Frequency Mixer MCA1-12G+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB) @LO (dBm)		
		+4	+7	+10
2900.1	2870.1	13.55	11.85	10.34
3152.6	3122.6	9.42	8.45	7.87
3405.1	3375.1	7.16	6.54	6.18
3657.6	3627.6	5.74	5.32	5.09
3910.1	3880.1	5.19	4.93	4.78
4162.6	4132.6	4.99	4.82	4.76
4415.1	4385.1	4.96	4.75	4.67
4667.6	4637.6	5.03	4.96	5.06
4920.1	4890.1	5.07	4.99	5.11
5172.6	5142.6	6.53	6.12	5.91
5425.1	5395.1	6.46	6.22	6.17
5677.6	5647.6	7.00	6.69	6.56
5930.1	5900.1	6.47	6.17	6.06
6182.6	6152.6	6.11	5.79	5.69
6435.1	6405.1	6.36	5.94	5.74
6687.6	6657.6	6.36	5.89	5.66
6940.1	6910.1	7.36	6.78	6.46
7192.6	7162.6	7.34	6.71	6.25
7445.1	7415.1	6.69	6.15	5.79
7697.6	7667.6	6.48	5.95	5.68
7950.1	7920.1	6.22	5.68	5.47
8227.9	8197.9	5.74	5.33	5.22
8480.4	8450.4	5.84	5.39	5.20
8758.1	8728.1	5.85	5.37	5.25
9010.6	8980.6	5.97	5.53	5.41
9288.3	9258.3	6.08	5.73	5.68
9540.8	9510.8	6.35	5.92	5.91
9818.6	9788.6	6.70	6.57	7.31
10071	10041	7.22	7.43	8.40
10349	10319	7.15	7.05	7.16
10601	10571	7.20	7.07	7.15
10879	10849	7.37	7.20	7.25
11132	11102	8.16	7.65	7.43
11409	11379	8.50	8.04	7.86
11662	11632	7.92	7.42	7.27
11940	11910	7.77	7.28	7.21
12192	12162	7.70	7.19	7.17
12470	12440	8.18	7.58	7.48
12722	12692	7.87	7.50	7.79
13000	12970	12.39	10.70	11.56

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm) @LO (dBm)		
		+4	+7	+10
2900.1	2870.1	1.69	4.72	6.04
3152.6	3122.6	8.83	8.58	8.63
3405.1	3375.1	5.36	7.63	6.74
3657.6	3627.6	9.07	9.90	8.83
3910.1	3880.1	9.48	9.06	8.47
4162.6	4132.6	9.84	9.81	9.35
4415.1	4385.1	8.88	8.27	7.61
4667.6	4637.6	10.76	11.49	10.73
4920.1	4890.1	12.34	13.49	12.69
5172.6	5142.6	14.53	13.58	10.00
5425.1	5395.1	10.64	10.54	7.90
5677.6	5647.6	10.92	12.12	10.63
5930.1	5900.1	11.23	13.72	13.84
6182.6	6152.6	8.98	10.74	13.11
6435.1	6405.1	9.52	9.73	12.23
6687.6	6657.6	9.32	9.11	10.56
6940.1	6910.1	13.26	20.59	13.20
7192.6	7162.6	8.83	9.37	9.31
7445.1	7415.1	7.74	8.61	8.83
7697.6	7667.6	7.48	8.57	8.79
7950.1	7920.1	6.61	8.67	9.32
8227.9	8197.9	6.46	8.56	9.40
8480.4	8450.4	6.55	8.63	9.27
8758.1	8728.1	6.13	8.74	9.52
9010.6	8980.6	6.56	9.46	10.52
9288.3	9258.3	7.41	10.57	11.47
9540.8	9510.8	7.43	10.73	10.33
9818.6	9788.6	10.07	10.70	6.74
10071	10041	10.09	9.93	13.40
10349	10319	14.44	14.65	14.26
10601	10571	15.84	16.45	15.45
10879	10849	15.81	17.61	17.63
11132	11102	19.92	18.89	18.43
11409	11379	12.37	14.46	15.37
11662	11632	10.71	12.31	13.29
11940	11910	10.54	11.99	12.55
12192	12162	12.96	12.55	12.95
12470	12440	12.52	12.14	11.56
12722	12692	9.07	9.17	5.39
13000	12970	1.98	4.69	10.36

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+1dBm (dB) @LO (dBm)		
		+4	+7	+10
2900.1	2870.1	2.02	2.02	1.90
3152.6	3122.6	1.43	1.54	1.62
3405.1	3375.1	1.75	1.62	1.57
3657.6	3627.6	1.90	1.80	1.86
3910.1	3880.1	1.99	1.80	1.76
4162.6	4132.6	1.80	1.63	1.64
4415.1	4385.1	1.48	1.43	1.53
4667.6	4637.6	1.10	0.88	0.87
4920.1	4890.1	0.99	0.74	0.78
5172.6	5142.6	1.47	1.37	1.48
5425.1	5395.1	1.43	1.35	1.41
5677.6	5647.6	0.88	0.70	0.68
5930.1	5900.1	0.80	0.57	0.51
6182.6	6152.6	0.74	0.46	0.37
6435.1	6405.1	0.82	0.52	0.32
6687.6	6657.6	0.86	0.62	0.45
6940.1	6910.1	0.69	0.56	0.46
7192.6	7162.6	0.77	0.72	0.73
7445.1	7415.1	0.92	0.76	0.68
7697.6	7667.6	0.91	0.70	0.64
7950.1	7920.1	1.20	0.91	0.81
8227.9	8197.9	1.35	0.94	0.78
8480.4	8450.4	1.18	0.90	0.81
8758.1	8728.1	1.28	0.89	0.80
9010.6	8980.6	1.18	0.84	0.78
9288.3	9258.3	1.10	0.87	0.96
9540.8	9510.8	0.93	0.79	1.09
9818.6	9788.6	0.85	0.92	1.13
10071	10041	0.95	0.68	0.37
10349	10319	0.55	0.56	0.79
10601	10571	0.38	0.41	0.58
10879	10849	0.31	0.25	0.31
11132	11102	0.28	0.26	0.30
11409	11379	0.13	0.26	0.42
11662	11632	0.26	0.32	0.57
11940	11910	0.34	0.37	0.61
12192	12162	0.43	0.43	0.73
12470	12440	0.42	0.54	1.00
12722	12692	1.50	1.46	1.75
13000	12970	1.49	1.60	0.48

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=7900MHz (dB)
		@LO (dBm)
		+7
2399.9	5500.1	11.63
2282.4	5617.6	10.66
2164.8	5735.2	9.67
2047.3	5852.7	9.81
1929.8	5970.2	9.21
1812.2	6087.8	8.66
1694.7	6205.3	8.68
1577.1	6322.9	7.76
1459.6	6440.4	7.43
1342.1	6557.9	7.16
1224.5	6675.5	6.57
1107.0	6793.0	6.21
989.5	6910.5	5.94
871.9	7028.1	5.85
754.4	7145.6	5.87
636.9	7263.1	5.63
519.3	7380.7	5.64
401.8	7498.2	5.66
284.3	7615.7	5.72
147.1	7752.9	5.68
29.6	7870.4	5.83
112.1	8012.1	5.78
234.5	8134.5	5.88
377.4	8277.4	5.82
499.9	8399.9	5.93
642.7	8542.7	6.16
765.2	8665.2	6.05
908.1	8808.1	6.25
1030.5	8930.5	6.55
1173.4	9073.4	6.48
1295.9	9195.9	6.57
1438.7	9338.7	6.55
1561.2	9461.2	6.68
1704.1	9604.1	6.70
1826.5	9726.5	6.92
1969.4	9869.4	7.42
2091.9	9991.9	8.04
2234.8	10135	8.09
2357.2	10257	9.37
2500.1	10400	10.16

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=3790MHz (dB)
		@LO (dBm)
		+7
10.1	3800.1	5.20
70.1	3860.1	5.01
130.1	3920.1	4.97
190.1	3980.1	4.97
250.1	4040.1	5.04
310.1	4100.1	5.03
370.1	4160.1	5.02
430.1	4220.1	5.04
490.1	4280.1	4.97
550.1	4340.1	5.04
610.1	4400.1	5.02
670.1	4460.1	5.01
730.1	4520.1	5.01
790.1	4580.1	4.97
850.1	4640.1	4.85
910.1	4700.1	4.78
970.1	4760.1	4.76
1030.1	4820.1	4.85
1090.1	4880.1	4.81
1150.1	4940.1	5.00
1210.1	5000.1	5.01
1270.1	5060.1	5.09
1330.1	5120.1	5.17
1390.1	5180.1	5.16
1450.1	5240.1	5.35
1510.1	5300.1	5.46
1570.1	5360.1	5.62
1630.1	5420.1	5.45
1690.1	5480.1	5.73
1750.1	5540.1	5.64
1810.1	5600.1	5.61
1870.1	5660.1	6.24
1930.1	5720.1	6.27
1990.1	5780.1	6.57
2070.1	5860.1	6.76
2130.1	5920.1	6.94
2210.1	6000.1	7.61
2270.1	6060.1	8.95
2350.1	6140.1	9.82
2410.1	6200.1	10.66

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=12010.09MHz (dB)
		@LO (dBm)
		+7
1910.0	10100	10.61
1870.0	10140	10.48
1830.0	10180	10.32
1790.0	10220	10.09
1750.0	10260	9.76
1710.0	10300	9.53
1670.0	10340	9.40
1610.0	10400	9.49
1570.0	10440	9.45
1510.0	10500	9.26
1470.0	10540	9.18
1410.0	10600	8.92
1370.0	10640	8.74
1310.0	10700	8.64
1270.0	10740	8.63
1210.0	10800	8.58
1170.0	10840	8.58
1110.0	10900	8.45
1070.0	10940	8.45
1010.0	11000	8.24
970.0	11040	8.20
910.0	11100	8.07
870.0	11140	8.00
810.0	11200	7.96
770.0	11240	7.90
710.0	11300	7.77
670.0	11340	7.71
610.0	11400	7.40
570.0	11440	7.38
510.0	11500	7.26
470.0	11540	7.15
410.0	11600	7.16
370.0	11640	7.20
310.0	11700	7.28
270.0	11740	7.31
210.0	11800	7.24
170.0	11840	7.37
110.0	11900	7.24
70.0	11940	7.39
10.0	12000	7.61

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB) @LO (dBm)			LO-IF ISOLATION (dB) @LO (dBm)		
	+4	+7	+10	+4	+7	+10
2930.1	33.01	34.69	34.25	5.20	4.97	4.98
3182.6	39.74	48.08	46.33	7.79	7.87	7.44
3435.1	32.09	33.95	35.75	10.23	9.69	9.35
3687.6	32.33	32.37	32.59	12.07	11.08	10.48
3940.1	33.43	32.77	32.22	13.18	11.76	11.01
4192.6	32.69	31.25	29.67	14.01	12.82	11.61
4445.1	32.58	29.61	27.71	14.28	12.94	12.17
4697.6	27.58	25.84	24.79	14.13	13.32	12.66
4950.1	28.15	26.40	25.62	13.09	12.86	12.76
5202.6	27.61	27.77	27.07	11.68	12.09	12.46
5455.1	23.66	24.42	25.02	11.30	12.30	13.11
5707.6	22.85	24.31	25.31	14.25	15.78	17.08
5960.1	25.40	26.78	27.54	18.99	20.86	22.55
6212.6	27.16	28.80	29.41	23.66	25.61	27.09
6465.1	29.68	31.35	31.86	28.43	29.55	30.07
6717.6	30.68	32.38	33.15	31.99	31.53	30.85
6970.1	35.62	37.35	38.49	31.51	30.29	29.77
7222.6	33.29	34.04	34.39	32.97	31.94	31.03
7475.1	33.73	33.88	34.11	33.74	32.82	32.19
7727.6	34.45	33.79	33.44	34.37	33.78	33.45
7980.1	34.55	33.35	32.57	36.20	35.80	35.61
8257.8	33.63	32.04	31.12	39.51	39.41	39.36
8510.3	32.93	31.08	29.25	47.55	45.97	44.40
8788.1	30.78	29.00	27.39	41.83	45.75	46.27
9040.6	27.43	26.07	25.12	45.10	50.49	52.70
9318.3	25.53	24.43	23.43	37.85	43.24	50.77
9570.8	23.69	23.00	22.30	37.38	33.65	30.94
9848.6	21.18	20.94	20.64	25.20	23.75	22.77
10101	21.12	21.13	21.12	19.38	19.91	20.00
10379	21.74	22.23	21.93	20.61	20.76	19.93
10631	21.98	22.30	22.58	20.67	20.63	20.60
10909	22.85	23.33	23.70	20.48	20.92	21.33
11162	23.55	24.56	24.95	20.41	21.49	21.93
11439	25.23	25.69	25.93	20.63	22.06	23.30
11692	25.21	25.38	25.05	20.94	22.59	24.29
11970	22.53	22.89	22.94	20.94	22.21	23.89
12222	20.53	21.09	21.41	21.56	22.08	22.87
12500	18.16	19.00	19.33	20.60	19.93	19.31
12752	16.89	18.17	19.10	17.57	16.46	16.25
13030	18.85	19.83	21.21	15.86	14.70	14.87

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB) @LO (dBm)		
		+4	+7	+10
2900.1	2870.1	23.53	23.45	23.70
3152.6	3122.6	26.71	28.65	31.17
3405.1	3375.1	32.13	35.31	36.64
3657.6	3627.6	30.39	30.95	30.71
3910.1	3880.1	29.09	28.72	28.21
4162.6	4132.6	25.08	24.02	23.16
4415.1	4385.1	21.58	20.52	19.66
4667.6	4637.6	17.51	16.55	15.77
4920.1	4890.1	14.93	14.30	13.81
5172.6	5142.6	14.77	14.21	13.35
5425.1	5395.1	9.44	9.24	9.11
5677.6	5647.6	8.84	9.14	9.27
5930.1	5900.1	10.88	11.39	11.66
6182.6	6152.6	13.13	13.76	14.12
6435.1	6405.1	14.74	15.43	15.99
6687.6	6657.6	16.12	16.67	17.10
6940.1	6910.1	17.48	17.81	18.07
7192.6	7162.6	18.97	19.30	19.44
7445.1	7415.1	21.91	22.21	22.44
7697.6	7667.6	25.22	25.41	25.45
7950.1	7920.1	28.72	28.27	27.82
8227.9	8197.9	28.71	27.40	26.57
8480.4	8450.4	26.42	25.65	25.05
8758.1	8728.1	23.28	23.17	22.96
9010.6	8980.6	21.40	21.50	21.47
9288.3	9258.3	20.47	20.88	21.09
9540.8	9510.8	20.26	20.65	20.89
9818.6	9788.6	20.98	21.74	22.56
10071	10041	19.83	20.80	21.56
10349	10319	19.78	20.37	20.75
10601	10571	20.55	21.17	21.61
10879	10849	20.98	21.70	22.23
11132	11102	21.09	21.56	21.97
11409	11379	23.40	24.03	24.42
11662	11632	26.35	27.54	28.04
11940	11910	27.66	27.80	27.48
12192	12162	26.72	25.40	24.77
12470	12440	24.89	23.18	22.54
12722	12692	22.86	21.19	20.38
13000	12970	22.48	19.83	18.96

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1) @LO (dBm)		
		+4	+7	+10
2900.1	2870.1	3.40	2.80	2.39
3152.6	3122.6	3.01	2.62	2.32
3405.1	3375.1	2.29	2.09	1.96
3657.6	3627.6	1.90	1.70	1.58
3910.1	3880.1	1.66	1.47	1.36
4162.6	4132.6	1.56	1.38	1.28
4415.1	4385.1	1.65	1.43	1.33
4667.6	4637.6	1.56	1.35	1.27
4920.1	4890.1	1.43	1.21	1.06
5172.6	5142.6	2.63	2.31	2.02
5425.1	5395.1	2.11	1.92	1.74
5677.6	5647.6	1.97	1.89	1.82
5930.1	5900.1	2.07	1.93	1.83
6182.6	6152.6	2.13	1.88	1.74
6435.1	6405.1	2.30	1.98	1.75
6687.6	6657.6	2.68	2.31	2.02
6940.1	6910.1	2.82	2.44	2.15
7192.6	7162.6	3.36	3.05	2.72
7445.1	7415.1	3.05	2.76	2.45
7697.6	7667.6	2.83	2.50	2.22
7950.1	7920.1	2.33	2.03	1.84
8227.9	8197.9	1.93	1.66	1.49
8480.4	8450.4	1.77	1.51	1.32
8758.1	8728.1	1.53	1.28	1.15
9010.6	8980.6	1.37	1.26	1.26
9288.3	9258.3	1.46	1.46	1.50
9540.8	9510.8	1.64	1.65	1.71
9818.6	9788.6	1.94	1.98	2.12
10071	10041	2.48	2.63	2.78
10349	10319	2.75	2.72	2.71
10601	10571	3.22	3.18	3.16
10879	10849	3.00	2.92	2.91
11132	11102	3.42	3.18	3.01
11409	11379	3.33	3.13	2.97
11662	11632	3.52	3.24	3.02
11940	11910	3.31	3.04	2.87
12192	12162	2.83	2.46	2.28
12470	12440	2.72	2.37	2.16
12722	12692	2.25	1.98	1.74
13000	12970	2.09	1.55	1.52

LO (MHz)	LO VSWR (:1) @LO (dBm)		
	+4	+7	+10
2930.1	2.61	2.84	2.92
3182.6	3.30	3.58	3.91
3435.1	3.25	3.66	4.17
3687.6	2.88	3.41	4.05
3940.1	2.57	3.19	3.88
4192.6	2.42	3.11	3.86
4445.1	2.13	2.77	3.47
4697.6	1.97	2.57	3.23
4950.1	1.86	2.40	3.00
5202.6	1.83	2.33	2.94
5455.1	1.85	2.35	2.86
5707.6	1.98	2.40	3.00
5960.1	2.14	2.54	3.11
6212.6	2.40	2.73	3.23
6465.1	2.73	3.05	3.55
6717.6	3.06	3.27	3.71
6970.1	3.21	3.37	3.80
7222.6	3.39	3.39	3.76
7475.1	3.75	3.54	3.81
7727.6	4.03	3.50	3.63
7980.1	3.93	3.23	3.25
8257.8	3.98	3.09	2.92
8510.3	3.61	2.79	2.66
8788.1	3.45	2.56	2.30
9040.6	3.42	2.43	2.07
9318.3	3.46	2.30	1.81
9570.8	2.86	1.92	1.46
9848.6	2.32	1.61	1.23
10101	1.95	1.41	1.15
10379	1.51	1.12	1.30
10631	1.36	1.34	1.65
10909	1.71	1.73	2.06
11162	2.22	2.05	2.25
11439	2.79	2.32	2.33
11692	2.96	2.31	2.17
11970	2.82	2.15	1.92
12222	2.50	1.89	1.58
12500	1.85	1.42	1.13
12752	1.28	1.31	1.40
13030	2.16	1.89	1.68

IF (OUT) (MHz)	IF VSWR @LO=12000MHz (:1) @LO (dBm)		
	+4	+7	+10
10.1	1.08	1.17	1.37
90.1	1.08	1.17	1.37
170.1	1.09	1.21	1.41
250.1	1.14	1.21	1.40
330.1	1.19	1.18	1.35
410.1	1.25	1.15	1.28
490.1	1.29	1.10	1.22
570.1	1.35	1.11	1.18
650.1	1.47	1.17	1.11
730.1	1.59	1.27	1.11
810.1	1.74	1.39	1.20
890.1	1.87	1.51	1.31
970.1	2.10	1.72	1.48
1050.1	2.31	1.90	1.64
1130.1	2.49	2.06	1.78
1210.1	2.49	2.10	1.83
1290.1	2.61	2.22	1.95
1370.1	2.74	2.33	2.04
1450.1	2.84	2.42	2.13
1530.1	2.75	2.38	2.10
1610.1	2.66	2.36	2.11
1690.1	2.77	2.46	2.20
1770.1	2.82	2.49	2.22
1850.1	2.62	2.30	2.05
1930.1	2.28	2.03	1.83
2010.1	2.09	1.91	1.75
2090.1	2.11	1.95	1.80
2170.1	2.11	1.91	1.75
2250.1	1.91	1.72	1.58
2310.1	1.79	1.69	1.60
2390.1	1.77	1.71	1.64
2450.1	1.83	1.81	1.76
2530.1	1.83	1.85	1.83
2590.1	1.92	2.03	2.06
2670.1	2.14	2.29	2.33
2730.1	2.25	2.41	2.45
2810.1	2.40	2.62	2.69
2870.1	2.82	3.13	3.26
2950.1	3.19	3.48	3.60
3010.1	3.21	3.55	3.69

Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	7	48	26	---	---	---	---	---	---	---
1	-	19	+0	38	37	43	---	---	---	---	---	---
2	85	55	65	56	>70	59	64	---	---	---	---	---
3	>90	>70	>70	>70	59	>70	>70	>70	---	---	---	---
4	---	---	>70	>70	>70	>70	>70	>70	>70	---	---	---
5	---	---	---	>70	>70	>70	>70	>70	>70	>70	---	---
6	---	---	---	---	>70	>70	>70	>70	>70	>70	>70	---
7	---	---	---	---	---	>70	>70	>70	>70	>70	>70	>70
8	---	---	---	---	---	---	>70	>70	>70	>70	>70	>70
9	---	---	---	---	---	---	---	>70	>70	>70	>70	>70
10	---	---	---	---	---	---	---	---	>70	>70	>70	>70
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

Test conditions: RF IN: 7750 MHz; -14.00 dBm.
LO IN: 7780 MHz; +7.00 dBm
IF OUT: 30 MHz; -20.15 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	17	50	38	---	---	---	---	---	---	---
1	-	19	+0	41	37	44	---	---	---	---	---	---
2	65	46	56	45	65	54	60	---	---	---	---	---
3	69	52	64	59	38	58	62	70	---	---	---	---
4	---	---	>80	70	>80	60	>80	66	75	---	---	---
5	---	---	---	>80	>80	>80	58	79	75	>80	---	---
6	---	---	---	---	>80	>80	>80	73	>80	77	>80	---
7	---	---	---	---	---	>80	>80	>80	75	>80	>80	>80
8	---	---	---	---	---	---	>80	>80	>80	>80	>80	>80
9	---	---	---	---	---	---	---	>80	>80	>80	>80	>80
10	---	---	---	---	---	---	---	---	>80	>80	>80	>80
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 7750 MHz; -4.00 dBm.
LO IN: 7780 MHz; +7.00 dBm
IF OUT: 30 MHz; -10.34 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.