

Frequency Mixer

ADE-10MH+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB)			RF (IN) (MHz)	LO (MHz)	IP3 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
10.1	40.1	7.04	6.37	6.06	10.1	40.1	24.68	25.85	25.44	10.1	40.1	0.68	0.56	0.04
70.1	100.1	7.29	6.73	6.43	70.1	100.1	19.09	20.24	22.81	70.1	100.1	0.61	0.27	0.10
130.1	160.1	7.48	6.80	6.50	130.1	160.1	26.84	29.08	28.13	130.1	160.1	-0.05	0.01	0.02
190.1	220.1	7.43	6.84	6.56	190.1	220.1	19.52	19.96	20.87	190.1	220.1	0.56	0.21	0.10
250.1	280.1	7.51	7.00	6.64	250.1	280.1	18.41	19.75	19.49	250.1	280.1	0.64	0.21	0.09
310.1	340.1	7.70	7.09	6.69	310.1	340.1	18.73	19.78	19.80	310.1	340.1	0.48	0.17	0.09
370.1	400.1	7.63	6.99	6.61	370.1	400.1	19.09	18.83	21.15	370.1	400.1	0.65	0.33	0.20
430.1	460.1	7.95	7.20	6.76	430.1	460.1	17.47	18.59	20.71	430.1	460.1	0.47	0.26	0.18
490.1	520.1	7.88	7.07	6.68	490.1	520.1	16.32	17.97	22.73	490.1	520.1	0.54	0.37	0.21
560.1	590.1	8.13	7.23	6.81	560.1	590.1	16.54	18.96	22.88	560.1	590.1	0.42	0.31	0.19
620.1	650.1	8.06	7.24	6.83	620.1	650.1	17.48	20.02	25.56	620.1	650.1	0.48	0.32	0.14
690.1	720.1	7.86	7.07	6.76	690.1	720.1	18.94	22.51	29.84	690.1	720.1	0.70	0.41	0.18
750.1	780.1	7.64	7.00	6.73	750.1	780.1	19.18	24.88	29.91	750.1	780.1	0.95	0.46	0.23
820.1	850.1	7.63	7.11	6.85	820.1	850.1	18.42	25.08	30.46	820.1	850.1	0.85	0.33	0.16
880.1	910.1	7.78	7.26	6.97	880.1	910.1	18.99	27.15	27.33	880.1	910.1	0.81	0.27	0.14
950.1	980.1	7.71	7.16	6.90	950.1	980.1	21.90	29.04	24.71	950.1	980.1	0.80	0.28	0.17
1010.1	1040.1	7.75	7.19	6.91	1010.1	1040.1	24.89	24.38	22.42	1010.1	1040.1	0.66	0.25	0.16
1080.1	1110.1	7.89	7.24	6.94	1080.1	1110.1	25.44	21.64	21.48	1080.1	1110.1	0.66	0.22	0.15
1140.1	1170.1	7.98	7.28	6.97	1140.1	1170.1	22.54	21.30	21.90	1140.1	1170.1	0.63	0.24	0.16
1210.1	1240.1	8.04	7.31	7.02	1210.1	1240.1	26.42	23.88	23.12	1210.1	1240.1	0.60	0.28	0.18
1270.1	1300.1	8.20	7.39	7.06	1270.1	1300.1	25.85	27.33	25.83	1270.1	1300.1	0.71	0.34	0.20
1340.1	1370.1	8.47	7.58	7.21	1340.1	1370.1	23.52	26.40	27.43	1340.1	1370.1	0.59	0.27	0.16
1400.1	1430.1	8.65	7.70	7.30	1400.1	1430.1	19.26	30.63	29.34	1400.1	1430.1	0.54	0.27	0.16
1470.1	1500.1	8.97	7.83	7.39	1470.1	1500.1	16.69	22.69	32.30	1470.1	1500.1	0.60	0.36	0.20
1530.1	1560.1	9.17	8.07	7.60	1530.1	1560.1	16.67	21.14	26.35	1530.1	1560.1	0.45	0.28	0.17
1600.1	1630.1	9.65	8.43	7.87	1600.1	1630.1	15.29	19.47	23.75	1600.1	1630.1	0.41	0.26	0.16
1660.1	1690.1	10.19	8.71	8.03	1660.1	1690.1	14.16	18.34	23.18	1660.1	1690.1	0.36	0.28	0.17
1730.1	1760.1	10.69	9.09	8.31	1730.1	1760.1	13.94	18.21	23.01	1730.1	1760.1	0.19	0.20	0.13
1790.1	1820.1	11.20	9.45	8.57	1790.1	1820.1	13.89	18.50	23.94	1790.1	1820.1	-0.04	0.11	0.09
1860.1	1890.1	11.56	9.66	8.72	1860.1	1890.1	13.90	18.66	23.49	1860.1	1890.1	-0.05	0.13	0.11
1920.1	1950.1	11.68	9.81	8.84	1920.1	1950.1	14.90	19.84	24.61	1920.1	1950.1	-0.11	0.08	0.13
1990.1	2020.1	11.72	9.92	8.97	1990.1	2020.1	16.13	20.77	23.74	1990.1	2020.1	-0.09	0.07	0.14
2050.1	2080.1	11.72	9.81	8.82	2050.1	2080.1	16.68	22.03	22.64	2050.1	2080.1	0.15	0.31	0.30
2120.1	2150.1	11.52	9.72	8.81	2120.1	2150.1	18.20	21.67	20.78	2120.1	2150.1	0.31	0.40	0.39
2180.1	2210.1	11.33	9.77	8.96	2180.1	2210.1	19.51	20.33	19.60	2180.1	2210.1	0.38	0.41	0.40
2250.1	2280.1	11.16	9.56	8.79	2250.1	2280.1	19.68	19.24	18.50	2250.1	2280.1	0.77	0.76	0.66
2310.1	2340.1	11.01	9.57	8.84	2310.1	2340.1	18.61	17.98	17.45	2310.1	2340.1	0.91	0.84	0.68
2380.1	2410.1	10.98	9.69	9.04	2380.1	2410.1	17.29	16.91	16.62	2380.1	2410.1	0.98	0.83	0.65
2440.1	2470.1	10.84	9.64	8.97	2440.1	2470.1	16.57	16.30	16.02	2440.1	2470.1	1.33	1.12	0.87
2510.1	2540.1	10.77	9.67	9.08	2510.1	2540.1	15.61	15.79	15.71	2510.1	2540.1	1.51	1.22	0.93

Frequency Mixer

ADE-10MH+

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=900MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=789.9MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY RF(IN)=1010.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+13			+13			+13
880.0	20.0	7.44	10.1	800.0	7.34	990.1	20.0	7.65
829.6	70.4	7.52	60.1	850.0	7.15	960.1	50.0	7.69
779.1	120.9	7.52	110.1	900.0	7.11	940.1	70.0	7.69
728.7	171.3	7.61	160.1	950.0	7.18	910.1	100.0	7.65
678.3	221.7	7.58	210.1	1000.0	7.17	890.1	120.0	7.74
627.8	272.2	7.54	260.1	1050.0	7.18	860.1	150.0	7.71
577.4	322.6	7.50	310.1	1100.0	7.16	840.1	170.0	7.73
539.6	360.4	7.53	360.1	1150.0	7.06	810.1	200.0	7.66
489.1	410.9	7.30	410.1	1200.0	7.02	790.1	220.0	7.75
451.3	448.7	7.38	460.1	1250.0	6.92	760.1	250.0	7.74
400.9	499.1	7.56	510.1	1300.0	6.94	740.1	270.0	7.75
363.0	537.0	7.32	560.1	1350.0	6.86	710.1	300.0	7.76
312.6	587.4	7.37	610.1	1400.0	6.93	690.1	320.0	7.72
274.8	625.2	7.18	660.1	1450.0	6.87	660.1	350.0	7.75
224.3	675.7	7.13	710.1	1500.0	6.93	640.1	370.0	7.70
186.5	713.5	7.08	760.1	1550.0	6.93	610.1	400.0	7.65
136.1	763.9	7.17	810.1	1600.0	7.12	590.1	420.0	7.53
98.3	801.7	7.14	860.1	1650.0	7.23	560.1	450.0	7.37
47.8	852.2	7.13	910.1	1700.0	7.53	540.1	470.0	7.58
10.0	890.0	7.59	960.1	1750.0	7.69	510.1	500.0	7.55
92.2	992.2	7.25	1010.1	1800.0	8.03	490.1	520.0	7.39
174.3	1074.3	7.19	1060.1	1850.0	8.21	460.1	550.0	7.46
283.9	1183.9	7.06	1110.1	1900.0	8.51	440.1	570.0	7.40
366.1	1266.1	6.99	1160.1	1950.0	8.64	410.1	600.0	7.44
475.7	1375.7	6.95	1210.1	2000.0	8.80	390.1	620.0	7.20
557.8	1457.8	6.92	1260.1	2050.0	8.79	360.1	650.0	7.20
667.4	1567.4	7.00	1310.1	2100.0	8.82	340.1	670.0	7.20
749.6	1649.6	7.12	1360.1	2150.0	8.74	310.1	700.0	7.19
859.1	1759.1	7.61	1410.1	2200.0	8.72	290.1	720.0	7.19
941.3	1841.3	8.02	1460.1	2250.0	8.62	260.1	750.0	7.20
1050.9	1950.9	8.58	1520.1	2310.0	8.65	240.1	770.0	7.23
1133.0	2033.0	8.84	1570.1	2360.0	8.79	210.1	800.0	7.29
1242.6	2142.6	8.95	1630.1	2420.0	8.81	190.1	820.0	7.26
1324.8	2224.8	8.82	1680.1	2470.0	8.96	160.1	850.0	7.28
1434.3	2334.3	8.82	1740.1	2530.0	9.07	140.1	870.0	7.24
1516.5	2416.5	8.92	1790.1	2580.0	9.23	110.1	900.0	7.26
1626.1	2526.1	9.24	1850.1	2640.0	9.37	90.1	920.0	7.21
1708.3	2608.3	9.39	1900.1	2690.0	9.54	60.1	950.0	7.24
1817.8	2717.8	9.77	1960.1	2750.0	9.72	40.1	970.0	7.18
1900.0	2800.0	10.05	2010.1	2800.0	9.97	10.1	1000.0	7.51

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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
40.1	49.17	54.12	56.23	31.41	34.52	36.97
100.1	48.43	49.27	48.90	31.06	33.44	34.90
160.1	43.81	43.89	44.11	30.78	32.72	33.29
220.1	41.59	41.65	41.64	30.85	32.15	31.62
280.1	38.92	39.14	39.68	31.15	31.38	30.05
340.1	36.96	37.14	37.87	31.45	30.60	28.79
400.1	36.26	36.81	37.83	32.03	29.81	27.98
460.1	35.17	35.98	36.63	32.09	29.19	27.36
520.1	35.05	35.65	35.75	31.84	28.70	26.69
590.1	34.62	35.63	35.73	31.38	27.95	26.21
650.1	35.16	35.78	35.22	30.32	27.51	25.84
720.1	35.75	34.61	34.01	29.50	26.77	25.48
780.1	35.81	34.48	33.86	29.09	26.55	25.31
850.1	35.48	34.63	34.26	28.91	26.73	25.58
910.1	34.95	34.04	33.77	29.10	26.77	25.61
980.1	34.14	33.34	33.18	29.34	27.23	25.90
1040.1	33.47	32.97	32.90	29.31	27.68	26.48
1110.1	33.31	32.71	32.86	28.97	27.76	26.60
1170.1	33.33	32.64	32.67	28.53	27.96	26.89
1240.1	33.21	32.52	32.46	28.11	28.31	27.43
1300.1	32.88	32.48	32.38	27.55	28.52	27.90
1370.1	33.18	32.85	32.96	27.12	28.83	28.54
1430.1	33.26	33.11	33.24	26.63	29.05	29.28
1500.1	33.16	32.96	33.14	25.49	28.66	29.74
1560.1	33.01	33.00	33.22	25.05	28.37	30.37
1630.1	33.07	33.11	33.52	24.21	27.55	30.19
1690.1	32.91	32.86	33.42	23.38	26.59	29.26
1760.1	32.53	32.52	33.23	23.19	25.86	27.95
1820.1	32.19	32.26	32.97	23.15	25.33	26.84
1890.1	31.92	32.07	32.95	23.08	24.83	25.90
1950.1	31.78	32.14	33.10	23.27	24.59	25.30
2020.1	31.23	31.84	32.84	23.61	24.46	24.73
2080.1	30.83	31.54	32.64	23.73	24.42	24.48
2150.1	30.60	31.52	32.67	24.03	24.38	24.34
2210.1	30.07	30.84	31.77	24.28	24.29	24.33
2280.1	29.57	30.10	30.44	24.41	24.39	24.35
2340.1	29.27	29.68	29.49	24.56	24.43	24.48
2410.1	28.87	29.09	28.37	24.70	24.68	24.92
2470.1	28.52	28.87	28.20	24.64	24.81	25.35
2540.1	28.33	28.74	28.10	24.66	25.02	25.72

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+10	+13	+16
10.1	40.1	23.77	23.99	23.71
70.1	100.1	25.02	24.45	24.11
130.1	160.1	25.09	24.35	24.04
190.1	220.1	24.79	24.34	24.05
250.1	280.1	24.81	24.70	24.51
310.1	340.1	25.26	25.11	25.16
370.1	400.1	25.97	25.84	25.77
430.1	460.1	26.64	26.67	26.75
490.1	520.1	27.72	27.60	27.56
560.1	590.1	29.43	29.16	29.36
620.1	650.1	30.68	30.74	30.87
690.1	720.1	32.06	32.48	32.96
750.1	780.1	33.89	35.08	36.19
820.1	850.1	34.82	36.11	36.97
880.1	910.1	34.87	35.86	36.26
950.1	980.1	33.76	34.41	34.46
1010.1	1040.1	33.16	33.84	34.19
1080.1	1110.1	33.85	34.75	34.96
1140.1	1170.1	34.00	34.92	34.88
1210.1	1240.1	33.75	35.20	34.23
1270.1	1300.1	33.43	34.65	33.83
1340.1	1370.1	33.10	33.17	32.87
1400.1	1430.1	33.05	33.06	32.21
1470.1	1500.1	33.33	33.59	32.92
1530.1	1560.1	33.42	33.19	33.26
1600.1	1630.1	34.76	35.09	35.04
1660.1	1690.1	36.64	36.71	37.14
1730.1	1760.1	38.77	39.06	39.38
1790.1	1820.1	43.97	42.54	43.75
1860.1	1890.1	49.90	47.64	47.09
1920.1	1950.1	55.70	48.49	45.87
1990.1	2020.1	59.31	49.94	49.07
2050.1	2080.1	59.14	56.00	48.65
2120.1	2150.1	54.73	51.93	48.69
2180.1	2210.1	50.00	47.86	48.78
2250.1	2280.1	45.02	45.10	45.69
2310.1	2340.1	41.16	42.99	44.25
2380.1	2410.1	39.50	40.68	42.84
2440.1	2470.1	37.30	39.83	43.30
2510.1	2540.1	35.86	39.23	42.52



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Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)		
		@LO (dBm)		
		+10	+13	+16
10.1	40.1	1.34	1.21	1.09
70.1	100.1	1.25	1.10	1.01
130.1	160.1	1.28	1.11	1.02
190.1	220.1	1.31	1.14	1.05
250.1	280.1	1.31	1.17	1.07
310.1	340.1	1.38	1.22	1.11
370.1	400.1	1.41	1.24	1.14
430.1	460.1	1.49	1.30	1.19
490.1	520.1	1.53	1.33	1.23
560.1	590.1	1.63	1.42	1.30
620.1	650.1	1.65	1.46	1.35
690.1	720.1	1.67	1.49	1.41
750.1	780.1	1.67	1.51	1.44
820.1	850.1	1.70	1.56	1.49
880.1	910.1	1.75	1.61	1.53
950.1	980.1	1.82	1.67	1.59
1010.1	1040.1	1.91	1.74	1.65
1080.1	1110.1	2.01	1.81	1.70
1140.1	1170.1	2.05	1.83	1.72
1210.1	1240.1	2.06	1.82	1.70
1270.1	1300.1	2.10	1.84	1.71
1340.1	1370.1	2.14	1.85	1.72
1400.1	1430.1	2.17	1.87	1.73
1470.1	1500.1	2.26	1.92	1.77
1530.1	1560.1	2.30	1.99	1.85
1600.1	1630.1	2.41	2.11	1.96
1660.1	1690.1	2.60	2.27	2.11
1730.1	1760.1	2.71	2.40	2.24
1790.1	1820.1	2.86	2.56	2.39
1860.1	1890.1	2.98	2.66	2.48
1920.1	1950.1	3.00	2.69	2.52
1990.1	2020.1	3.01	2.72	2.54
2050.1	2080.1	2.98	2.67	2.48
2120.1	2150.1	2.89	2.60	2.43
2180.1	2210.1	2.78	2.52	2.35
2250.1	2280.1	2.66	2.39	2.23
2310.1	2340.1	2.55	2.31	2.15
2380.1	2410.1	2.40	2.18	2.03
2440.1	2470.1	2.31	2.10	1.96
2510.1	2540.1	2.14	1.95	1.83

LO (MHz)	LO VSWR (:1)		
	@LO (dBm)		
	+10	+13	+16
40.1	1.05	1.51	2.23
100.1	1.07	1.42	2.03
160.1	1.08	1.42	2.04
220.1	1.11	1.44	2.06
280.1	1.12	1.40	1.97
340.1	1.14	1.42	1.98
400.1	1.18	1.41	1.95
460.1	1.19	1.39	1.90
520.1	1.23	1.40	1.90
590.1	1.23	1.36	1.84
650.1	1.27	1.33	1.78
720.1	1.32	1.31	1.74
780.1	1.43	1.33	1.71
850.1	1.53	1.35	1.66
910.1	1.64	1.38	1.62
980.1	1.76	1.41	1.57
1040.1	1.86	1.44	1.52
1110.1	1.99	1.47	1.46
1170.1	2.09	1.49	1.41
1240.1	2.20	1.52	1.35
1300.1	2.35	1.56	1.30
1370.1	2.42	1.59	1.24
1430.1	2.52	1.62	1.20
1500.1	2.69	1.68	1.18
1560.1	2.68	1.70	1.19
1630.1	2.77	1.75	1.25
1690.1	2.95	1.83	1.33
1760.1	2.95	1.88	1.44
1820.1	2.96	1.94	1.54
1890.1	3.08	2.04	1.68
1950.1	3.02	2.09	1.79
2020.1	2.96	2.16	1.94
2080.1	3.05	2.26	2.07
2150.1	2.98	2.32	2.21
2210.1	2.85	2.36	2.33
2280.1	2.88	2.44	2.44
2340.1	2.80	2.47	2.54
2410.1	2.71	2.52	2.64
2470.1	2.74	2.57	2.69
2540.1	2.69	2.64	2.82

IF (OUT) (MHz)	IF VSWR @LO=1000MHz (:1)		
	@LO (dBm)		
	+10	+13	+16
10.1	1.37	1.21	1.13
30.1	1.37	1.22	1.12
50.1	1.38	1.22	1.12
70.1	1.38	1.22	1.13
90.1	1.38	1.22	1.13
110.1	1.37	1.21	1.13
130.1	1.37	1.21	1.13
150.1	1.36	1.21	1.13
170.1	1.36	1.20	1.12
190.1	1.35	1.20	1.12
210.1	1.34	1.19	1.12
230.1	1.33	1.19	1.12
250.1	1.33	1.19	1.12
270.1	1.32	1.18	1.12
290.1	1.31	1.18	1.12
310.1	1.30	1.17	1.13
330.1	1.29	1.17	1.13
360.1	1.28	1.17	1.14
380.1	1.28	1.17	1.16
410.1	1.26	1.17	1.17
430.1	1.26	1.18	1.18
460.1	1.25	1.19	1.21
480.1	1.25	1.19	1.22
510.1	1.24	1.21	1.24
530.1	1.24	1.22	1.26
560.1	1.24	1.24	1.28
580.1	1.24	1.25	1.30
610.1	1.24	1.26	1.32
630.1	1.24	1.28	1.33
660.1	1.25	1.30	1.36
680.1	1.26	1.31	1.37
710.1	1.27	1.33	1.39
730.1	1.27	1.34	1.41
760.1	1.28	1.36	1.43
780.1	1.29	1.37	1.45
810.1	1.30	1.39	1.47
830.1	1.31	1.40	1.48
860.1	1.32	1.42	1.50
880.1	1.32	1.43	1.51
910.1	1.33	1.44	1.53

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	1	15	26	21	21	37	27	47	30	52
1	-	27	+0	32	15	37	21	41	42	52	46	44
2	73	54	53	53	53	61	56	55	68	>77	59	60
3	>90	>77	64	>77	64	74	64	>77	64	>77	76	>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	>90	>77	>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: 900 MHz; -6.00 dBm.
 LO IN: 930 MHz; +13.00 dBm
 IF OUT: 30 MHz; -13.32 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	11	25	34	33	31	52	40	65	47	63
1	-	27	+0	32	15	40	23	45	45	54	66	55
2	53	46	44	44	46	50	48	48	56	79	52	65
3	84	56	43	65	51	57	49	58	48	59	70	71
4	>90	69	63	67	70	65	66	79	60	67	69	73
5	>90	82	65	69	58	65	59	64	62	63	63	78
6	>90	>87	84	83	74	77	73	74	73	71	70	76
7	>90	>87	>87	86	80	82	76	78	77	75	77	75
8	>90	>87	>87	>87	>87	>87	86	>87	82	>87	86	83
9	>90	>87	>87	>87	>87	>87	>87	>87	>87	85	>87	84
10	>90	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87	>87
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 900 MHz; 4.00 dBm.
 LO IN: 930 MHz; +13.00 dBm
 IF OUT: 30 MHz; -3.36 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.

