
1130.1	1270.1	2.54	1.81	1.53
1160.1	1300.1	2.55	1.83	1.53
1200.1	1340.1	2.37	1.74	1.48
1230.1	1370.1	2.34	1.75	1.49
1270.1	1410.1	2.28	1.71	1.47
1300.1	1440.1	2.15	1.64	1.43
1340.1	1480.1	2.18	1.67	1.45
1370.1	1510.1	2.12	1.63	1.43
1410.1	1550.1	2.06	1.58	1.40
1440.1	1580.1	2.12	1.61	1.42
1480.1	1620.1	2.01	1.53	1.38
1510.1	1650.1	1.98	1.51	1.37

LO (MHz)	LO VSWR (:1) @LO (dBm)		
	+17	+20	+23
150.1	2.60	1.38	1.23
190.1	2.49	1.40	1.20
230.1	2.83	1.49	1.22
270.1	2.60	1.46	1.18
310.1	3.02	1.58	1.19
350.1	2.88	1.56	1.15
390.1	3.17	1.66	1.17
430.1	3.28	1.69	1.13
470.1	3.42	1.76	1.15
510.1	3.82	1.89	1.18
550.1	3.75	1.92	1.21
590.1	4.37	2.12	1.28
630.1	4.29	2.17	1.32
670.1	4.87	2.37	1.39
710.1	5.00	2.46	1.44
750.1	5.36	2.60	1.50
790.1	5.77	2.77	1.56
830.1	5.87	2.84	1.62
870.1	6.35	3.03	1.69
910.1	6.37	3.08	1.73
950.1	6.86	3.28	1.81
990.1	6.76	3.30	1.84
1030.1	6.86	3.39	1.89
1070.1	6.76	3.43	1.93
1110.1	6.66	3.47	1.96
1150.1	6.63	3.51	2.01
1190.1	6.42	3.48	2.03
1230.1	6.44	3.56	2.09
1270.1	6.07	3.44	2.08
1300.1	5.97	3.49	2.12
1340.1	5.72	3.41	2.15
1370.1	5.49	3.34	2.15
1410.1	5.39	3.41	2.21
1440.1	5.14	3.29	2.21
1480.1	4.92	3.25	2.20
1510.1	4.79	3.24	2.23
1550.1	4.44	3.05	2.19
1580.1	4.31	3.05	2.17
1620.1	4.12	2.95	2.17
1650.1	3.93	2.84	2.12

IF (OUT) (MHz)	IF VSWR @LO=540MHz (:1) @LO (dBm)		
	+17	+20	+23
10.0	2.33	1.69	1.32
20.0	2.35	1.68	1.29
30.0	2.39	1.71	1.32
40.0	2.45	1.77	1.37
50.0	2.44	1.76	1.37
60.0	2.37	1.70	1.31
70.0	2.38	1.70	1.31
80.0	2.44	1.76	1.36
90.0	2.43	1.75	1.36
100.0	2.36	1.69	1.31
110.0	2.34	1.67	1.28
120.0	2.40	1.72	1.33
130.0	2.44	1.76	1.37
140.0	2.42	1.74	1.35
160.0	2.41	1.73	1.33
170.0	2.44	1.75	1.36
190.0	2.34	1.67	1.29
200.0	2.37	1.69	1.30
220.0	2.46	1.77	1.38
230.0	2.40	1.72	1.34
250.0	2.42	1.73	1.34
260.0	2.44	1.75	1.36
280.0	2.33	1.65	1.28
290.0	2.37	1.69	1.30
310.0	2.41	1.73	1.36
320.0	2.36	1.68	1.31
340.0	2.40	1.72	1.34
350.0	2.38	1.71	1.35
370.0	2.30	1.63	1.26
380.0	2.35	1.68	1.31
400.0	2.34	1.68	1.32
410.0	2.30	1.63	1.27
430.0	2.38	1.70	1.33
440.0	2.36	1.69	1.32
460.0	2.29	1.62	1.26
470.0	2.34	1.66	1.30
490.0	2.28	1.62	1.28
500.0	2.26	1.59	1.24
520.0	2.36	1.68	1.32
530.0	2.30	1.64	1.30

Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	7	13	25	24	22	29	29	40	25	47
1	-	21	+0	44	20	49	16	41	19	45	27	47
2	68	65	53	58	54	52	75	52	56	59	54	60
3	>90	68	68	69	54	68	48	65	51	58	63	62
4	>90	>84	72	81	76	73	73	71	68	65	67	70
5	>90	75	>84	76	>84	77	>84	75	83	74	78	76
6	>90	>84	>84	>84	>84	>84	>84	>84	>84	83	82	81
7	>90	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84
8	>90	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84
9	>90	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84
10	>90	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:
RF IN: 312.5 MHz; 1.00 dBm.
LO IN: 452.5 MHz; +20.00 dBm
IF OUT: 140 MHz; -6.36 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	17	23	34	39	38	42	36	64	39	65
1	-	21	+0	42	18	47	21	48	24	52	34	59
2	48	63	53	51	62	46	47	43	49	52	64	65
3	73	54	54	62	38	68	32	61	33	56	41	60
4	>90	64	63	65	59	66	60	68	67	69	64	66
5	>90	80	61	69	57	70	52	70	51	71	93	64
6	>90	76	71	71	65	73	66	79	67	81	65	66
7	>90	78	75	81	93	76	78	76	79	85	69	71
8	>90	76	83	80	78	78	84	81	73	88	67	71
9	>90	86	77	85	88	90	81	88	77	85	74	84
10	>90	>94	88	88	80	93	82	82	79	82	75	79
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:
RF IN: 312.5 MHz; 11.00 dBm.
LO IN: 452.5 MHz; +20.00 dBm
IF OUT: 140 MHz; 3.71 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.