

Frequency Mixer

MCA1T-ED13539/1

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB)			RF (IN) (MHz)	LO (MHz)	IP-3 INPUT (dBm)			RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+9dBm (dB)		
		@LO (dBm)					@LO (dBm)					@LO (dBm)		
		+10	+13	+16			+10	+13	+16			+10	+13	+16
800.0	830.0	10.19	6.91	6.04	800.0	830.0	5.27	19.13	18.82	800.0	830.0	2.60	3.31	2.89
825.0	855.0	9.55	6.70	6.07	825.0	855.0	6.11	20.53	19.25	825.0	855.0	2.70	3.44	2.96
850.0	880.0	8.49	6.45	5.88	850.0	880.0	9.58	20.97	19.40	850.0	880.0	3.10	3.48	3.03
875.0	905.0	7.88	6.36	5.95	875.0	905.0	14.90	18.23	20.22	875.0	905.0	3.32	3.40	3.04
900.0	930.0	7.71	6.47	5.97	900.0	930.0	16.20	17.51	17.85	900.0	930.0	3.30	3.16	2.87
925.0	955.0	7.30	6.35	5.97	925.0	955.0	15.79	16.69	18.22	925.0	955.0	3.45	3.19	2.93
950.0	980.0	7.14	6.21	5.78	950.0	980.0	15.89	17.01	16.80	950.0	980.0	3.34	3.18	2.92
1000.0	1030.0	7.10	6.27	5.87	1000.0	1030.0	14.05	15.30	16.42	1000.0	1030.0	2.91	2.86	2.67
1100.0	1130.0	6.69	6.33	6.14	1100.0	1130.0	15.93	14.47	14.94	1100.0	1130.0	2.41	2.24	2.14
1200.0	1230.0	6.20	5.96	5.89	1200.0	1230.0	18.57	15.86	15.99	1200.0	1230.0	2.12	1.86	1.74
1300.0	1330.0	5.99	5.80	5.68	1300.0	1330.0	19.98	19.68	17.85	1300.0	1330.0	1.68	1.42	1.29
1400.0	1430.0	5.95	5.70	5.63	1400.0	1430.0	18.61	17.50	22.90	1400.0	1430.0	1.45	1.23	1.04
1500.0	1530.0	6.27	5.89	5.69	1500.0	1530.0	22.54	18.48	16.68	1500.0	1530.0	1.27	1.18	1.07
1600.0	1630.0	6.44	6.12	5.93	1600.0	1630.0	21.16	17.77	18.60	1600.0	1630.0	1.20	0.98	0.80
1700.0	1730.0	6.31	6.04	5.89	1700.0	1730.0	21.94	25.27	25.52	1700.0	1730.0	1.25	0.98	0.86
1800.0	1830.0	6.17	5.98	5.88	1800.0	1830.0	18.72	20.73	22.33	1800.0	1830.0	1.19	0.85	0.70
1900.0	1930.0	6.21	6.00	5.90	1900.0	1930.0	18.62	19.60	21.26	1900.0	1930.0	1.22	0.91	0.76
2000.0	2030.0	6.51	6.16	5.98	2000.0	2030.0	18.71	19.65	21.18	2000.0	2030.0	1.33	1.03	0.89
2100.0	2130.0	6.87	6.39	6.15	2100.0	2130.0	20.10	19.51	20.93	2100.0	2130.0	1.47	1.21	1.06
2200.0	2230.0	7.26	6.62	6.25	2200.0	2230.0	18.12	19.13	19.36	2200.0	2230.0	1.43	1.26	1.17
2300.0	2330.0	7.21	6.60	6.23	2300.0	2330.0	17.42	16.53	16.63	2300.0	2330.0	1.61	1.34	1.18
2400.0	2430.0	6.92	6.19	5.91	2400.0	2430.0	17.55	17.87	20.76	2400.0	2430.0	1.36	1.08	0.92
2500.0	2530.0	7.31	6.52	6.14	2500.0	2530.0	18.97	17.35	17.57	2500.0	2530.0	1.51	1.25	1.16
2600.0	2630.0	7.63	6.71	6.24	2600.0	2630.0	21.00	21.19	18.79	2600.0	2630.0	1.33	1.14	1.06
2700.0	2730.0	7.77	6.85	6.25	2700.0	2730.0	14.71	17.97	18.41	2700.0	2730.0	1.33	1.00	1.10
2800.0	2830.0	7.56	6.69	6.30	2800.0	2830.0	13.20	15.08	16.07	2800.0	2830.0	1.64	1.11	1.03
2900.0	2930.0	7.34	6.40	6.02	2900.0	2930.0	11.79	12.88	14.70	2900.0	2930.0	1.82	1.37	1.26
3000.0	3030.0	7.14	5.70	5.49	3000.0	3030.0	9.17	18.53	21.79	3000.0	3030.0	1.57	1.26	0.89
3100.0	3130.0	7.41	5.54	5.34	3100.0	3130.0	11.78	16.65	19.42	3100.0	3130.0	1.18	1.16	0.85
3200.0	3230.0	7.17	5.43	5.21	3200.0	3230.0	14.96	14.88	18.69	3200.0	3230.0	1.37	1.12	0.74
3300.0	3330.0	6.88	5.37	5.21	3300.0	3330.0	20.92	15.17	19.49	3300.0	3330.0	1.39	1.04	0.56
3400.0	3430.0	6.60	5.44	5.37	3400.0	3430.0	14.35	17.76	19.56	3400.0	3430.0	1.63	1.33	0.74
3500.0	3530.0	7.16	6.03	5.70	3500.0	3530.0	12.53	17.64	23.92	3500.0	3530.0	1.69	1.60	1.31
3600.0	3630.0	6.95	6.02	5.79	3600.0	3630.0	14.75	25.79	23.41	3600.0	3630.0	1.48	1.27	1.03
3700.0	3730.0	7.47	6.28	5.90	3700.0	3730.0	17.46	23.66	23.47	3700.0	3730.0	1.07	1.25	1.10
3800.0	3830.0	7.68	6.58	6.20	3800.0	3830.0	17.00	18.91	21.15	3800.0	3830.0	0.98	1.07	1.02
4000.0	4030.0	8.64	7.39	6.79	4000.0	4030.0	20.33	20.18	20.29	4000.0	4030.0	0.96	0.85	0.89
4100.0	4130.0	10.14	8.05	7.38	4100.0	4130.0	16.65	20.32	18.91	4100.0	4130.0	0.28	0.61	0.72
4200.0	4230.0	13.02	8.11	7.77	4200.0	4230.0	7.44	16.98	17.65	4200.0	4230.0	-1.83	0.50	0.58

Frequency Mixer

MCA1T-ED13539/1

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=2600MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1000MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=4200.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+13			+13			+13
1830.0	770.0	12.88	10.0	1010.0	6.49	1810.1	2390.0	13.27
1730.0	870.0	10.49	50.0	1050.0	6.04	1770.1	2430.0	11.87
1650.0	950.0	9.69	110.0	1110.0	6.06	1710.1	2490.0	10.49
1550.0	1050.0	9.14	150.0	1150.0	6.09	1670.1	2530.0	9.94
1450.0	1150.0	8.23	210.0	1210.0	5.85	1630.1	2570.0	9.67
1350.0	1250.0	6.70	250.0	1250.0	5.69	1570.1	2630.0	9.27
1270.0	1330.0	5.87	310.0	1310.0	5.53	1530.1	2670.0	9.01
1170.0	1430.0	6.28	350.0	1350.0	5.46	1490.1	2710.0	8.96
1070.0	1530.0	7.15	410.0	1410.0	5.44	1430.1	2770.0	9.09
990.0	1610.0	7.73	450.0	1450.0	5.31	1390.1	2810.0	9.20
890.0	1710.0	8.23	510.0	1510.0	5.53	1350.1	2850.0	9.38
790.0	1810.0	7.17	550.0	1550.0	5.78	1290.1	2910.0	9.44
690.0	1910.0	6.86	610.0	1610.0	6.10	1250.1	2950.0	9.27
610.0	1990.0	7.03	650.0	1650.0	5.63	1210.1	2990.0	8.83
510.0	2090.0	6.83	690.0	1690.0	5.62	1150.1	3050.0	8.63
410.0	2190.0	6.41	750.0	1750.0	5.69	1110.1	3090.0	8.69
330.0	2270.0	5.92	790.0	1790.0	5.46	1070.1	3130.0	8.80
230.0	2370.0	6.15	850.0	1850.0	5.35	1010.1	3190.0	9.04
130.0	2470.0	6.55	890.0	1890.0	5.33	970.1	3230.0	9.07
30.0	2570.0	6.84	950.0	1950.0	5.47	930.1	3270.0	9.31
10.0	2610.0	7.22	990.0	1990.0	5.56	870.1	3330.0	8.86
110.0	2710.0	6.94	1050.0	2050.0	5.91	830.1	3370.0	8.98
190.0	2790.0	7.19	1090.0	2090.0	5.78	790.1	3410.0	8.82
290.0	2890.0	7.29	1150.0	2150.0	6.10	730.1	3470.0	8.79
390.0	2990.0	6.65	1190.0	2190.0	6.34	690.1	3510.0	8.69
470.0	3070.0	6.45	1250.0	2250.0	6.31	650.1	3550.0	8.73
570.0	3170.0	6.65	1290.0	2290.0	6.29	590.1	3610.0	8.56
670.0	3270.0	6.77	1330.0	2330.0	6.36	550.1	3650.0	8.59
750.0	3350.0	6.68	1390.0	2390.0	6.20	510.1	3690.0	8.39
850.0	3450.0	6.48	1430.0	2430.0	6.21	450.1	3750.0	8.30
950.0	3550.0	6.39	1490.0	2490.0	6.15	410.1	3790.0	8.36
1030.0	3630.0	6.26	1530.0	2530.0	6.29	370.1	3830.0	8.41
1130.0	3730.0	6.23	1590.0	2590.0	6.34	310.1	3890.0	8.12
1230.0	3830.0	6.30	1630.0	2630.0	6.61	270.1	3930.0	8.14
1310.0	3910.0	6.35	1690.0	2690.0	7.09	230.1	3970.0	8.13
1410.0	4010.0	6.56	1730.0	2730.0	7.58	170.1	4030.0	8.26
1510.0	4110.0	7.05	1790.0	2790.0	8.63	130.1	4070.0	8.37
1590.0	4190.0	7.90	1830.0	2830.0	9.67	90.1	4110.0	8.34
1690.0	4290.0	9.61	1890.0	2890.0	11.87	30.1	4170.0	8.41
1790.0	4390.0	11.95	1910.0	2910.0	12.49	10.1	4190.0	8.67

Frequency Mixer

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Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)		
	+10	+13	+16	+10	+13	+16
830.0	41.63	36.56	36.96	18.76	19.88	22.13
855.0	38.27	35.47	36.10	18.29	19.96	22.46
880.0	35.58	35.03	36.11	17.91	20.03	22.34
905.0	34.12	34.46	36.02	17.68	20.19	22.67
930.0	33.84	34.59	35.84	17.68	20.26	22.67
955.0	33.21	34.43	36.16	17.80	20.38	22.69
980.0	33.55	34.61	35.85	17.97	20.41	22.70
1030.0	35.06	35.48	36.77	18.97	21.77	24.05
1130.0	42.65	41.95	43.08	20.44	23.58	26.17
1230.0	48.86	46.13	43.95	22.52	25.51	27.40
1330.0	45.14	41.33	39.85	24.19	25.39	25.20
1430.0	40.52	38.10	36.49	24.10	23.69	22.70
1530.0	38.90	37.48	35.65	23.75	22.77	21.48
1630.0	35.54	34.80	34.30	25.26	23.23	21.56
1730.0	37.01	36.34	35.90	22.26	21.15	20.36
1830.0	38.82	37.94	37.34	21.77	20.92	20.28
1930.0	38.89	38.42	38.49	21.20	21.13	20.91
2030.0	38.48	38.25	38.64	20.54	21.50	22.15
2130.0	38.27	37.54	37.48	20.11	22.00	23.78
2230.0	38.50	36.67	36.07	20.14	21.54	22.42
2330.0	39.43	36.68	35.85	20.98	20.53	19.73
2430.0	39.24	36.52	35.97	21.94	19.83	18.37
2530.0	40.37	37.68	36.03	22.96	20.18	18.35
2630.0	40.14	40.07	37.76	23.49	20.33	18.70
2730.0	41.80	40.97	38.04	24.84	21.61	20.01
2830.0	42.07	42.45	40.66	25.38	22.38	20.82
2930.0	42.44	45.02	44.28	26.13	23.37	21.92
3030.0	41.17	40.62	40.56	27.92	26.19	25.02
3130.0	39.26	37.55	36.96	28.68	27.71	27.25
3230.0	37.46	36.01	35.01	28.63	28.29	28.72
3330.0	35.13	33.80	32.87	28.26	28.47	29.57
3430.0	33.27	32.11	30.93	27.54	28.53	30.01
3530.0	32.04	30.92	29.55	26.63	27.74	28.63
3630.0	29.29	29.16	28.59	24.91	26.20	28.01
3730.0	27.79	27.46	26.97	22.13	23.95	26.50
3830.0	27.39	27.11	26.43	21.64	23.87	26.84
4030.0	28.14	28.56	28.25	17.55	19.31	21.41
4130.0	28.18	28.96	28.83	15.80	17.25	19.31
4230.0	28.31	29.51	29.94	14.89	16.02	17.74

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+10	+13	+16
800.0	830.0	16.82	12.45	11.67
825.0	855.0	14.91	11.99	11.84
850.0	880.0	13.22	11.67	11.30
875.0	905.0	12.71	11.64	11.60
900.0	930.0	12.69	11.85	11.57
925.0	955.0	12.83	12.13	11.78
950.0	980.0	13.18	12.45	12.08
1000.0	1030.0	14.74	13.76	13.20
1100.0	1130.0	19.42	18.51	17.39
1200.0	1230.0	24.11	23.67	22.47
1300.0	1330.0	27.51	26.41	25.28
1400.0	1430.0	25.96	24.42	22.91
1500.0	1530.0	24.22	22.82	21.56
1600.0	1630.0	21.44	20.04	19.17
1700.0	1730.0	21.23	20.52	20.02
1800.0	1830.0	19.83	19.24	19.01
1900.0	1930.0	20.38	20.02	19.78
2000.0	2030.0	20.78	20.37	20.10
2100.0	2130.0	21.89	21.56	21.32
2200.0	2230.0	24.93	24.79	24.68
2300.0	2330.0	33.36	32.72	32.27
2400.0	2430.0	24.67	24.22	24.02
2500.0	2530.0	20.35	19.74	19.38
2600.0	2630.0	17.77	17.16	16.67
2700.0	2730.0	16.63	16.00	15.47
2800.0	2830.0	16.33	15.71	15.28
2900.0	2930.0	16.33	15.81	15.12
3000.0	3030.0	16.53	15.75	15.34
3100.0	3130.0	16.76	16.72	16.51
3200.0	3230.0	17.96	17.62	17.38
3300.0	3330.0	19.49	18.97	18.45
3400.0	3430.0	21.37	20.27	19.51
3500.0	3530.0	32.19	30.32	31.28
3600.0	3630.0	21.13	19.56	19.16
3700.0	3730.0	31.98	27.91	25.99
3800.0	3830.0	29.40	27.90	26.26
4000.0	4030.0	23.26	24.48	25.55
4100.0	4130.0	21.55	22.68	23.41
4200.0	4230.0	20.13	22.31	23.12

Frequency Mixer

MCA1T-ED13539/1

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)			IF (OUT) (MHz)	IF VSWR @LO=4200MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+10	+13	+16		+10	+13	+16		+10	+13	+16
800.0	830.0	2.69	1.87	1.66	830.0	18.99	9.60	8.47	10.0	2.61	1.28	1.03
825.0	855.0	2.51	1.76	1.61	855.0	14.42	7.94	7.93	30.0	2.72	1.29	1.04
850.0	880.0	2.30	1.76	1.60	880.0	9.82	6.75	7.18	40.0	2.72	1.30	1.06
875.0	905.0	2.26	1.85	1.74	905.0	7.24	6.01	6.81	60.0	2.76	1.32	1.10
900.0	930.0	2.26	1.92	1.77	930.0	5.79	5.43	6.37	80.0	2.92	1.34	1.14
925.0	955.0	2.35	2.06	1.94	955.0	4.76	4.98	5.99	90.0	2.74	1.32	1.12
950.0	980.0	2.50	2.20	2.05	980.0	4.11	4.59	5.69	150.0	2.87	1.42	1.23
1000.0	1030.0	2.80	2.51	2.36	1030.0	3.24	3.96	5.09	250.0	3.13	1.58	1.39
1100.0	1130.0	3.21	3.08	3.00	1130.0	2.44	3.22	4.27	300.0	3.28	1.66	1.46
1200.0	1230.0	3.15	3.02	2.98	1230.0	1.97	2.73	3.68	400.0	3.65	1.85	1.60
1300.0	1330.0	3.10	2.94	2.82	1330.0	1.72	2.44	3.32	500.0	4.04	2.03	1.74
1400.0	1430.0	3.06	2.84	2.64	1430.0	1.66	2.37	3.19	550.0	4.33	2.17	1.86
1500.0	1530.0	3.12	2.87	2.66	1530.0	1.69	2.39	3.21	650.0	4.84	2.33	1.96
1600.0	1630.0	2.97	2.68	2.47	1630.0	1.73	2.43	3.24	750.0	5.19	2.38	1.97
1700.0	1730.0	2.86	2.66	2.52	1730.0	1.77	2.50	3.37	800.0	5.29	2.39	1.94
1800.0	1830.0	2.54	2.37	2.26	1830.0	1.79	2.54	3.44	900.0	5.26	2.41	1.91
1900.0	1930.0	2.62	2.42	2.27	1930.0	2.16	2.81	3.68	1000.0	5.04	2.36	1.86
2000.0	2030.0	2.95	2.68	2.49	2030.0	2.58	3.12	3.94	1050.0	4.82	2.26	1.78
2100.0	2130.0	3.30	2.98	2.77	2130.0	2.99	3.40	4.14	1150.0	4.29	2.03	1.62
2200.0	2230.0	3.62	3.27	3.00	2230.0	3.48	3.70	4.31	1250.0	3.73	1.97	1.73
2300.0	2330.0	3.65	3.25	2.97	2330.0	3.99	4.03	4.51	1300.0	3.53	2.03	1.87
2400.0	2430.0	3.58	3.04	2.78	2430.0	4.45	4.28	4.68	1400.0	2.71	2.10	2.16
2500.0	2530.0	3.56	3.02	2.69	2530.0	5.04	4.66	4.83	1500.0	2.24	2.31	2.59
2600.0	2630.0	3.97	3.42	2.94	2630.0	5.44	4.67	4.84	1550.0	1.97	2.58	2.99
2700.0	2730.0	3.95	3.46	2.99	2730.0	6.40	5.11	5.15	1750.0	2.72	4.40	5.02
2800.0	2830.0	3.82	3.31	3.05	2830.0	6.85	5.01	4.93	1950.0	6.62	7.30	7.74
2900.0	2930.0	3.54	2.90	2.46	2930.0	7.01	4.37	4.00	2050.0	7.46	7.63	7.78
3000.0	3030.0	2.99	2.15	1.93	3030.0	7.77	4.76	4.17	2250.0	5.47	5.41	5.44
3100.0	3130.0	2.90	2.00	1.76	3130.0	10.01	5.50	4.29	2450.0	6.99	6.59	6.50
3200.0	3230.0	2.68	1.82	1.60	3230.0	9.08	5.17	3.91	2550.0	7.58	6.68	6.40
3300.0	3330.0	2.38	1.59	1.40	3330.0	7.80	4.49	3.27	2750.0	6.80	5.03	4.54
3400.0	3430.0	2.04	1.45	1.22	3430.0	6.26	3.76	2.83	2950.0	5.66	3.86	3.30
3500.0	3530.0	2.15	1.70	1.45	3530.0	4.79	2.96	2.32	3050.0	5.69	3.94	3.43
3600.0	3630.0	2.32	1.91	1.71	3630.0	3.72	2.40	2.01	3250.0	5.36	3.38	2.84
3700.0	3730.0	2.75	2.30	2.08	3730.0	3.10	2.17	1.97	3450.0	4.25	2.49	1.99
3800.0	3830.0	3.13	2.72	2.51	3830.0	3.05	2.31	2.24	3550.0	3.76	2.58	2.33
4000.0	4030.0	4.04	3.55	3.21	4030.0	4.73	3.52	3.27	3950.0	4.01	2.69	2.41
4100.0	4130.0	4.87	4.09	3.73	4130.0	6.49	4.39	3.84	4050.0	3.54	2.40	2.21
4200.0	4230.0	6.28	4.62	4.22	4230.0	8.33	5.37	4.03	4150.0	3.26	2.26	2.16

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	+3	20	3	29	25	47	36	50	57	---
1	-	11	+0	21	34	27	38	45	44	58	54	66
2	74	45	49	47	70	49	42	58	57	65	63	62
3	>90	53	49	62	63	59	58	73	68	68	73	>77
4	>90	>77	>77	>77	>77	>77	>77	>77	>77	>77	>77	>77
5	>90	>77	>77	>77	>77	>77	>77	>77	>77	>77	>77	>77
6	>90	>77	>77	>77	>77	>77	>77	>77	>77	>77	>77	>77
7	>90	>77	>77	>77	>77	>77	>77	>77	>77	>77	>77	>77
8	>90	>77	>77	>77	>77	>77	>77	>77	>77	>77	>77	>77
9	>90	>77	>77	>77	>77	>77	>77	>77	>77	>77	>77	>77
10	---	---	>77	>77	>77	>77	>77	>77	>77	>77	>77	>77
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions: RF IN: 2600 MHz; -6.00 dBm.
 LO IN: 2630 MHz; +13.00 dBm
 IF OUT: 30 MHz; -12.79 dBm

RF HARMONICS ORDER	(-dBm)		(-dBc)										
	0	-	-	7	33	15	45	41	52	48	60	73	---
	1	-	10	+0	25	25	34	49	50	54	66	68	81
	2	54	36	39	41	52	42	35	53	53	64	64	62
	3	86	32	27	43	40	39	44	50	60	59	65	71
	4	>90	67	52	61	62	50	55	59	57	65	68	77
	5	>90	59	70	52	45	67	47	61	56	71	67	70
	6	>90	84	78	86	76	69	69	69	59	80	69	>87
	7	>90	>87	>87	75	>87	68	56	86	58	64	73	71
	8	>90	>87	>87	>87	>87	>87	>87	76	77	69	70	78
	9	>90	>87	>87	>87	>87	>87	>87	78	66	>87	66	78
	10	---	---	>87	>87	>87	>87	>87	>87	>87	87	>87	77
RF CAL		0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions: RF IN: 2600 MHz; 4.00 dBm.
 LO IN: 2630 MHz; +13.00 dBm
 IF OUT: 30 MHz; -2.78 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 represents the Harmonics level of the RF Input Signal to the mixer