Frequency Mixer TFM-2P

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB) @LO (dBm)		
		+4	+7	+10
10.1	40.1	6.14	5.72	5.56
50.9	80.9	6.18	5.84	5.65
91.7	121.7	6.22	5.90	5.75
132.6	162.6	6.22	5.86	5.72
173.4	203.4	6.20	5.91	5.78
214.2	244.2	6.21	5.90	5.75
255.0	285.0	6.22	5.91	5.75
295.9	325.9	6.17	5.90	5.75
336.7	366.7	6.21	5.92	5.75
377.5	407.5	6.19	5.92	5.77
418.3	448.3	6.19	5.88	5.71
459.1	489.1	6.20	5.94	5.78
500.0	530.0	6.23	5.94	5.79
540.8	570.8	6.31	5.99	5.82
581.6	611.6	6.45	6.11	5.90
622.4	652.4	6.45	6.15	5.94
663.3	693.3	6.56	6.26	6.06
704.1	734.1	6.60	6.28	6.06
744.9	774.9	6.63	6.27	6.07
785.7	815.7	6.76	6.30	6.06
826.5	856.5	6.90	6.34	6.07
867.4	897.4	7.19	6.54	6.22
908.2	938.2	7.40	6.73	6.34
949.0	979.0	7.70	6.99	6.52
989.8	1019.8	7.99	7.28	6.75
1030.6	1060.6	8.32	7.64	7.09
1071.5	1101.5	8.62	7.97	7.46
1112.3	1142.3	8.88	8.27	7.77
1153.1	1183.1	9.06	8.51	8.04
1193.9	1223.9	9.35	8.86	8.44
1234.8	1264.8	9.44	9.07	8.72
1255.2	1285.2	9.61	9.30	9.01
1296.0	1326.0	9.73	9.51	9.32
1316.4	1346.4	9.67	9.48	9.33
1357.2	1387.2	9.86	9.69	9.58
1377.6	1407.6	10.02	9.83	9.72
1418.5	1448.5	10.12	9.92	9.80
1438.9	1468.9	10.35	10.14	10.01
1479.7	1509.7	10.85	10.59	10.45
1500.1	1530.1	10.81	10.55	10.41

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm) @LO (dBm)		
		+4	+7	+10
10.1	40.1	19.49	21.14	20.40
50.9	80.9	18.52	18.81	18.11
91.7	121.7	15.90	17.57	21.12
132.6	162.6	15.36	18.83	21.14
173.4	203.4	16.26	20.02	21.11
214.2	244.2	20.19	21.05	21.13
255.0	285.0	18.67	20.98	21.12
295.9	325.9	20.11	21.05	20.39
336.7	366.7	17.34	20.06	21.13
377.5	407.5	18.57	21.04	19.73
418.3	448.3	20.01	21.06	19.86
459.1	489.1	19.63	17.94	17.52
500.0	530.0	20.88	17.77	17.30
540.8	570.8	18.86	21.00	18.45
581.6	611.6	14.99	19.36	20.93
622.4	652.4	13.84	16.81	21.03
663.3	693.3	14.32	17.98	20.97
704.1	734.1	14.35	19.98	18.93
744.9	774.9	14.48	20.87	17.48
785.7	815.7	14.01	20.02	16.45
826.5	856.5	12.76	17.84	15.19
867.4	897.4	11.98	17.33	14.67
908.2	938.2	11.64	16.13	14.52
949.0	979.0	11.21	14.42	14.09
989.8	1019.8	10.20	12.47	13.56
1030.6	1060.6	9.49	11.20	12.77
1071.5	1101.5	8.92	10.19	11.64
1112.3	1142.3	8.85	9.83	11.08
1153.1	1183.1	9.34	9.85	10.91
1193.9	1223.9	10.20	10.41	11.55
1234.8	1264.8	11.81	11.97	12.71
1255.2	1285.2	12.71	12.67	13.69
1296.0	1326.0	14.89	14.26	15.23
1316.4	1346.4	15.44	14.73	15.76
1357.2	1387.2	16.95	16.07	16.94
1377.6	1407.6	17.28	16.61	17.30
1418.5	1448.5	17.94	17.46	17.47
1438.9	1468.9	18.37	18.03	17.49
1479.7	1509.7	17.99	18.71	17.95
1500.1	1530.1	18.26	18.72	18.14

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+1dBm (dB) @LO (dBm)		
		+4	+7	+10
10.1	40.1	0.70	0.70	0.44
50.9	80.9	0.73	0.58	0.41
91.7	121.7	0.79	0.49	0.31
132.6	162.6	0.64	0.44	0.33
173.4	203.4	0.74	0.51	0.34
214.2	244.2	0.61	0.40	0.27
255.0	285.0	0.67	0.44	0.30
295.9	325.9	0.66	0.45	0.31
336.7	366.7	0.62	0.41	0.28
377.5	407.5	0.68	0.47	0.34
418.3	448.3	0.65	0.45	0.32
459.1	489.1	0.75	0.52	0.37
500.0	530.0	0.71	0.49	0.34
540.8	570.8	0.83	0.61	0.43
581.6	611.6	0.85	0.60	0.45
622.4	652.4	0.94	0.69	0.50
663.3	693.3	1.02	0.73	0.54
704.1	734.1	1.08	0.79	0.59
744.9	774.9	1.28	0.95	0.70
785.7	815.7	1.28	0.99	0.73
826.5	856.5	1.32	1.07	0.79
867.4	897.4	1.15	0.98	0.76
908.2	938.2	1.10	0.96	0.75
949.0	979.0	0.98	0.87	0.71
989.8	1019.8	0.87	0.77	0.65
1030.6	1060.6	0.73	0.63	0.54
1071.5	1101.5	0.61	0.51	0.45
1112.3	1142.3	0.52	0.43	0.38
1153.1	1183.1	0.48	0.39	0.35
1193.9	1223.9	0.42	0.33	0.31
1234.8	1264.8	0.38	0.30	0.27
1255.2	1285.2	0.35	0.26	0.22
1296.0	1326.0	0.30	0.20	0.16
1316.4	1346.4	0.30	0.19	0.15
1357.2	1387.2	0.27	0.17	0.13
1377.6	1407.6	0.26	0.16	0.12
1418.5	1448.5	0.23	0.14	0.11
1438.9	1468.9	0.21	0.14	0.11
1479.7	1509.7	0.18	0.12	0.09
1500.1	1530.1	0.18	0.11	0.09

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=510.1MHz (dB) @LO (dBm) +7
500.0	10.1	6.16
487.4	22.7	6.08
474.9	35.2	5.95
462.3	47.8	5.97
449.7	60.4	6.02
437.2	72.9	5.94
424.6	85.5	5.92
412.1	98.0	5.92
399.5	110.6	5.87
386.9	123.2	5.83
374.4	135.7	5.85
361.8	148.3	5.86
349.2	160.9	5.84
336.7	173.4	5.87
324.1	186.0	5.88
311.5	198.6	5.86
299.0	211.1	5.89
286.4	223.7	5.88
273.8	236.3	5.83
261.3	248.8	5.87
248.7	261.4	5.91
236.2	273.9	5.86
223.6	286.5	5.90
211.0	299.1	5.94
198.5	311.6	5.88
185.9	324.2	5.87
173.3	336.8	5.91
160.8	349.3	5.89
148.2	361.9	5.94
135.6	374.5	5.98
123.1	387.0	5.95
110.5	399.6	5.96
97.9	412.2	5.98
85.4	424.7	5.91
72.8	437.3	5.92
60.3	449.8	5.99
47.7	462.4	5.95
35.1	475.0	5.97
22.6	487.5	6.01
10.0	500.1	5.98

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=10.1MHz (dB) @LO (dBm) +7
10.0	20.1	5.77
70.0	80.1	5.79
130.0	140.1	6.10
190.0	200.1	6.18
230.0	240.1	6.11
290.0	300.1	6.05
330.0	340.1	5.79
390.0	400.1	6.18
430.0	440.1	6.22
490.0	500.1	6.54
530.0	540.1	6.10
590.0	600.1	6.40
630.0	640.1	6.24
690.0	700.1	6.33
730.0	740.1	6.10
790.0	800.1	6.09
830.0	840.1	6.21
890.0	900.1	6.38
930.0	940.1	6.15
990.0	1000.1	6.37
1030.0	1040.1	6.27
1090.0	1100.1	6.06
1130.0	1140.1	6.05
1190.0	1200.1	6.20
1230.0	1240.1	6.03
1290.0	1300.1	6.09
1330.0	1340.1	6.43
1390.0	1400.1	6.46
1430.0	1440.1	6.60
1490.0	1500.1	7.18
1530.0	1540.1	7.31
1590.0	1600.1	7.67
1630.0	1640.1	7.78
1690.0	1700.1	8.28
1730.0	1740.1	8.88
1790.0	1800.1	9.20
1830.0	1840.1	9.21
1890.0	1900.1	9.98
1930.0	1940.1	9.97
1990.0	2000.1	10.80

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1010.1MHz (dB) @LO (dBm) +7
1000.0	10.1	7.49
979.8	30.3	7.52
959.6	50.5	7.59
939.4	70.7	7.71
919.2	90.9	7.75
899.0	111.1	7.61
878.8	131.3	7.60
858.6	151.5	7.63
838.4	171.7	7.68
818.2	191.9	7.64
798.0	212.1	7.64
777.8	232.3	7.61
757.6	252.5	7.52
737.3	272.8	7.67
717.1	293.0	7.62
696.9	313.2	7.59
676.7	333.4	7.49
656.5	353.6	7.49
636.3	373.8	7.48
616.1	394.0	7.43
575.7	434.4	7.39
555.5	454.6	7.40
515.1	495.0	7.38
494.9	515.2	7.34
454.5	555.6	7.26
434.3	575.8	7.24
393.9	616.2	7.22
373.7	636.4	7.24
333.3	676.8	7.26
313.1	697.0	7.29
272.7	737.4	7.20
252.4	757.7	7.15
212.0	798.1	7.10
191.8	818.3	7.04
151.4	858.7	7.08
131.2	878.9	7.14
90.8	919.3	7.24
70.6	939.5	7.30
30.2	979.9	7.37
10.0	1000.1	7.41

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB) @LO (dBm)			LO-IF ISOLATION (dB) @LO (dBm)		
	+4	+7	+10	+4	+7	+10
40.1	61.86	62.95	63.15	57.70	57.75	57.79
80.9	55.30	56.46	57.42	55.90	55.50	55.12
121.7	52.43	53.58	54.87	54.43	53.55	52.91
162.6	50.06	51.23	52.28	53.10	51.99	51.12
203.4	48.04	49.34	50.27	52.13	50.66	49.51
244.2	47.29	48.52	49.50	51.01	49.40	48.35
285.0	45.66	46.83	47.80	50.40	48.92	47.76
325.9	44.74	45.98	46.87	48.49	47.36	46.56
366.7	43.91	45.01	45.92	47.23	46.26	45.43
407.5	43.22	44.42	45.27	45.76	45.07	44.57
448.3	42.62	43.63	44.54	45.09	44.04	43.41
489.1	42.00	42.95	43.72	44.28	43.96	43.30
530.0	41.72	42.72	43.36	42.81	42.94	42.83
570.8	41.20	42.48	43.34	41.79	41.84	42.05
611.6	40.74	41.88	42.76	41.43	41.23	41.08
652.4	40.24	41.39	42.30	40.88	41.00	40.63
693.3	39.73	40.83	41.71	40.25	40.89	40.86
734.1	39.55	40.50	41.27	39.57	40.85	41.30
774.9	39.41	40.58	41.33	38.83	40.61	41.71
815.7	39.37	40.79	41.59	38.22	40.17	41.79
856.5	38.99	40.43	41.38	37.81	39.33	41.10
897.4	38.81	40.19	41.18	38.01	39.23	41.09
938.2	38.61	39.99	41.03	38.13	39.08	40.99
979.0	38.52	39.82	40.73	39.29	39.92	41.45
1019.8	38.55	39.83	40.78	41.60	42.60	43.85
1060.6	38.62	39.81	40.76	43.43	45.49	47.29
1101.5	38.53	39.50	40.52	45.98	49.02	52.19
1142.3	38.09	38.93	39.91	49.87	55.03	58.00
1183.1	37.72	38.39	39.31	48.56	47.60	46.18
1223.9	37.29	37.73	38.54	44.97	42.68	41.36
1264.8	37.22	37.62	38.30	41.12	39.02	37.90
1285.2	37.34	37.62	37.95	39.37	37.51	36.40
1326.0	38.01	38.21	38.41	36.93	35.29	34.29
1346.4	38.41	38.60	38.78	35.73	34.20	33.24
1387.2	38.55	38.70	38.86	34.49	33.03	32.12
1407.6	38.44	38.68	38.81	33.81	32.45	31.47
1448.5	37.81	38.17	38.34	32.48	31.32	30.30
1468.9	36.89	37.25	37.44	32.12	31.00	29.87
1509.7	34.81	35.55	36.15	32.40	31.59	30.20
1530.1	35.32	35.99	36.50	31.18	30.69	29.55

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB) @LO (dBm)		
		+4	+7	+10
10.1	40.1	51.82	51.50	51.31
50.9	80.9	42.32	42.36	41.11
91.7	121.7	37.59	37.18	38.29
132.6	162.6	35.20	35.30	36.56
173.4	203.4	33.70	34.38	35.10
214.2	244.2	32.44	33.09	33.51
255.0	285.0	31.48	32.52	33.02
295.9	325.9	31.52	32.54	33.37
336.7	366.7	31.51	32.86	33.82
377.5	407.5	31.79	33.10	34.26
418.3	448.3	31.83	33.32	34.39
459.1	489.1	32.48	34.34	35.64
500.0	530.0	34.09	36.47	38.74
540.8	570.8	34.92	36.82	38.01
581.6	611.6	33.80	34.63	34.71
622.4	652.4	32.30	32.44	31.93
663.3	693.3	31.39	30.95	30.41
704.1	734.1	30.48	29.57	28.72
744.9	774.9	29.99	28.71	27.78
785.7	815.7	29.42	27.85	26.65
826.5	856.5	29.38	27.45	26.10
867.4	897.4	29.54	27.34	25.81
908.2	938.2	28.99	27.07	25.53
949.0	979.0	27.68	26.20	25.04
989.8	1019.8	25.70	24.62	23.66
1030.6	1060.6	24.00	23.05	22.22
1071.5	1101.5	22.41	21.53	20.83
1112.3	1142.3	20.77	19.89	19.25
1153.1	1183.1	19.33	18.48	18.01
1193.9	1223.9	18.00	17.21	16.70
1234.8	1264.8	16.65	15.95	15.44
1255.2	1285.2	16.09	15.29	14.83
1296.0	1326.0	15.08	14.34	13.93
1316.4	1346.4	14.55	13.87	13.44
1357.2	1387.2	13.64	13.04	12.68
1377.6	1407.6	13.25	12.68	12.34
1418.5	1448.5	12.60	12.02	11.68
1438.9	1468.9	12.39	11.79	11.51
1479.7	1509.7	12.07	11.50	11.11
1500.1	1530.1	11.96	11.32	10.93

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1) @LO (dBm)		
		+4	+7	+10
10.1	40.1	1.13	1.29	1.34
50.9	80.9	1.04	1.05	1.11
91.7	121.7	1.04	1.10	1.16
132.6	162.6	1.10	1.12	1.16
173.4	203.4	1.11	1.14	1.19
214.2	244.2	1.17	1.20	1.24
255.0	285.0	1.16	1.19	1.23
295.9	325.9	1.23	1.26	1.30
336.7	366.7	1.22	1.24	1.27
377.5	407.5	1.28	1.31	1.35
418.3	448.3	1.30	1.31	1.34
459.1	489.1	1.34	1.37	1.40
500.0	530.0	1.39	1.41	1.44
540.8	570.8	1.36	1.39	1.42
581.6	611.6	1.45	1.46	1.48
622.4	652.4	1.40	1.41	1.42
663.3	693.3	1.52	1.53	1.54
704.1	734.1	1.53	1.52	1.52
744.9	774.9	1.62	1.62	1.62
785.7	815.7	1.78	1.74	1.72
826.5	856.5	1.84	1.80	1.78
867.4	897.4	2.18	2.10	2.06
908.2	938.2	2.21	2.11	2.06
949.0	979.0	2.72	2.59	2.51
989.8	1019.8	2.76	2.63	2.52
1030.6	1060.6	3.13	3.00	2.89
1071.5	1101.5	3.36	3.23	3.11
1112.3	1142.3	3.37	3.27	3.17
1153.1	1183.1	4.06	3.94	3.82
1193.9	1223.9	3.57	3.50	3.42
1234.8	1264.8	4.33	4.27	4.19
1255.2	1285.2	4.20	4.14	4.08
1296.0	1326.0	3.74	3.73	3.70
1316.4	1346.4	4.30	4.29	4.27
1357.2	1387.2	4.33	4.29	4.26
1377.6	1407.6	3.87	3.85	3.82
1418.5	1448.5	4.63	4.59	4.56
1438.9	1468.9	4.73	4.66	4.62
1479.7	1509.7	3.86	3.81	3.77
1500.1	1530.1	4.26	4.21	4.17

LO (MHz)	LO VSWR (:1) @LO (dBm)		
	+4	+7	+10
40.1	1.80	2.69	3.86
80.9	1.64	2.36	3.29
121.7	1.72	2.51	3.53
162.6	1.69	2.43	3.38
203.4	1.68	2.40	3.33
244.2	1.72	2.47	3.43
285.0	1.69	2.37	3.26
325.9	1.77	2.48	3.40
366.7	1.76	2.43	3.29
407.5	1.78	2.46	3.33
448.3	1.82	2.48	3.33
489.1	1.85	2.47	3.29
530.0	1.90	2.52	3.34
570.8	1.91	2.50	3.27
611.6	1.96	2.56	3.35
652.4	1.99	2.55	3.31
693.3	2.02	2.57	3.31
734.1	2.06	2.57	3.27
774.9	2.09	2.57	3.26
815.7	2.16	2.63	3.30
856.5	2.20	2.66	3.30
897.4	2.25	2.72	3.35
938.2	2.26	2.72	3.34
979.0	2.29	2.74	3.36
1019.8	2.32	2.76	3.36
1060.6	2.33	2.74	3.34
1101.5	2.33	2.73	3.32
1142.3	2.33	2.70	3.28
1183.1	2.34	2.69	3.25
1223.9	2.33	2.65	3.20
1264.8	2.34	2.65	3.19
1285.2	2.36	2.65	3.18
1326.0	2.43	2.68	3.19
1346.4	2.48	2.72	3.24
1387.2	2.60	2.79	3.26
1407.6	2.67	2.82	3.27
1448.5	2.82	2.94	3.37
1468.9	2.90	2.99	3.40
1509.7	3.03	3.04	3.40
1530.1	3.11	3.10	3.46

IF (OUT) (MHz)	IF VSWR @LO=1000MHz (:1) @LO (dBm)		
	+4	+7	+10
10.0	1.99	1.66	1.43
30.0	1.99	1.66	1.43
50.0	2.03	1.70	1.46
70.0	1.97	1.65	1.42
90.0	2.03	1.70	1.47
110.0	1.95	1.63	1.41
130.0	2.07	1.74	1.52
150.0	2.02	1.70	1.48
170.0	2.09	1.77	1.55
190.0	2.00	1.69	1.47
210.0	2.07	1.75	1.54
230.0	2.07	1.75	1.54
250.0	2.13	1.82	1.62
270.0	2.09	1.78	1.57
290.0	2.11	1.80	1.61
310.0	2.13	1.82	1.61
330.0	2.15	1.84	1.64
350.0	2.22	1.90	1.70
370.0	2.14	1.84	1.65
390.0	2.22	1.91	1.70
430.0	2.28	1.96	1.76
450.0	2.22	1.91	1.71
490.0	2.20	1.90	1.69
510.0	2.28	1.98	1.77
550.0	2.30	2.00	1.79
570.0	2.27	1.96	1.75
610.0	2.35	2.03	1.80
630.0	2.29	1.99	1.78
670.0	2.23	1.95	1.73
690.0	2.32	2.03	1.80
730.0	2.32	2.04	1.81
750.0	2.22	1.95	1.73
790.0	2.20	1.94	1.73
810.0	2.22	1.98	1.77
850.0	2.14	1.92	1.72
870.0	2.13	1.91	1.72
910.0	2.11	1.91	1.73
930.0	2.01	1.82	1.66
970.0	1.91	1.74	1.60
990.0	1.99	1.84	1.70

Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	17	34	23	34	23	45	21	39	41	56
1	-	29	+0	37	11	38	25	46	45	40	46	51
2	90	64	63	65	61	66	66	>70	64	>70	56	>70
3	>90	68	>70	>70	>70	>70	69	>70	>70	>70	>70	>70
4	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
5	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
6	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
7	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
8	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
9	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
10	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 500 MHz; -14.00 dBm.
LO IN: 530 MHz; +7.00 dBm
IF OUT: 30 MHz; -20.07 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	26	42	33	46	33	57	35	53	58	72
1	-	30	+0	36	11	40	26	50	47	44	57	56
2	73	60	54	61	53	63	61	63	55	65	49	65
3	>90	48	52	53	55	61	45	71	55	64	61	56
4	>90	78	>80	69	74	71	72	73	72	>80	75	79
5	>90	>80	>80	>80	65	73	60	72	60	69	68	>80
6	>90	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80
7	>90	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80
8	>90	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80
9	>90	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80
10	>90	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 500 MHz; -4.00 dBm.
LO IN: 530 MHz; +7.00 dBm
IF OUT: 30 MHz; -10.04 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.