Frequency Mixer MCA1-24MH+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB) @LO (dBm)		
		+10	+13	+16
220.0	250.0	27.70	14.43	7.73
300.0	330.0	7.10	5.51	5.29
380.0	410.0	5.25	4.84	4.63
460.0	490.0	6.90	5.93	5.37
540.0	570.0	7.37	6.44	5.97
620.0	650.0	6.40	6.20	6.05
700.0	730.0	6.10	5.83	5.77
780.0	810.0	6.66	6.06	5.79
860.0	890.0	6.97	6.53	6.27
940.0	970.0	6.78	6.41	6.23
1020.0	1050.0	6.70	6.46	6.32
1100.0	1130.0	7.12	6.65	6.41
1180.0	1210.0	7.91	6.91	6.37
1260.0	1290.0	8.74	7.49	6.80
1340.0	1370.0	6.96	6.47	6.18
1420.0	1450.0	6.55	5.85	5.42
1500.0	1530.0	6.23	5.57	5.11
1580.0	1610.0	5.47	4.81	4.71
1660.0	1690.0	5.25	4.85	4.79
1740.0	1770.0	5.34	5.06	5.02
1820.0	1850.0	5.72	5.21	5.11
1900.0	1930.0	5.67	5.09	4.96
1980.0	2010.0	6.90	5.86	5.36
2060.0	2090.0	7.84	6.68	6.04
2140.0	2170.0	8.13	6.83	6.25
2200.0	2230.0	8.08	6.61	6.20
2280.0	2310.0	8.98	6.60	6.14
2340.0	2370.0	10.83	6.53	6.14
2420.0	2450.0	11.80	6.71	6.33
2480.0	2510.0	10.67	7.17	6.88
2560.0	2590.0	11.95	7.87	7.20
2620.0	2650.0	11.56	8.41	7.49
2700.0	2730.0	9.59	8.49	7.97
2760.0	2790.0	8.81	8.48	8.39
2840.0	2870.0	8.50	7.84	7.62
2900.0	2930.0	9.01	8.28	7.87
2980.0	3010.0	8.75	8.24	8.05
3040.0	3070.0	9.52	9.15	8.94
3120.0	3150.0	10.91	10.29	9.92
3180.0	3210.0	11.68	10.85	10.37

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm) @LO (dBm)		
		+10	+13	+16
220.0	250.0	-4.93	2.43	12.69
300.0	330.0	8.92	14.10	18.25
380.0	410.0	13.71	18.56	22.38
460.0	490.0	11.04	14.23	16.71
540.0	570.0	13.00	16.37	18.09
620.0	650.0	15.41	14.47	15.50
700.0	730.0	14.93	17.60	16.92
780.0	810.0	20.42	18.36	15.36
860.0	890.0	22.43	27.09	28.04
940.0	970.0	17.00	19.54	22.78
1020.0	1050.0	22.13	23.17	23.99
1100.0	1130.0	22.88	21.12	21.16
1180.0	1210.0	16.21	19.25	21.56
1260.0	1290.0	15.72	16.66	17.23
1340.0	1370.0	19.03	14.93	13.68
1420.0	1450.0	12.63	13.48	13.73
1500.0	1530.0	9.74	10.21	13.51
1580.0	1610.0	14.81	19.63	19.83
1660.0	1690.0	18.08	22.23	20.11
1740.0	1770.0	15.41	20.85	22.60
1820.0	1850.0	23.25	16.18	20.10
1900.0	1930.0	11.77	15.71	21.23
1980.0	2010.0	13.69	15.22	17.24
2060.0	2090.0	13.70	17.17	19.86
2140.0	2170.0	13.08	14.85	16.72
2200.0	2230.0	12.42	14.87	18.19
2280.0	2310.0	11.22	14.52	21.27
2340.0	2370.0	7.40	18.21	21.83
2420.0	2450.0	7.35	22.02	24.51
2480.0	2510.0	9.70	18.89	23.24
2560.0	2590.0	9.01	24.81	23.27
2620.0	2650.0	11.16	25.56	22.04
2700.0	2730.0	15.92	22.84	23.02
2760.0	2790.0	14.95	17.24	25.27
2840.0	2870.0	14.84	15.18	16.06
2900.0	2930.0	19.88	18.57	17.73
2980.0	3010.0	15.65	18.28	20.24
3040.0	3070.0	20.64	23.32	25.27
3120.0	3150.0	20.64	22.47	24.63
3180.0	3210.0	19.47	22.68	24.10

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+9dBm (dB) @LO (dBm)		
		+10	+13	+16
220.0	250.0	-14.43	-3.87	0.55
300.0	330.0	2.65	2.01	1.30
380.0	410.0	3.31	2.83	2.52
460.0	490.0	2.60	2.74	2.70
540.0	570.0	1.55	1.69	1.63
620.0	650.0	1.39	1.18	1.07
700.0	730.0	1.16	0.87	0.63
780.0	810.0	0.87	0.85	0.77
860.0	890.0	0.84	0.59	0.50
940.0	970.0	1.02	0.72	0.54
1020.0	1050.0	0.93	0.63	0.49
1100.0	1130.0	1.21	0.91	0.75
1180.0	1210.0	1.30	1.27	1.16
1260.0	1290.0	1.18	1.36	1.35
1340.0	1370.0	1.96	1.64	1.46
1420.0	1450.0	1.68	1.40	1.39
1500.0	1530.0	1.76	1.60	1.52
1580.0	1610.0	2.01	1.19	0.89
1660.0	1690.0	1.83	1.04	0.74
1740.0	1770.0	1.83	1.01	0.74
1820.0	1850.0	1.77	1.27	0.96
1900.0	1930.0	1.74	1.28	0.91
1980.0	2010.0	1.43	1.47	1.43
2060.0	2090.0	1.12	1.16	1.23
2140.0	2170.0	1.25	0.95	0.88
2200.0	2230.0	1.10	0.85	0.65
2280.0	2310.0	0.45	0.85	0.60
2340.0	2370.0	-0.96	0.95	0.47
2420.0	2450.0	-1.53	0.98	0.46
2480.0	2510.0	-0.42	0.98	0.48
2560.0	2590.0	-0.85	0.82	0.50
2620.0	2650.0	-0.69	0.51	0.50
2700.0	2730.0	0.44	0.34	0.31
2760.0	2790.0	0.98	0.48	0.31
2840.0	2870.0	1.13	0.93	0.76
2900.0	2930.0	0.61	0.59	0.56
2980.0	3010.0	1.22	0.65	0.38
3040.0	3070.0	0.86	0.47	0.33
3120.0	3150.0	0.63	0.34	0.23
3180.0	3210.0	1.00	0.32	0.17

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1210.1MHz (dB) @LO (dBm) +13
770.1	440.0	9.69
750.1	460.0	9.77
730.1	480.0	9.53
710.1	500.0	9.21
690.1	520.0	8.68
670.1	540.0	8.16
650.1	560.0	7.59
630.1	580.0	6.88
610.1	600.0	6.19
590.1	620.0	5.79
570.1	640.0	5.80
550.1	660.0	5.85
530.1	680.0	6.09
510.1	700.0	6.68
490.1	720.0	7.23
470.1	740.0	8.12
450.1	760.0	8.62
430.1	780.0	8.49
410.1	800.0	8.66
390.1	820.0	8.28
370.1	840.0	8.20
350.1	860.0	7.90
330.1	880.0	7.59
310.1	900.0	7.40
290.1	920.0	7.33
270.1	940.0	7.13
250.1	960.0	6.88
230.1	980.0	6.75
210.1	1000.0	6.65
190.1	1020.0	6.56
170.1	1040.0	6.45
150.1	1060.0	6.38
130.1	1080.0	6.42
110.1	1100.0	6.51
90.1	1120.0	6.57
70.1	1140.0	6.57
50.1	1160.0	6.55
40.1	1170.0	6.60
20.1	1190.0	6.63
10.1	1200.0	6.69

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=289.9MHz (dB) @LO (dBm) +13
10.1	300.0	6.40
30.1	320.0	5.67
50.1	340.0	5.61
70.1	360.0	5.55
90.1	380.0	5.47
110.1	400.0	5.41
130.1	420.0	5.41
150.1	440.0	5.40
170.1	460.0	5.56
190.1	480.0	5.76
210.1	500.0	5.85
230.1	520.0	5.92
250.1	540.0	5.96
270.1	560.0	6.07
290.1	580.0	6.09
310.1	600.0	6.28
330.1	620.0	6.35
350.1	640.0	6.31
370.1	660.0	6.06
390.1	680.0	5.99
410.1	700.0	6.15
430.1	720.0	6.13
450.1	740.0	6.68
470.1	760.0	6.54
490.1	780.0	6.21
510.1	800.0	6.16
530.1	820.0	6.05
550.1	840.0	6.07
570.1	860.0	6.00
590.1	880.0	5.82
610.1	900.0	5.85
630.1	920.0	5.95
670.1	960.0	5.76
690.1	980.0	5.97
730.1	1020.0	6.26
750.1	1040.0	6.46
790.1	1080.0	7.00
810.1	1100.0	7.37
850.1	1140.0	8.54
870.1	1160.0	9.48

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=2410.1MHz (dB) @LO (dBm) +13
830.1	1580.0	10.72
810.1	1600.0	9.85
790.1	1620.0	9.51
770.1	1640.0	9.04
750.1	1660.0	8.75
730.1	1680.0	8.59
710.1	1700.0	8.35
690.1	1720.0	8.29
670.1	1740.0	8.30
650.1	1760.0	8.06
630.1	1780.0	7.78
610.1	1800.0	7.69
590.1	1820.0	7.72
570.1	1840.0	7.58
550.1	1860.0	7.54
530.1	1880.0	7.57
510.1	1900.0	7.79
490.1	1920.0	7.94
470.1	1940.0	7.97
450.1	1960.0	8.03
430.1	1980.0	8.09
410.1	2000.0	8.26
390.1	2020.0	8.33
370.1	2040.0	8.37
350.1	2060.0	8.40
330.1	2080.0	8.43
310.1	2100.0	8.49
290.1	2120.0	8.39
270.1	2140.0	8.13
250.1	2160.0	7.91
230.1	2180.0	7.77
210.1	2200.0	7.67
190.1	2220.0	7.31
170.1	2240.0	7.14
150.1	2260.0	7.24
130.1	2280.0	7.34
90.1	2320.0	6.94
70.1	2340.0	6.79
30.1	2380.0	6.84
10.1	2400.0	6.93

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB) @LO (dBm)			LO-IF ISOLATION (dB) @LO (dBm)		
	+10	+13	+16	+10	+13	+16
250.0	49.05	48.55	51.46	25.78	25.90	25.56
330.0	45.23	47.17	45.74	20.21	21.61	23.83
410.0	40.26	41.20	41.68	20.50	23.30	25.54
490.0	39.14	40.22	41.11	22.31	24.57	26.43
570.0	67.09	57.41	53.00	25.41	28.15	29.98
650.0	46.01	44.48	44.18	28.00	28.13	27.49
730.0	43.60	42.39	41.15	27.82	26.55	25.60
810.0	42.47	41.84	41.37	33.45	31.83	30.30
890.0	40.70	41.33	41.71	28.81	30.17	31.18
970.0	40.60	41.25	41.79	23.43	24.93	26.16
1050.0	42.68	42.60	42.60	24.37	25.05	25.22
1130.0	44.11	43.24	42.78	28.42	28.23	27.79
1210.0	43.28	42.96	41.84	32.23	32.48	31.89
1290.0	46.68	45.21	43.16	33.72	35.89	35.91
1370.0	36.97	34.39	34.94	31.33	34.32	37.04
1450.0	50.16	46.47	43.14	29.18	31.75	34.95
1530.0	41.54	39.59	37.23	27.09	29.03	31.96
1610.0	38.36	35.16	33.12	26.12	29.74	33.83
1690.0	36.86	32.92	30.86	26.35	29.03	32.05
1770.0	38.40	36.46	34.41	22.99	25.05	27.45
1850.0	35.62	33.36	31.84	21.30	22.98	25.24
1930.0	34.46	33.07	32.06	20.21	21.95	24.03
2010.0	35.00	32.75	31.40	21.30	22.66	24.63
2090.0	38.53	34.83	32.70	24.25	27.00	29.88
2170.0	36.90	33.59	31.59	21.22	22.56	23.73
2230.0	38.58	34.94	32.17	21.03	22.24	22.95
2310.0	38.85	38.05	35.15	21.32	22.02	22.00
2370.0	37.84	36.82	34.95	23.21	24.84	24.35
2450.0	37.49	35.60	32.35	31.10	32.36	28.52
2510.0	41.15	35.60	30.30	39.48	35.17	29.11
2590.0	45.83	37.00	32.47	40.78	30.64	25.22
2650.0	46.38	36.45	32.55	36.40	27.27	23.35
2730.0	41.93	34.66	32.23	29.52	23.88	21.66
2790.0	36.74	32.21	30.29	25.59	22.62	21.07
2870.0	39.97	35.71	33.33	22.71	22.00	21.38
2930.0	36.78	35.29	34.12	21.91	22.26	22.24
3010.0	32.00	31.69	31.72	20.91	21.78	22.18
3070.0	31.14	31.16	31.42	19.49	20.88	21.99
3150.0	31.11	31.51	31.89	19.09	20.88	22.40
3210.0	32.64	33.11	33.45	19.35	21.31	23.08

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB) @LO (dBm)		
		+10	+13	+16
220.0	250.0	32.11	27.24	24.41
300.0	330.0	21.55	18.53	18.01
380.0	410.0	16.33	15.74	15.42
460.0	490.0	14.59	14.15	13.92
540.0	570.0	20.22	19.31	18.65
620.0	650.0	28.73	27.72	26.88
700.0	730.0	31.87	30.82	28.79
780.0	810.0	32.83	30.22	28.19
860.0	890.0	30.43	28.80	27.80
940.0	970.0	31.48	30.68	30.18
1020.0	1050.0	38.55	38.17	38.02
1100.0	1130.0	31.26	30.75	30.41
1180.0	1210.0	27.04	26.65	26.38
1260.0	1290.0	23.18	22.41	22.26
1340.0	1370.0	23.65	21.46	19.97
1420.0	1450.0	22.25	21.91	21.78
1500.0	1530.0	23.44	22.50	21.97
1580.0	1610.0	22.94	23.14	23.33
1660.0	1690.0	23.24	22.73	22.56
1740.0	1770.0	23.02	22.74	22.51
1820.0	1850.0	23.42	22.80	22.59
1900.0	1930.0	22.07	20.97	20.68
1980.0	2010.0	30.30	28.83	27.37
2060.0	2090.0	26.56	25.79	25.12
2140.0	2170.0	28.80	24.28	22.65
2200.0	2230.0	40.08	40.57	32.20
2280.0	2310.0	26.28	25.15	23.74
2340.0	2370.0	26.15	24.46	23.20
2420.0	2450.0	30.11	28.13	25.78
2480.0	2510.0	21.93	21.70	20.76
2560.0	2590.0	17.83	18.96	18.53
2620.0	2650.0	17.82	18.06	17.72
2700.0	2730.0	17.69	16.95	16.55
2760.0	2790.0	16.97	16.21	15.74
2840.0	2870.0	16.63	16.15	15.75
2900.0	2930.0	16.82	16.37	15.92
2980.0	3010.0	15.84	15.42	15.07
3040.0	3070.0	15.09	14.81	14.58
3120.0	3150.0	14.52	14.23	14.00
3180.0	3210.0	14.35	14.03	13.72

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1) @LO (dBm)		
		+10	+13	+16
220.0	250.0	15.96	8.12	3.93
300.0	330.0	2.26	1.97	1.99
380.0	410.0	1.69	1.55	1.46
460.0	490.0	3.31	2.92	2.68
540.0	570.0	4.42	3.95	3.69
620.0	650.0	3.83	3.63	3.52
700.0	730.0	3.82	3.35	2.99
780.0	810.0	4.16	3.67	3.31
860.0	890.0	4.24	3.88	3.65
940.0	970.0	3.94	3.63	3.47
1020.0	1050.0	3.76	3.55	3.42
1100.0	1130.0	4.23	3.88	3.65
1180.0	1210.0	4.55	4.09	3.80
1260.0	1290.0	4.67	4.10	3.83
1340.0	1370.0	3.46	3.01	2.62
1420.0	1450.0	2.97	2.63	2.32
1500.0	1530.0	2.41	1.93	1.50
1580.0	1610.0	1.48	1.17	1.07
1660.0	1690.0	1.34	1.11	1.06
1740.0	1770.0	1.21	1.09	1.14
1820.0	1850.0	1.50	1.32	1.32
1900.0	1930.0	1.65	1.36	1.26
1980.0	2010.0	2.27	1.94	1.72
2060.0	2090.0	2.86	2.49	2.25
2140.0	2170.0	3.26	2.83	2.59
2200.0	2230.0	3.26	2.75	2.57
2280.0	2310.0	3.63	2.71	2.47
2340.0	2370.0	4.23	2.72	2.52
2420.0	2450.0	4.50	2.74	2.49
2480.0	2510.0	3.72	2.58	2.34
2560.0	2590.0	4.33	3.35	3.09
2620.0	2650.0	4.78	3.91	3.60
2700.0	2730.0	4.45	4.01	3.79
2760.0	2790.0	4.15	3.89	3.76
2840.0	2870.0	4.18	3.84	3.62
2900.0	2930.0	4.34	3.97	3.68
2980.0	3010.0	3.81	3.51	3.33
3040.0	3070.0	4.03	3.82	3.67
3120.0	3150.0	4.50	4.27	4.09
3180.0	3210.0	4.70	4.43	4.23

LO (MHz)	LO VSWR (:1) @LO (dBm)		
	+10	+13	+16
250.0	28.96	28.03	20.95
330.0	13.49	7.00	6.28
410.0	2.59	2.95	3.82
490.0	1.34	1.88	2.62
570.0	1.36	1.38	1.93
650.0	1.77	1.62	2.09
730.0	1.99	2.08	2.65
810.0	2.31	2.78	3.58
890.0	2.58	3.27	4.25
970.0	2.40	3.31	4.45
1050.0	2.47	3.43	4.62
1130.0	3.23	3.92	4.91
1210.0	3.97	4.24	4.95
1290.0	4.63	4.31	4.61
1370.0	4.66	4.20	4.32
1450.0	4.32	3.43	3.52
1530.0	3.56	2.31	2.23
1610.0	3.54	2.21	2.03
1690.0	3.11	1.92	1.78
1770.0	2.48	1.56	1.59
1850.0	2.50	1.84	1.88
1930.0	2.70	2.21	2.28
2010.0	3.30	2.59	2.59
2090.0	4.35	3.00	2.77
2170.0	5.97	3.30	2.63
2230.0	7.02	3.63	2.63
2310.0	8.95	4.41	2.63
2370.0	10.31	5.95	2.98
2450.0	10.96	6.07	3.02
2510.0	10.31	5.10	2.71
2590.0	9.58	4.63	2.75
2650.0	8.68	4.08	2.72
2730.0	6.03	3.33	2.92
2790.0	4.30	3.20	3.24
2870.0	3.31	3.21	3.58
2930.0	2.92	3.23	3.73
3010.0	2.52	2.98	3.53
3070.0	2.26	2.82	3.38
3150.0	2.41	2.85	3.27
3210.0	2.75	3.06	3.36

IF (OUT) (MHz)	IF VSWR @LO=2400MHz (:1) @LO (dBm)		
	+10	+13	+16
10.0	2.49	1.08	1.22
30.0	2.56	1.10	1.21
50.0	2.62	1.14	1.18
70.0	2.55	1.17	1.23
90.0	2.65	1.21	1.21
110.0	2.69	1.25	1.25
130.0	2.84	1.31	1.24
150.0	2.91	1.36	1.28
170.0	3.03	1.42	1.32
190.0	3.09	1.43	1.34
210.0	3.28	1.50	1.36
230.0	3.44	1.56	1.38
250.0	3.60	1.64	1.44
270.0	3.72	1.64	1.42
290.0	3.91	1.71	1.45
310.0	4.13	1.77	1.44
330.0	4.35	1.88	1.52
350.0	4.48	1.92	1.52
370.0	4.59	1.96	1.54
390.0	4.70	2.03	1.55
410.0	4.79	2.09	1.60
430.0	4.98	2.17	1.65
450.0	4.93	2.15	1.63
470.0	5.07	2.21	1.66
490.0	5.10	2.20	1.65
510.0	5.27	2.28	1.71
530.0	5.19	2.21	1.66
550.0	5.19	2.24	1.69
570.0	5.17	2.18	1.66
590.0	5.19	2.20	1.69
610.0	5.12	2.16	1.70
630.0	5.04	2.12	1.70
650.0	4.98	2.11	1.76
670.0	4.84	2.10	1.83
690.0	4.78	2.17	1.97
710.0	4.53	2.16	2.08
730.0	4.39	2.28	2.29
750.0	4.14	2.42	2.58
790.0	3.77	2.92	3.30
810.0	3.64	3.19	3.63

Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	9	21	8	24	20	26	40	46	44	51
1	-	16	+0	21	39	27	39	46	35	46	41	48
2	66	51	60	42	53	55	48	54	57	61	63	57
3	>90	51	68	56	67	53	57	68	66	69	62	65
4	>90	>78	>78	>78	>78	71	73	>78	>78	>78	78	76
5	>90	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78
6	>90	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78
7	>90	>78	>78	>78	>78	>78	>78	>78	>78	77	>78	>78
8	>90	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78
9	>90	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78
10	>90	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

Test conditions: RF IN: 1350 MHz; -6.00 dBm.
LO IN: 1380 MHz; +13.00 dBm
IF OUT: 30 MHz; -12.21 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	20	35	20	38	32	37	57	66	55	67
1	-	15	+0	26	33	30	45	54	46	62	55	61
2	46	41	53	37	44	46	41	50	52	55	77	61
3	>90	33	41	41	30	39	51	56	69	65	56	57
4	>90	66	57	56	57	51	53	67	56	62	64	72
5	>90	55	59	46	61	58	44	52	53	58	61	67
6	>90	60	62	81	67	61	67	69	60	83	63	78
7	>90	64	60	71	71	59	63	79	54	65	60	63
8	>90	77	81	60	71	73	81	71	>88	67	69	83
9	>90	78	86	>88	71	74	75	73	71	87	62	78
10	>90	>88	87	>88	>88	76	87	81	83	84	>88	82
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 1350 MHz; 4.00 dBm.
LO IN: 1380 MHz; +13.00 dBm
IF OUT: 30 MHz; -2.3 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.