

Frequency Mixer

MCA1T-80H+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30.1MHz (dB)			RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)			RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+14dBm (dB)		
		@LO (dBm)					@LO (dBm)					@LO (dBm)		
		+14	+17	+20			+14	+17	+20			+14	+17	+20
2530.0	2560.1	7.69	6.94	6.48	2530.0	2560.1	22.51	21.57	20.36	2530.0	2560.1	1.71	1.59	1.68
2680.0	2710.1	7.00	6.47	6.13	2680.0	2710.1	21.86	20.76	19.82	2680.0	2710.1	1.79	1.55	1.52
2896.0	2926.1	6.46	5.99	5.76	2896.0	2926.1	23.06	24.07	24.81	2896.0	2926.1	1.66	1.35	1.25
3056.0	3086.1	6.30	5.81	5.51	3056.0	3086.1	23.10	24.79	26.34	3056.0	3086.1	1.54	1.19	1.08
3216.0	3246.1	5.96	5.46	5.18	3216.0	3246.1	21.21	22.88	23.64	3216.0	3246.1	1.75	1.36	1.15
3376.0	3406.1	5.71	5.31	5.11	3376.0	3406.1	20.76	23.42	25.10	3376.0	3406.1	1.92	1.19	0.96
3536.0	3566.1	5.62	5.26	5.12	3536.0	3566.1	21.55	25.59	27.50	3536.0	3566.1	1.85	0.86	0.61
3696.0	3726.1	5.45	5.11	5.02	3696.0	3726.1	21.65	24.31	24.85	3696.0	3726.1	1.74	0.73	0.54
3856.0	3886.1	5.90	5.47	5.38	3856.0	3886.1	20.42	24.19	26.38	3856.0	3886.1	1.66	0.64	0.27
4090.0	4120.1	8.26	7.03	6.62	4090.0	4120.1	26.26	32.24	31.61	4090.0	4120.1	1.42	1.08	0.75
4250.0	4280.1	8.91	7.67	7.06	4250.0	4280.1	24.63	26.03	26.45	4250.0	4280.1	0.86	0.78	0.80
4410.0	4440.1	8.46	7.49	6.84	4410.0	4440.1	23.95	23.36	25.04	4410.0	4440.1	0.98	0.50	0.45
4570.0	4600.1	8.26	7.07	6.54	4570.0	4600.1	23.06	22.39	24.71	4570.0	4600.1	1.12	0.61	0.34
4880.0	4910.1	8.14	7.16	6.46	4880.0	4910.1	20.95	21.01	22.28	4880.0	4910.1	0.78	0.52	0.55
5060.0	5090.1	7.85	6.61	6.12	5060.0	5090.1	20.23	20.56	21.10	5060.0	5090.1	0.91	0.47	0.49
5220.0	5250.1	7.55	6.47	5.89	5220.0	5250.1	18.98	20.65	21.22	5220.0	5250.1	1.06	0.46	0.46
5380.0	5410.1	7.12	6.26	5.79	5380.0	5410.1	18.74	20.82	21.94	5380.0	5410.1	1.27	0.61	0.51
5630.0	5660.1	7.58	6.24	5.88	5630.0	5660.1	18.78	23.41	24.45	5630.0	5660.1	0.98	0.60	0.36
5790.0	5820.1	7.71	6.32	5.94	5790.0	5820.1	22.55	28.53	27.76	5790.0	5820.1	0.77	0.52	0.28
5950.0	5980.1	9.22	7.30	6.55	5950.0	5980.1	24.04	24.50	23.83	5950.0	5980.1	0.16	0.39	0.45
6110.0	6140.1	8.54	7.06	6.46	6110.0	6140.1	20.47	22.51	22.62	6110.0	6140.1	0.51	0.42	0.49
6270.0	6300.1	8.10	6.62	6.18	6270.0	6300.1	19.63	22.25	22.55	6270.0	6300.1	0.63	0.54	0.62
6430.0	6460.1	8.35	6.39	6.01	6430.0	6460.1	18.73	21.43	21.81	6430.0	6460.1	0.41	0.53	0.57
6590.0	6620.1	8.59	6.53	6.02	6590.0	6620.1	20.16	21.84	21.45	6590.0	6620.1	0.35	0.44	0.51
6750.0	6780.1	9.00	6.48	6.00	6750.0	6780.1	19.33	21.74	21.88	6750.0	6780.1	0.00	0.42	0.48
6910.0	6940.1	8.92	6.29	5.89	6910.0	6940.1	18.84	21.56	22.51	6910.0	6940.1	0.05	0.59	0.63
7060.0	7090.1	8.52	6.31	5.86	7060.0	7090.1	19.49	21.54	22.84	7060.0	7090.1	0.08	0.45	0.58
7220.0	7250.1	10.49	6.43	5.94	7220.0	7250.1	14.92	21.20	23.31	7220.0	7250.1	-1.30	0.55	0.67
7380.0	7410.1	9.29	6.07	5.74	7380.0	7410.1	18.08	21.96	22.53	7380.0	7410.1	-0.45	0.67	0.80
7540.0	7570.1	10.75	6.46	6.00	7540.0	7570.1	15.44	22.29	23.04	7540.0	7570.1	-1.51	0.52	0.74
7700.0	7730.1	11.86	6.48	6.08	7700.0	7730.1	12.16	19.77	20.01	7700.0	7730.1	-2.39	0.76	0.99
7860.0	7890.1	10.18	6.33	6.21	7860.0	7890.1	15.92	19.00	18.75	7860.0	7890.1	-0.87	0.93	0.90
8040.0	8070.1	11.02	6.37	6.15	8040.0	8070.1	13.04	19.94	23.28	8040.0	8070.1	-1.49	0.90	0.70
8200.0	8230.1	9.83	6.16	5.95	8200.0	8230.1	17.24	24.14	26.44	8200.0	8230.1	-0.50	0.89	0.61
8360.0	8390.1	8.75	5.99	5.86	8360.0	8390.1	20.35	24.97	25.99	8360.0	8390.1	0.16	0.71	0.40
8520.0	8550.1	8.94	6.21	6.05	8520.0	8550.1	16.35	22.64	30.28	8520.0	8550.1	0.56	1.06	0.45
8680.0	8710.1	9.18	6.77	6.30	8680.0	8710.1	15.49	27.80	25.49	8680.0	8710.1	0.67	1.10	0.98
8840.0	8870.1	10.36	7.77	6.84	8840.0	8870.1	18.48	26.57	24.84	8840.0	8870.1	0.19	0.94	1.24
9000.0	9030.1	9.70	8.68	7.73	9000.0	9030.1	24.65	24.75	23.96	9000.0	9030.1	1.19	0.84	1.39

Frequency Mixer

MCA1T-80H+

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=5400MHz (dB)
		@LO (dBm)
		+17
2220.0	3180.0	9.76
2158.0	3242.0	9.97
2094.0	3306.0	9.80
2030.0	3370.0	9.83
1881.0	3519.0	10.80
1785.0	3615.0	10.65
1689.0	3711.0	10.35
1596.0	3804.0	9.88
1500.0	3900.0	9.73
1384.0	4016.0	9.87
1288.0	4112.0	9.10
1115.0	4285.0	8.59
1019.0	4381.0	7.98
923.0	4477.0	7.56
830.0	4570.0	7.18
734.0	4666.0	6.90
638.0	4762.0	6.66
442.0	4958.0	5.94
269.2	5130.8	5.95
96.4	5303.6	6.21
10.0	5410.0	6.85
72.0	5472.0	6.27
136.0	5536.0	6.27
200.0	5600.0	6.24
264.0	5664.0	6.10
416.0	5816.0	5.94
480.0	5880.0	6.06
542.0	5942.0	6.31
710.0	6110.0	6.85
774.0	6174.0	7.17
892.0	6292.0	8.13
1020.0	6420.0	8.51
1148.0	6548.0	9.19
1276.0	6676.0	9.88
1400.0	6800.0	10.18
1528.0	6928.0	11.94
1656.0	7056.0	11.39
1784.0	7184.0	12.29
1912.0	7312.0	10.60
2040.0	7440.0	11.24

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=2800MHz (dB)
		@LO (dBm)
		+17
10.0	2810.0	6.59
40.0	2840.0	6.11
72.0	2872.0	6.16
104.0	2904.0	6.16
136.0	2936.0	6.09
168.0	2968.0	6.19
200.0	3000.0	6.15
232.0	3032.0	6.12
264.0	3064.0	6.13
296.0	3096.0	6.15
328.0	3128.0	6.17
360.0	3160.0	6.25
392.0	3192.0	6.20
424.0	3224.0	6.16
454.0	3254.0	6.19
486.0	3286.0	6.16
518.0	3318.0	6.21
550.0	3350.0	6.25
695.0	3495.0	6.30
775.0	3575.0	6.11
855.0	3655.0	5.96
935.0	3735.0	6.13
1015.0	3815.0	6.41
1095.0	3895.0	6.63
1175.0	3975.0	6.84
1271.0	4071.0	7.43
1380.0	4180.0	7.89
1455.0	4255.0	8.08
1535.0	4335.0	8.79
1615.0	4415.0	9.01
1695.0	4495.0	9.30
1775.0	4575.0	9.96
1855.0	4655.0	9.26
1935.0	4735.0	9.72
2070.0	4870.0	8.34
2150.0	4950.0	8.76
2230.0	5030.0	8.43
2310.0	5110.0	8.68
2390.0	5190.0	9.13
2470.0	5270.0	9.70

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=8000MHz (dB)
		@LO (dBm)
		+17
2220.0	5780.0	9.01
2175.0	5825.0	9.09
2127.0	5873.0	9.42
2079.0	5921.0	9.78
1952.0	6048.0	10.93
1872.0	6128.0	11.35
1792.0	6208.0	11.84
1712.0	6288.0	11.10
1632.0	6368.0	11.71
1552.0	6448.0	9.92
1472.0	6528.0	10.55
1392.0	6608.0	9.07
1312.0	6688.0	9.68
1205.0	6795.0	8.90
1130.0	6870.0	7.99
1050.0	6950.0	8.09
970.0	7030.0	7.26
890.0	7110.0	7.15
810.0	7190.0	7.04
730.0	7270.0	6.94
650.0	7350.0	6.88
584.0	7416.0	6.68
552.0	7448.0	6.74
520.0	7480.0	6.54
488.0	7512.0	6.56
456.0	7544.0	6.65
424.0	7576.0	6.37
394.0	7606.0	6.41
362.0	7638.0	6.46
330.0	7670.0	6.25
298.0	7702.0	6.32
266.0	7734.0	6.35
234.0	7766.0	6.15
202.0	7798.0	6.25
170.0	7830.0	6.30
138.0	7862.0	6.19
106.0	7894.0	6.29
74.0	7926.0	6.30
42.0	7958.0	6.30
10.0	7990.0	6.97

Frequency Mixer

MCA1T-80H+

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)			RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)					@LO (dBm)		
	+14	+17	+20	+14	+17	+20			+14	+17	+20
2560.0	43.13	41.48	41.65	8.24	8.39	8.02	2530.0	2560.0	45.87	37.16	34.62
2710.0	40.63	36.43	34.33	11.26	10.75	9.72	2680.0	2710.0	29.45	26.88	25.27
2926.0	46.13	40.54	37.22	14.12	12.64	11.29	2896.0	2926.0	26.09	23.60	21.88
3086.0	48.04	41.19	37.76	14.20	12.99	11.99	3056.0	3086.0	23.56	21.95	20.63
3246.0	39.51	50.88	46.08	14.03	13.18	12.35	3216.0	3246.0	20.50	19.51	18.68
3406.0	34.53	39.75	39.53	13.46	13.26	12.83	3376.0	3406.0	18.28	17.34	16.59
3566.0	31.76	33.61	33.97	12.31	12.84	13.09	3536.0	3566.0	16.21	15.21	14.57
3726.0	28.34	29.02	29.75	11.56	12.48	13.08	3696.0	3726.0	14.35	13.68	13.16
3886.0	26.64	29.29	31.46	10.58	11.95	13.23	3856.0	3886.0	12.72	12.36	12.07
4120.0	22.50	26.11	30.94	10.37	12.03	13.67	4090.0	4120.0	10.48	10.88	10.99
4280.0	21.49	24.90	30.27	12.21	14.08	15.75	4250.0	4280.0	8.26	8.85	9.11
4440.0	22.86	25.76	35.70	15.05	16.99	18.39	4410.0	4440.0	8.56	9.19	9.44
4600.0	25.28	27.80	33.79	18.70	20.11	21.12	4570.0	4600.0	10.03	10.85	11.30
4910.0	32.82	38.14	44.13	26.00	25.53	24.62	4880.0	4910.0	11.84	12.27	12.59
5090.0	35.10	36.06	37.26	30.02	27.56	25.61	5060.0	5090.0	13.39	13.98	14.50
5250.0	44.25	44.43	44.08	32.65	29.17	27.01	5220.0	5250.0	15.08	15.62	16.16
5410.0	42.34	40.63	44.26	33.70	30.05	27.91	5380.0	5410.0	16.56	17.16	17.67
5660.0	46.08	49.86	47.70	35.12	32.36	30.32	5630.0	5660.0	19.92	20.48	20.85
5820.0	44.12	53.10	58.18	35.47	33.78	31.96	5790.0	5820.0	21.56	21.56	21.54
5980.0	36.41	38.54	39.45	36.79	35.43	33.94	5950.0	5980.0	24.84	24.80	24.58
6140.0	34.01	36.14	38.15	38.06	36.90	35.43	6110.0	6140.0	28.13	27.99	27.66
6300.0	33.40	34.25	34.36	40.23	39.03	37.27	6270.0	6300.0	30.38	29.21	28.57
6460.0	35.91	42.03	41.58	43.82	42.31	39.01	6430.0	6460.0	30.99	28.93	27.89
6620.0	34.28	36.62	37.10	47.32	45.50	41.16	6590.0	6620.0	29.25	27.92	27.15
6780.0	33.62	34.78	34.79	56.10	49.11	41.96	6750.0	6780.0	26.65	25.81	25.20
6940.0	33.64	34.05	33.53	57.36	47.58	40.78	6910.0	6940.0	24.69	24.57	24.26
7090.0	34.71	33.85	32.16	48.81	43.62	37.56	7060.0	7090.0	23.15	23.37	23.34
7250.0	38.63	35.53	32.68	46.08	42.70	35.27	7220.0	7250.0	21.45	22.44	22.73
7410.0	36.38	32.61	30.09	45.59	39.15	33.04	7380.0	7410.0	19.96	21.41	22.00
7570.0	37.05	32.50	29.89	41.52	32.76	27.22	7540.0	7570.0	19.60	21.87	23.19
7730.0	39.03	34.16	30.35	33.28	27.04	23.45	7700.0	7730.0	17.72	20.21	21.48
7890.0	40.20	33.71	30.02	23.33	20.46	19.27	7860.0	7890.0	17.67	20.72	22.95
8070.0	30.48	30.27	26.93	16.10	17.82	19.89	8040.0	8070.0	18.65	23.75	26.38
8230.0	25.51	28.45	25.36	17.07	19.30	21.46	8200.0	8230.0	26.68	24.14	25.47
8390.0	23.07	25.04	23.69	19.57	21.47	23.00	8360.0	8390.0	23.19	22.82	23.95
8550.0	22.49	24.42	25.40	20.67	22.32	23.77	8520.0	8550.0	21.68	22.36	23.66
8710.0	19.85	20.71	21.18	21.40	23.20	24.61	8680.0	8710.0	20.51	21.32	22.24
8870.0	18.96	19.15	19.52	21.71	23.43	25.02	8840.0	8870.0	21.34	21.96	22.58
9030.0	17.30	17.64	17.69	21.85	23.71	25.46	9000.0	9030.0	22.52	23.04	23.45

Frequency Mixer

MCA1T-80H+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)			IF (OUT) (MHz)	IF VSWR @LO=8000MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+14	+17	+20		+14	+17	+20		+14	+17	+20
2530.0	2560.0	3.73	3.12	2.77	2560.0	2.43	2.39	2.69	11.0	2.58	1.13	1.19
2680.0	2710.0	3.19	2.67	2.35	2710.0	2.18	2.42	2.90	176.0	2.49	1.09	1.26
2896.0	2926.0	3.01	2.53	2.17	2926.0	1.88	2.34	2.98	208.0	2.48	1.14	1.31
3056.0	3086.0	2.60	2.25	1.99	3086.0	1.60	2.14	2.78	240.0	2.59	1.19	1.24
3216.0	3246.0	2.34	1.97	1.75	3246.0	1.47	2.06	2.77	272.0	2.60	1.17	1.24
3376.0	3406.0	1.99	1.66	1.48	3406.0	1.34	1.95	2.67	304.0	2.70	1.24	1.23
3536.0	3566.0	1.71	1.42	1.26	3566.0	1.37	1.84	2.47	336.0	2.77	1.28	1.23
3696.0	3726.0	1.80	1.50	1.31	3726.0	1.58	1.92	2.58	368.0	2.81	1.28	1.21
3856.0	3886.0	1.60	1.37	1.24	3886.0	1.86	1.93	2.42	400.0	2.95	1.36	1.21
4090.0	4120.0	2.34	2.10	1.95	4120.0	2.23	2.18	2.61	536.0	3.25	1.56	1.32
4250.0	4280.0	1.94	1.84	1.78	4280.0	2.50	2.29	2.57	568.0	3.43	1.59	1.30
4410.0	4440.0	1.97	1.77	1.68	4440.0	2.77	2.44	2.64	600.0	3.54	1.69	1.33
4570.0	4600.0	2.03	1.72	1.55	4600.0	3.02	2.53	2.65	632.0	3.63	1.76	1.43
4880.0	4910.0	2.61	2.27	2.09	4910.0	3.39	2.56	2.58	694.0	3.61	1.82	1.43
5060.0	5090.0	2.60	2.17	1.90	5090.0	3.72	2.68	2.49	726.0	4.17	2.02	1.57
5220.0	5250.0	2.57	2.18	1.88	5250.0	3.75	2.67	2.46	758.0	3.90	1.89	1.47
5380.0	5410.0	2.41	2.02	1.75	5410.0	3.87	2.62	2.45	790.0	4.13	2.07	1.58
5630.0	5660.0	2.58	1.99	1.68	5660.0	4.30	2.64	2.24	822.0	4.45	2.19	1.68
5790.0	5820.0	2.61	2.05	1.80	5820.0	4.45	2.71	2.27	854.0	3.80	2.01	1.57
5950.0	5980.0	3.27	2.65	2.30	5980.0	5.03	2.99	2.38	886.0	4.66	2.32	1.74
6110.0	6140.0	3.40	2.83	2.50	6140.0	5.21	3.01	2.43	918.0	4.30	2.27	1.75
6270.0	6300.0	3.38	2.71	2.40	6300.0	5.17	2.89	2.29	950.0	3.99	2.21	1.71
6430.0	6460.0	3.31	2.51	2.17	6460.0	5.71	3.03	2.19	982.0	4.80	2.46	1.84
6590.0	6620.0	3.42	2.64	2.26	6620.0	5.76	3.24	2.43	1014.0	3.76	2.25	1.79
6750.0	6780.0	3.49	2.61	2.26	6780.0	6.24	3.39	2.48	1046.0	4.57	2.47	1.88
6910.0	6940.0	3.38	2.44	2.14	6940.0	6.26	3.41	2.46	1078.0	4.37	2.43	1.85
7060.0	7090.0	3.16	2.37	2.05	7090.0	6.26	3.39	2.40	1108.0	3.79	2.46	1.96
7220.0	7250.0	3.41	2.25	1.91	7250.0	6.88	3.67	2.39	1140.0	4.55	2.54	1.93
7380.0	7410.0	3.06	2.08	1.78	7410.0	6.58	3.57	2.34	1172.0	3.55	2.27	1.82
7540.0	7570.0	3.12	2.06	1.74	7570.0	6.68	3.56	2.25	1204.0	4.28	2.72	2.15
7700.0	7730.0	3.37	2.04	1.71	7730.0	6.95	3.65	2.20	1250.0	4.37	2.67	2.09
7860.0	7890.0	2.95	1.94	1.58	7890.0	6.11	3.40	2.14	1381.0	2.87	2.15	1.86
8040.0	8070.0	2.86	1.74	1.44	8070.0	5.64	3.64	2.27	1541.0	2.42	1.89	1.71
8200.0	8230.0	2.67	1.57	1.33	8230.0	5.70	3.59	2.26	1701.0	2.06	1.72	1.63
8360.0	8390.0	2.31	1.43	1.21	8390.0	5.43	3.34	2.09	1861.0	1.78	1.52	1.48
8520.0	8550.0	2.04	1.37	1.08	8550.0	5.12	3.10	1.94	2021.0	1.51	1.46	1.53
8680.0	8710.0	2.22	1.66	1.37	8710.0	4.25	2.53	1.65	2181.0	1.32	1.57	1.72
8840.0	8870.0	2.47	1.94	1.58	8870.0	3.36	2.07	1.42	2341.0	1.29	1.69	1.90
9000.0	9030.0	2.48	2.24	1.86	9030.0	2.35	1.57	1.24	2501.0	1.39	1.99	2.31

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	7	27	14	45	---	---	---	---	---	---
1	-	12	+0	35	31	50	54	---	---	---	---	---
2	65	64	76	50	60	60	54	58	---	---	---	---
3	>90	76	65	75	62	73	69	76	79	---	---	---
4	>90	>83	>83	>83	>83	>83	>83	>83	>83	>83	---	---
5	---	---	>83	>83	>83	>83	>83	>83	>83	>83	>83	---
6	---	---	---	82	>83	>83	>83	>83	>83	>83	>83	>83
7	---	---	---	---	>83	>83	>83	>83	>83	>83	>83	>83
8	---	---	---	---	---	>83	>83	>83	>83	>83	>83	>83
9	---	---	---	---	---	---	>83	>83	>83	>83	>83	>83
10	---	---	---	---	---	---	---	>83	>83	>83	>83	>83
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

Test conditions: RF IN: 5400 MHz; -1.00 dBm.
 LO IN: 5430 MHz; +17.00 dBm
 IF OUT: 30 MHz; -7.4 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	16	39	26	47	---	---	---	---	---	---
1	-	12	+0	37	31	52	62	---	---	---	---	---
2	46	52	64	44	53	51	48	55	---	---	---	---
3	63	55	45	57	41	56	55	61	70	---	---	---
4	76	65	72	66	70	58	69	64	67	64	---	---
5	---	---	88	82	73	78	60	76	65	73	81	---
6	---	---	---	>92	87	83	81	76	84	76	86	79
7	---	---	---	---	>92	>92	84	86	77	90	78	>92
8	---	---	---	---	---	>92	>92	>92	>92	81	>92	85
9	---	---	---	---	---	---	>92	>92	>92	>92	88	>92
10	---	---	---	---	---	---	---	>92	>92	>92	>92	>92
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 5400 MHz; 9.00 dBm.
 LO IN: 5430 MHz; +17.00 dBm
 IF OUT: 30 MHz; 2.37 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.