Frequency Mixer SYM-ED14497/1

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB) @LO (dBm)		
		+17	+20	+23
10.1	40.1	7.47	7.05	6.98
45.1	75.1	7.61	7.30	7.12
80.1	110.1	7.71	7.47	7.33
120.1	150.1	7.69	7.44	7.30
155.1	185.1	7.74	7.46	7.36
190.1	220.1	7.80	7.60	7.47
230.1	260.1	7.65	7.45	7.33
265.1	295.1	7.69	7.50	7.44
305.1	335.1	7.74	7.55	7.46
340.1	370.1	7.74	7.56	7.45
375.1	405.1	7.84	7.66	7.57
415.1	445.1	7.77	7.58	7.46
450.1	480.1	7.88	7.70	7.59
490.1	520.1	7.91	7.73	7.64
530.1	560.1	7.96	7.76	7.65
560.1	590.1	8.10	7.89	7.76
600.1	630.1	8.15	7.92	7.77
635.1	665.1	8.25	8.02	7.86
670.1	700.1	8.42	8.17	8.01
710.1	740.1	8.46	8.19	8.02
745.1	775.1	8.50	8.22	8.06
785.1	815.1	8.57	8.30	8.13
820.1	850.1	8.71	8.43	8.25
855.1	885.1	8.82	8.54	8.36
895.1	925.1	8.94	8.68	8.48
930.1	960.1	9.09	8.86	8.66
970.1	1000.1	9.20	8.96	8.77
1005.1	1035.1	9.20	8.97	8.79
1040.1	1070.1	9.31	9.02	8.86
1080.1	1110.1	9.44	9.12	8.95
1115.1	1145.1	9.66	9.27	9.09
1150.1	1180.1	9.74	9.35	9.12
1190.1	1220.1	10.02	9.52	9.25
1225.1	1255.1	10.32	9.78	9.44
1265.1	1295.1	10.52	9.92	9.56
1300.1	1330.1	10.79	10.12	9.73
1335.1	1365.1	11.19	10.35	9.86
1375.1	1405.1	11.59	10.64	10.06
1410.1	1440.1	11.89	10.86	10.21
1450.1	1480.1	12.34	11.27	10.44

RF (IN) (MHz)	LO (MHz)	IP-3 INPUT (dBm) @LO (dBm)		
		+17	+20	+23
10.1	40.1	31.38	34.10	34.85
45.1	75.1	31.58	31.28	31.20
80.1	110.1	31.38	30.70	33.45
120.1	150.1	28.96	31.50	39.51
155.1	185.1	28.02	32.42	42.13
190.1	220.1	28.63	32.94	36.71
230.1	260.1	33.51	35.43	34.53
265.1	295.1	33.79	33.46	33.41
305.1	335.1	32.19	35.82	34.88
340.1	370.1	33.32	30.56	30.73
375.1	405.1	30.83	29.37	31.98
415.1	445.1	31.89	31.15	31.81
450.1	480.1	28.45	29.84	34.51
490.1	520.1	26.92	26.99	29.15
530.1	560.1	25.69	27.01	29.75
560.1	590.1	24.90	26.93	31.42
600.1	630.1	23.42	24.63	29.11
635.1	665.1	24.15	25.20	28.54
670.1	700.1	27.20	27.91	31.67
710.1	740.1	29.49	31.78	30.79
745.1	775.1	29.45	30.00	28.81
785.1	815.1	26.35	33.39	28.82
820.1	850.1	23.96	26.97	37.24
855.1	885.1	23.13	25.24	29.80
895.1	925.1	22.38	23.99	28.04
930.1	960.1	21.99	23.08	25.67
970.1	1000.1	22.25	23.93	26.77
1005.1	1035.1	22.60	25.45	29.27
1040.1	1070.1	22.64	26.15	31.29
1080.1	1110.1	22.58	27.12	34.94
1115.1	1145.1	20.98	26.36	34.84
1150.1	1180.1	19.79	25.68	37.42
1190.1	1220.1	18.01	22.63	30.87
1225.1	1255.1	17.08	20.54	24.75
1265.1	1295.1	17.12	20.84	25.26
1300.1	1330.1	16.94	20.80	26.38
1335.1	1365.1	16.36	20.06	25.07
1375.1	1405.1	16.35	20.21	25.68
1410.1	1440.1	16.64	20.72	27.03
1450.1	1480.1	16.55	19.80	26.03

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+14dBm (dB) @LO (dBm)		
		+17	+20	+23
10.1	40.1	1.18	0.93	0.54
45.1	75.1	1.33	0.94	0.72
80.1	110.1	1.37	0.98	0.70
120.1	150.1	1.18	0.82	0.56
155.1	185.1	1.32	0.92	0.64
190.1	220.1	1.36	0.93	0.68
230.1	260.1	1.27	0.86	0.61
265.1	295.1	1.34	0.94	0.62
305.1	335.1	1.24	0.82	0.58
340.1	370.1	1.14	0.77	0.52
375.1	405.1	1.25	0.84	0.59
415.1	445.1	1.15	0.77	0.56
450.1	480.1	1.21	0.83	0.60
490.1	520.1	1.09	0.73	0.50
530.1	560.1	1.06	0.71	0.51
560.1	590.1	1.19	0.82	0.61
600.1	630.1	1.08	0.74	0.56
635.1	665.1	1.03	0.69	0.51
670.1	700.1	1.04	0.72	0.52
710.1	740.1	1.10	0.77	0.55
745.1	775.1	1.22	0.87	0.63
785.1	815.1	1.17	0.82	0.55
820.1	850.1	1.27	0.91	0.64
855.1	885.1	1.25	0.89	0.64
895.1	925.1	1.22	0.84	0.61
930.1	960.1	1.50	1.04	0.77
970.1	1000.1	1.50	1.04	0.76
1005.1	1035.1	1.47	1.00	0.72
1040.1	1070.1	1.52	1.06	0.76
1080.1	1110.1	1.62	1.12	0.82
1115.1	1145.1	1.72	1.26	0.90
1150.1	1180.1	1.64	1.16	0.83
1190.1	1220.1	1.58	1.19	0.85
1225.1	1255.1	1.70	1.31	0.96
1265.1	1295.1	1.61	1.26	0.93
1300.1	1330.1	1.60	1.32	0.99
1335.1	1365.1	1.42	1.31	1.04
1375.1	1405.1	1.18	1.22	1.03
1410.1	1440.1	0.99	1.13	1.01
1450.1	1480.1	0.74	0.92	0.97

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=220MHz (dB) @LO (dBm) +20
209.9	10.1	7.39
199.9	20.1	7.30
189.9	30.1	7.32
179.9	40.1	7.33
169.9	50.1	7.39
159.9	60.1	7.34
149.9	70.1	7.37
139.9	80.1	7.35
129.9	90.1	7.29
119.9	100.1	7.34
107.9	112.1	7.21
97.9	122.1	7.25
87.9	132.1	7.27
75.9	144.1	7.27
65.9	154.1	7.30
55.9	164.1	7.25
45.9	174.1	7.32
35.9	184.1	7.37
25.9	194.1	7.39
15.9	204.1	7.49
15.1	235.1	7.58
75.1	295.1	7.29
135.1	355.1	7.46
205.1	425.1	7.41
265.1	485.1	7.54
335.1	555.1	7.52
395.1	615.1	7.57
455.1	675.1	7.69
525.1	745.1	7.86
585.1	805.1	7.82
655.1	875.1	8.03
715.1	935.1	8.02
775.1	995.1	7.95
845.1	1065.1	7.71
905.1	1125.1	7.51
975.1	1195.1	7.41
1035.1	1255.1	7.43
1095.1	1315.1	7.41
1165.1	1385.1	7.55
1225.1	1445.1	7.77

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=20MHz (dB) @LO (dBm) +20
10.1	30.1	7.53
50.1	70.1	7.08
85.1	105.1	7.01
125.1	145.1	7.02
160.1	180.1	7.14
200.1	220.1	7.01
235.1	255.1	7.09
270.1	290.1	7.11
310.1	330.1	7.22
345.1	365.1	7.19
385.1	405.1	7.22
420.1	440.1	7.26
455.1	475.1	7.26
495.1	515.1	7.39
530.1	550.1	7.37
570.1	590.1	7.29
605.1	625.1	7.38
640.1	660.1	7.33
680.1	700.1	7.39
715.1	735.1	7.41
755.1	775.1	7.42
790.1	810.1	7.51
830.1	850.1	7.50
865.1	885.1	7.46
900.1	920.1	7.55
940.1	960.1	7.41
975.1	995.1	7.40
1015.1	1035.1	7.24
1050.1	1070.1	7.13
1085.1	1105.1	7.05
1125.1	1145.1	7.08
1160.1	1180.1	7.00
1200.1	1220.1	7.02
1235.1	1255.1	7.12
1270.1	1290.1	7.06
1310.1	1330.1	7.14
1345.1	1365.1	7.13
1385.1	1405.1	7.36
1420.1	1440.1	7.40
1460.1	1480.1	7.29

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=425MHz (dB) @LO (dBm) +20
414.9	10.1	7.50
404.9	20.1	7.43
394.9	30.1	7.35
384.9	40.1	7.41
374.9	50.1	7.37
364.9	60.1	7.38
354.9	70.1	7.33
344.9	80.1	7.33
334.9	90.1	7.34
324.9	100.1	7.27
314.9	110.1	7.29
304.9	120.1	7.25
294.9	130.1	7.23
279.9	145.1	7.22
269.9	155.1	7.26
259.9	165.1	7.25
249.9	175.1	7.25
239.9	185.1	7.24
229.9	195.1	7.29
219.9	205.1	7.31
209.9	215.1	7.25
199.9	225.1	7.28
189.9	235.1	7.23
179.9	245.1	7.26
169.9	255.1	7.32
159.9	265.1	7.35
144.9	280.1	7.33
134.9	290.1	7.33
124.9	300.1	7.35
114.9	310.1	7.38
104.9	320.1	7.39
94.9	330.1	7.30
84.9	340.1	7.32
74.9	350.1	7.37
64.9	360.1	7.46
54.9	370.1	7.42
44.9	380.1	7.48
34.9	390.1	7.50
24.9	400.1	7.53
9.9	415.1	8.00

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB) @LO (dBm)			LO-IF ISOLATION (dB) @LO (dBm)		
	+17	+20	+23	+17	+20	+23
40.1	80.56	76.07	79.60	60.98	60.72	60.65
75.1	69.24	73.63	81.36	56.56	56.64	56.66
110.1	66.04	69.25	75.16	53.28	53.46	53.66
150.1	62.11	66.38	71.77	50.91	51.21	51.41
185.1	59.96	64.07	70.24	49.48	49.98	50.16
220.1	58.43	62.97	68.94	48.29	48.63	48.59
260.1	56.87	60.94	65.46	47.40	47.65	47.62
295.1	55.51	59.33	63.38	46.55	46.71	46.69
335.1	54.41	58.06	62.13	45.51	45.57	45.52
370.1	53.09	56.46	60.03	44.84	45.00	45.03
405.1	52.35	55.47	58.51	43.93	44.03	44.06
445.1	51.23	54.38	57.60	43.15	43.43	43.62
480.1	50.16	52.95	55.80	42.73	42.86	43.05
520.1	48.31	50.77	53.04	42.05	42.39	42.48
560.1	47.32	49.51	51.62	40.88	41.60	42.10
590.1	47.20	49.19	51.26	40.05	40.59	41.14
630.1	47.08	49.06	50.89	39.61	39.76	40.13
665.1	46.68	48.90	50.71	39.32	39.57	39.71
700.1	46.07	48.32	50.16	38.76	39.38	39.79
740.1	45.28	47.46	49.35	38.17	38.95	39.58
775.1	44.49	46.48	48.37	37.77	38.56	39.20
815.1	43.63	45.27	46.95	37.42	38.10	38.85
850.1	43.12	44.75	46.27	37.21	37.63	38.34
885.1	42.66	44.27	45.72	37.20	37.24	37.57
925.1	41.99	43.75	45.23	37.40	37.51	37.50
960.1	41.50	43.46	45.12	37.30	37.85	37.90
1000.1	40.74	42.82	44.71	36.75	37.84	38.37
1035.1	39.95	41.94	43.74	36.12	37.39	38.15
1070.1	39.33	41.32	43.22	35.61	36.96	37.79
1110.1	38.68	40.72	42.84	35.08	36.44	37.37
1145.1	38.34	40.36	42.66	34.52	35.97	37.04
1180.1	38.18	40.08	42.13	34.03	35.59	36.79
1220.1	38.24	40.22	42.49	33.33	34.95	36.23
1255.1	38.76	41.18	44.66	32.84	34.42	35.63
1295.1	38.71	41.12	43.80	32.45	34.04	35.41
1330.1	38.32	40.69	43.14	32.08	33.58	35.02
1365.1	38.12	40.57	43.79	32.05	33.29	34.75
1405.1	37.83	40.16	43.91	32.26	33.06	34.49
1440.1	37.47	39.45	42.45	32.71	33.16	34.49
1480.1	37.53	39.33	41.91	34.18	34.43	35.20

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB) @LO (dBm)		
		+17	+20	+23
10.1	40.1	54.18	55.21	52.98
45.1	75.1	43.37	42.70	42.67
80.1	110.1	38.48	38.67	38.97
120.1	150.1	35.47	35.59	35.84
155.1	185.1	33.53	33.60	33.71
190.1	220.1	32.21	32.24	32.05
230.1	260.1	30.96	31.03	31.14
265.1	295.1	30.40	30.59	30.68
305.1	335.1	29.85	29.99	30.09
340.1	370.1	29.33	29.54	29.65
375.1	405.1	29.15	29.35	29.61
415.1	445.1	29.00	29.18	29.20
450.1	480.1	29.02	29.41	29.79
490.1	520.1	28.92	29.41	29.68
530.1	560.1	28.44	28.82	29.16
560.1	590.1	28.27	28.67	28.81
600.1	630.1	28.21	28.32	28.65
635.1	665.1	28.38	28.53	28.60
670.1	700.1	28.06	28.17	28.09
710.1	740.1	27.62	27.99	28.28
745.1	775.1	27.25	27.77	28.14
785.1	815.1	25.94	26.40	26.68
820.1	850.1	24.51	24.90	24.91
855.1	885.1	23.19	23.56	23.72
895.1	925.1	21.79	21.96	22.06
930.1	960.1	20.93	20.93	20.95
970.1	1000.1	20.07	19.93	19.86
1005.1	1035.1	19.59	19.44	19.39
1040.1	1070.1	19.23	19.09	19.00
1080.1	1110.1	18.82	18.68	18.57
1115.1	1145.1	18.56	18.44	18.32
1150.1	1180.1	18.28	18.15	18.04
1190.1	1220.1	17.93	17.75	17.56
1225.1	1255.1	17.65	17.44	17.06
1265.1	1295.1	17.34	17.23	17.02
1300.1	1330.1	17.25	17.16	16.97
1335.1	1365.1	17.16	17.13	16.87
1375.1	1405.1	17.19	17.28	17.23
1410.1	1440.1	17.40	17.59	17.66
1450.1	1480.1	17.30	17.57	17.64

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1) @LO (dBm)		
		+17	+20	+23
10.1	40.1	1.18	1.16	1.23
45.1	75.1	1.35	1.40	1.44
80.1	110.1	1.39	1.44	1.50
120.1	150.1	1.35	1.42	1.46
155.1	185.1	1.38	1.45	1.50
190.1	220.1	1.37	1.43	1.47
230.1	260.1	1.40	1.47	1.51
265.1	295.1	1.41	1.47	1.51
305.1	335.1	1.40	1.46	1.50
340.1	370.1	1.45	1.50	1.54
375.1	405.1	1.44	1.49	1.53
415.1	445.1	1.44	1.49	1.53
450.1	480.1	1.47	1.53	1.57
490.1	520.1	1.47	1.52	1.55
530.1	560.1	1.50	1.55	1.58
560.1	590.1	1.49	1.54	1.57
600.1	630.1	1.49	1.53	1.57
635.1	665.1	1.52	1.55	1.59
670.1	700.1	1.51	1.55	1.58
710.1	740.1	1.55	1.59	1.62
745.1	775.1	1.58	1.63	1.66
785.1	815.1	1.58	1.62	1.66
820.1	850.1	1.62	1.66	1.69
855.1	885.1	1.61	1.65	1.68
895.1	925.1	1.62	1.66	1.69
930.1	960.1	1.65	1.68	1.71
970.1	1000.1	1.61	1.64	1.67
1005.1	1035.1	1.66	1.69	1.72
1040.1	1070.1	1.67	1.70	1.72
1080.1	1110.1	1.64	1.67	1.69
1115.1	1145.1	1.69	1.72	1.75
1150.1	1180.1	1.67	1.70	1.72
1190.1	1220.1	1.69	1.72	1.74
1225.1	1255.1	1.76	1.78	1.81
1265.1	1295.1	1.77	1.78	1.80
1300.1	1330.1	1.85	1.86	1.88
1335.1	1365.1	1.95	1.95	1.96
1375.1	1405.1	1.99	1.98	1.98
1410.1	1440.1	2.15	2.12	2.11
1450.1	1480.1	2.23	2.18	2.15

LO (MHz)	LO VSWR (:1) @LO (dBm)		
	+17	+20	+23
40.1	1.64	2.00	2.32
75.1	1.62	1.96	2.29
110.1	1.59	1.92	2.24
150.1	1.63	1.97	2.30
185.1	1.59	1.92	2.24
220.1	1.61	1.95	2.27
260.1	1.61	1.95	2.27
295.1	1.60	1.93	2.24
335.1	1.63	1.96	2.27
370.1	1.62	1.94	2.25
405.1	1.63	1.95	2.25
445.1	1.65	1.97	2.27
480.1	1.64	1.96	2.25
520.1	1.66	1.98	2.27
560.1	1.67	1.98	2.26
590.1	1.68	1.99	2.27
630.1	1.70	2.01	2.28
665.1	1.71	2.00	2.28
700.1	1.73	2.02	2.29
740.1	1.74	2.03	2.30
775.1	1.75	2.04	2.30
815.1	1.78	2.06	2.33
850.1	1.78	2.07	2.32
885.1	1.80	2.08	2.33
925.1	1.83	2.11	2.36
960.1	1.83	2.10	2.35
1000.1	1.86	2.13	2.38
1035.1	1.88	2.15	2.39
1070.1	1.88	2.14	2.37
1110.1	1.92	2.19	2.43
1145.1	1.94	2.19	2.42
1180.1	1.95	2.20	2.42
1220.1	2.00	2.25	2.48
1255.1	2.01	2.25	2.46
1295.1	2.04	2.29	2.51
1330.1	2.09	2.33	2.56
1365.1	2.08	2.32	2.52
1405.1	2.14	2.38	2.60
1440.1	2.16	2.40	2.62
1480.1	2.17	2.40	2.61

IF (OUT) (MHz)	IF VSWR @LO=455MHz (:1) @LO (dBm)		
	+17	+20	+23
10.1	1.22	1.14	1.07
20.1	1.25	1.16	1.09
30.1	1.25	1.16	1.09
40.1	1.23	1.14	1.08
50.1	1.24	1.15	1.08
65.1	1.26	1.17	1.11
75.1	1.26	1.17	1.11
85.1	1.23	1.15	1.08
95.1	1.22	1.13	1.07
110.1	1.27	1.18	1.11
120.1	1.28	1.19	1.12
130.1	1.26	1.17	1.10
140.1	1.25	1.16	1.09
155.1	1.27	1.18	1.11
165.1	1.29	1.19	1.13
175.1	1.27	1.18	1.12
185.1	1.26	1.17	1.10
195.1	1.28	1.18	1.11
210.1	1.30	1.21	1.14
220.1	1.29	1.19	1.12
230.1	1.27	1.18	1.11
240.1	1.28	1.19	1.12
255.1	1.31	1.22	1.15
265.1	1.30	1.21	1.15
275.1	1.29	1.20	1.13
285.1	1.30	1.21	1.14
300.1	1.34	1.24	1.17
310.1	1.33	1.23	1.16
320.1	1.31	1.21	1.14
330.1	1.32	1.22	1.15
340.1	1.35	1.25	1.18
355.1	1.35	1.25	1.18
365.1	1.33	1.23	1.17
375.1	1.34	1.24	1.17
385.1	1.38	1.28	1.20
400.1	1.40	1.30	1.22
410.1	1.38	1.28	1.20
420.1	1.38	1.28	1.20
430.1	1.42	1.31	1.23
445.1	1.43	1.33	1.25

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	---	---	5.14	32.15	23.17	33.43	34.52	31.10	26.96	33.63	28.79	47.33
1	---	35.72	---	59.86	10.54	59.72	16.26	49.68	19.41	43.55	22.13	36.74
2	178.51	73.66	52.05	68.81	53.74	68.02	57.61	68.91	59.16	77.32	57.17	80.39
3	201.84	88.48	76.59	86.66	69.31	83.95	63.56	81.79	61.58	82.61	62.48	83.87
4	203.74	90.86	84.27	90.16	84.91	89.75	84.24	89.10	86.82	91.28	91.14	90.51
5	201.31	107.14	94.76	106.36	89.51	111.26	89.06	103.35	90.98	103.70	89.18	106.11
6	204.45	106.73	106.32	100.63	107.38	98.63	108.87	100.05	102.79	110.09	108.96	105.48
7	199.69	109.12	104.43	108.64	104.05	110.24	97.06	108.47	95.47	107.41	109.30	106.16
8	197.93	104.58	107.26	107.91	108.88	110.48	107.95	100.25	107.21	95.00	106.55	107.60
9	194.38	107.00	107.11	106.83	109.43	111.63	102.69	111.09	97.49	105.99	99.10	111.39
10	195.65	103.55	107.89	109.97	108.00	111.65	113.71	107.23	107.42	108.83	106.77	108.21
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 220.1 MHz; -1 dBm.
LO IN: 250.1 MHz; +20.00 dBm
IF OUT: 30 MHz; -8.93 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	---	---	14.97	41.90	32.24	44.37	42.81	43.23	37.59	47.56	41.21	58.82
1	---	35.69	---	56.34	10.52	55.55	16.36	50.04	20.27	46.35	23.60	40.78
2	83.55	74.46	44.10	68.77	45.49	68.33	47.72	65.66	49.32	60.13	49.35	56.36
3	98.99	75.46	49.92	76.04	59.19	73.96	59.24	71.99	50.79	72.21	45.94	60.95
4	127.73	74.57	67.09	73.03	66.56	70.89	67.19	70.31	70.83	70.67	73.17	72.93
5	126.49	81.11	68.22	79.16	60.55	78.01	58.18	77.51	56.40	75.30	55.23	73.83
6	127.42	80.82	77.33	82.21	76.74	86.67	78.19	83.01	79.64	81.60	76.86	79.34
7	126.43	91.03	84.42	95.60	89.87	100.79	79.57	110.00	77.20	113.56	75.82	104.04
8	125.59	88.00	92.77	86.76	94.35	87.83	96.52	89.49	96.40	95.79	93.16	89.92
9	130.75	92.80	80.03	93.42	79.27	94.64	80.75	95.64	87.81	98.17	84.82	94.72
10	127.67	94.88	97.43	98.97	99.75	98.90	103.35	100.85	104.96	107.05	104.62	105.21
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 220.1 MHz; +9 dBm.
LO IN: 250.1 MHz; +20.00 dBm
IF OUT: 30 MHz; +1.02 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.