

Frequency Mixer

ADE-ED7939/1

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB)		
		@LO (dBm)		
		+10	+13	+16
10.1	40.1	6.80	6.30	6.16
70.1	100.1	7.28	6.79	6.52
130.1	160.1	7.60	6.97	6.66
190.1	220.1	7.45	6.79	6.57
230.1	260.1	7.41	6.87	6.67
290.1	320.1	7.23	6.79	6.62
330.1	360.1	7.39	6.92	6.72
390.1	420.1	7.28	6.85	6.65
430.1	460.1	7.29	6.89	6.68
490.1	520.1	7.28	6.84	6.63
530.1	560.1	7.44	6.97	6.69
590.1	620.1	7.24	6.85	6.62
630.1	660.1	7.33	6.92	6.70
690.1	720.1	7.32	6.72	6.43
730.1	760.1	7.52	6.94	6.53
790.1	820.1	7.39	6.94	6.54
830.1	860.1	7.43	7.02	6.69
890.1	920.1	7.29	6.87	6.56
930.1	960.1	7.18	6.69	6.36
990.1	1020.1	6.96	6.39	6.11
1030.1	1060.1	6.96	6.28	6.02
1090.1	1120.1	7.20	6.31	5.97
1130.1	1160.1	7.29	6.39	5.97
1190.1	1220.1	7.45	6.68	6.12
1230.1	1260.1	7.52	6.83	6.23
1290.1	1320.1	7.70	7.12	6.59
1330.1	1360.1	7.80	7.31	6.81
1390.1	1420.1	7.94	7.57	7.15
1430.1	1460.1	8.08	7.76	7.42
1490.1	1520.1	8.29	8.01	7.77
1530.1	1560.1	8.45	8.17	7.93
1590.1	1620.1	8.66	8.42	8.21
1630.1	1660.1	8.70	8.47	8.28
1690.1	1720.1	9.05	8.83	8.70
1730.1	1760.1	9.10	8.92	8.82
1790.1	1820.1	9.61	9.49	9.41
1830.1	1860.1	9.78	9.67	9.59
1890.1	1920.1	10.43	10.31	10.24
1930.1	1960.1	10.65	10.49	10.44
1990.1	2020.1	11.38	11.13	11.07

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)		
		@LO (dBm)		
		+10	+13	+16
10.1	40.1	17.59	21.10	23.79
70.1	100.1	17.84	20.60	23.35
130.1	160.1	17.42	20.89	21.37
190.1	220.1	17.17	20.07	22.92
230.1	260.1	18.20	20.43	25.64
290.1	320.1	18.30	21.69	29.24
330.1	360.1	18.09	22.09	26.87
390.1	420.1	17.66	24.45	26.06
430.1	460.1	19.01	22.94	26.84
490.1	520.1	18.70	22.53	22.86
530.1	560.1	18.36	23.18	23.55
590.1	620.1	21.91	23.32	25.35
630.1	660.1	21.43	21.99	23.63
690.1	720.1	19.72	21.51	22.82
730.1	760.1	17.22	23.52	22.56
790.1	820.1	19.10	20.39	23.84
830.1	860.1	19.28	20.53	21.67
890.1	920.1	18.76	18.97	19.37
930.1	960.1	17.11	18.00	18.89
990.1	1020.1	15.52	17.38	18.26
1030.1	1060.1	14.89	16.50	17.42
1090.1	1120.1	15.98	15.32	16.28
1130.1	1160.1	15.01	14.98	15.78
1190.1	1220.1	13.07	14.08	14.31
1230.1	1260.1	12.17	13.52	13.89
1290.1	1320.1	10.92	12.13	13.51
1330.1	1360.1	10.66	11.60	12.98
1390.1	1420.1	10.90	11.42	12.60
1430.1	1460.1	10.96	11.35	12.23
1490.1	1520.1	11.81	12.21	13.36
1530.1	1560.1	12.63	13.29	15.19
1590.1	1620.1	15.59	17.43	18.76
1630.1	1660.1	18.00	18.82	18.92
1690.1	1720.1	19.01	20.06	19.76
1730.1	1760.1	18.43	21.13	20.19
1790.1	1820.1	19.48	22.31	21.10
1830.1	1860.1	20.37	21.36	23.52
1890.1	1920.1	22.14	23.78	24.66
1930.1	1960.1	21.70	24.98	24.90
1990.1	2020.1	22.55	25.09	25.88

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+7dBm (dB)		
		@LO (dBm)		
		+10	+13	+16
10.1	40.1	0.16	0.09	0.03
70.1	100.1	0.00	0.07	0.03
130.1	160.1	-0.11	0.00	0.01
190.1	220.1	-0.06	0.08	0.03
230.1	260.1	-0.02	0.07	0.02
290.1	320.1	0.06	0.08	0.04
330.1	360.1	-0.01	0.05	0.02
390.1	420.1	0.03	0.09	0.06
430.1	460.1	0.04	0.03	0.05
490.1	520.1	0.03	0.11	0.08
530.1	560.1	-0.03	0.03	0.08
590.1	620.1	0.11	0.06	0.08
630.1	660.1	0.14	0.09	0.09
690.1	720.1	0.18	0.25	0.22
730.1	760.1	0.11	0.20	0.24
790.1	820.1	0.31	0.27	0.31
830.1	860.1	0.34	0.27	0.27
890.1	920.1	0.62	0.51	0.47
930.1	960.1	0.77	0.66	0.61
990.1	1020.1	1.12	0.93	0.81
1030.1	1060.1	1.18	1.05	0.91
1090.1	1120.1	1.04	1.16	1.01
1130.1	1160.1	0.97	1.13	1.03
1190.1	1220.1	0.92	1.00	0.99
1230.1	1260.1	0.91	0.91	0.94
1290.1	1320.1	0.88	0.82	0.79
1330.1	1360.1	0.90	0.80	0.75
1390.1	1420.1	1.01	0.81	0.73
1430.1	1460.1	1.02	0.80	0.68
1490.1	1520.1	1.07	0.86	0.68
1530.1	1560.1	0.99	0.82	0.68
1590.1	1620.1	0.88	0.72	0.61
1630.1	1660.1	0.81	0.64	0.54
1690.1	1720.1	0.63	0.45	0.36
1730.1	1760.1	0.58	0.39	0.30
1790.1	1820.1	0.42	0.27	0.21
1830.1	1860.1	0.37	0.24	0.20
1890.1	1920.1	0.27	0.17	0.15
1930.1	1960.1	0.27	0.16	0.13
1990.1	2020.1	0.19	0.13	0.10

Frequency Mixer

ADE-ED7939/1

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=760.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=10.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1500.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+13			+13			+13
750.0	10.1	7.07	10.0	20.1	6.67	1490.0	10.1	9.07
730.3	29.8	7.07	50.0	60.1	6.40	1449.5	50.6	9.06
710.5	49.6	7.02	90.0	100.1	6.33	1408.9	91.2	8.84
690.8	69.3	6.90	130.0	140.1	6.43	1368.4	131.7	8.66
671.1	89.0	6.91	170.0	180.1	6.45	1327.8	172.3	8.60
651.3	108.8	6.88	230.0	240.1	6.27	1287.3	212.8	8.41
631.6	128.5	6.77	270.0	280.1	6.59	1246.7	253.4	8.22
611.9	148.2	6.68	330.0	340.1	6.55	1206.2	293.9	8.06
592.1	168.0	6.67	370.0	380.1	6.55	1165.6	334.5	7.91
572.4	187.7	6.65	430.0	440.1	6.80	1125.1	375.0	7.66
552.7	207.4	6.59	470.0	480.1	6.73	1084.5	415.6	7.63
532.9	227.2	6.56	530.0	540.1	6.89	1044.0	456.1	7.59
513.2	246.9	6.56	570.0	580.1	7.13	1003.4	496.7	7.43
493.5	266.6	6.52	630.0	640.1	7.11	962.9	537.2	7.24
473.7	286.4	6.45	670.0	680.1	7.18	922.3	577.8	7.21
454.0	306.1	6.47	730.0	740.1	7.39	881.8	618.3	7.10
434.3	325.8	6.51	770.0	780.1	7.50	841.2	658.9	6.98
414.5	345.6	6.51	830.0	840.1	7.57	800.7	699.4	6.91
394.8	365.3	6.46	870.0	880.1	7.54	760.1	740.0	6.89
375.1	385.0	6.35	930.0	940.1	7.52	719.6	780.5	6.79
355.3	404.8	6.36	970.0	980.1	7.38	679.0	821.1	6.73
335.6	424.5	6.42	1030.0	1040.1	7.29	638.5	861.6	6.73
315.9	444.2	6.43	1070.0	1080.1	7.40	597.9	902.2	6.70
296.1	464.0	6.44	1130.0	1140.1	7.42	557.4	942.7	6.60
276.4	483.7	6.45	1170.0	1180.1	7.65	516.8	983.3	6.54
256.7	503.4	6.38	1230.0	1240.1	7.91	476.3	1023.8	6.44
236.9	523.2	6.33	1270.0	1280.1	8.10	435.8	1064.3	6.44
217.2	542.9	6.46	1330.0	1340.1	8.28	395.2	1104.9	6.48
197.5	562.6	6.47	1370.0	1380.1	8.54	354.7	1145.4	6.54
177.7	582.4	6.53	1430.0	1440.1	8.66	314.1	1186.0	6.70
158.0	602.1	6.50	1470.0	1480.1	8.79	273.6	1226.5	6.80
138.3	621.8	6.55	1530.0	1540.1	9.05	253.3	1246.8	6.91
118.5	641.6	6.55	1570.0	1580.1	9.38	212.7	1287.4	7.19
98.8	661.3	6.53	1630.0	1640.1	9.30	192.5	1307.6	7.26
79.1	681.0	6.55	1670.0	1680.1	9.49	151.9	1348.2	7.42
69.2	690.9	6.49	1730.0	1740.1	9.72	131.6	1368.5	7.53
49.5	710.6	6.54	1770.0	1780.1	9.94	91.1	1409.0	7.71
39.6	720.5	6.60	1830.0	1840.1	10.33	70.8	1429.3	7.88
19.9	740.2	6.67	1870.0	1880.1	10.58	30.3	1469.8	8.06
10.0	750.1	6.89	1930.0	1940.1	11.07	10.0	1490.1	8.21

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	65.02	71.05	74.49	33.54	29.38	27.71
100.1	57.91	59.96	61.96	34.61	31.22	31.78
160.1	53.74	56.10	58.32	34.74	31.04	31.85
220.1	51.02	53.30	57.12	34.53	31.07	31.48
260.1	49.10	51.65	55.17	34.98	31.44	31.62
320.1	47.11	49.92	54.01	35.65	31.51	31.39
360.1	46.13	49.09	53.11	35.99	31.88	31.57
420.1	45.24	48.60	52.23	36.20	31.86	31.31
460.1	44.39	47.12	51.97	36.38	32.28	31.55
520.1	42.93	45.87	48.96	36.42	32.34	31.44
560.1	42.30	45.78	51.82	36.22	32.73	31.40
620.1	42.63	45.25	49.18	34.67	32.31	31.55
660.1	43.20	45.58	48.71	33.61	31.89	31.31
720.1	43.62	49.30	55.05	33.21	31.15	30.43
760.1	42.79	46.93	53.80	32.87	31.48	30.47
820.1	41.92	44.35	48.62	31.55	31.54	31.00
860.1	40.84	42.87	45.86	30.58	31.11	30.97
920.1	39.51	41.16	43.39	28.86	29.97	30.15
960.1	39.10	41.15	43.89	27.89	29.28	29.53
1020.1	39.67	43.93	48.08	26.49	27.86	28.32
1060.1	38.59	43.48	47.74	25.70	26.96	27.61
1120.1	36.27	41.04	45.14	25.15	26.16	27.03
1160.1	35.27	39.51	43.44	24.95	25.88	26.75
1220.1	34.37	37.76	41.18	24.61	25.71	26.47
1260.1	33.91	37.07	40.07	24.56	25.77	26.48
1320.1	32.93	35.92	38.36	24.48	25.94	26.89
1360.1	32.58	35.57	37.86	24.35	26.10	27.19
1420.1	31.63	34.59	36.81	24.35	26.47	27.88
1460.1	31.32	34.33	36.69	24.21	26.58	28.30
1520.1	30.50	33.56	36.03	24.28	26.92	29.12
1560.1	29.97	33.02	35.70	24.25	27.05	29.54
1620.1	29.48	32.76	35.51	24.54	27.66	30.55
1660.1	29.46	32.64	34.91	24.64	27.91	31.01
1720.1	29.71	32.24	33.93	25.31	28.74	32.04
1760.1	29.81	31.97	33.52	25.63	29.04	32.59
1820.1	30.06	32.06	33.70	26.42	29.99	34.06
1860.1	30.34	32.27	33.87	26.98	30.70	35.30
1920.1	30.88	32.75	34.28	28.28	32.49	38.59
1960.1	31.17	32.95	34.32	29.09	33.54	40.70
2020.1	32.23	33.81	34.77	31.20	36.63	48.57

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+10	+13	+16
10.1	40.1	50.24	49.32	49.80
70.1	100.1	34.00	34.07	33.82
130.1	160.1	29.10	29.12	29.12
190.1	220.1	26.19	26.30	26.41
230.1	260.1	24.94	25.11	25.21
290.1	320.1	23.59	23.78	23.92
330.1	360.1	22.90	23.09	23.19
390.1	420.1	22.24	22.55	22.69
430.1	460.1	21.77	22.06	22.23
490.1	520.1	21.10	21.50	21.80
530.1	560.1	20.73	21.27	21.75
590.1	620.1	20.70	21.30	21.84
630.1	660.1	20.97	21.73	22.32
690.1	720.1	20.82	21.46	21.83
730.1	760.1	20.01	20.38	20.44
790.1	820.1	18.63	18.72	18.77
830.1	860.1	17.59	17.57	17.55
890.1	920.1	16.50	16.44	16.47
930.1	960.1	16.16	16.14	16.13
990.1	1020.1	15.66	15.67	15.68
1030.1	1060.1	15.62	15.67	15.72
1090.1	1120.1	15.81	15.75	15.93
1130.1	1160.1	15.88	15.79	15.95
1190.1	1220.1	16.04	15.83	15.63
1230.1	1260.1	16.35	16.06	15.62
1290.1	1320.1	16.54	16.31	15.86
1330.1	1360.1	16.47	16.32	15.94
1390.1	1420.1	15.90	15.73	15.46
1430.1	1460.1	15.24	15.02	14.76
1490.1	1520.1	14.01	13.72	13.38
1530.1	1560.1	13.18	12.79	12.38
1590.1	1620.1	11.81	11.25	10.82
1630.1	1660.1	10.94	10.37	9.95
1690.1	1720.1	9.73	9.18	8.89
1730.1	1760.1	8.97	8.52	8.26
1790.1	1820.1	8.02	7.70	7.49
1830.1	1860.1	7.55	7.26	7.07
1890.1	1920.1	6.90	6.64	6.47
1930.1	1960.1	6.59	6.31	6.15
1990.1	2020.1	6.08	5.83	5.68

Frequency Mixer

ADE-ED7939/1

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)			IF (OUT) (MHz)	IF VSWR @LO=1500.1MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+10	+13	+16		+10	+13	+16		+10	+13	+16
10.1	40.1	1.90	1.69	1.62	40.1	1.13	1.82	3.90	10.1	3.10	2.83	2.57
70.1	100.1	1.61	1.48	1.39	100.1	1.16	1.48	2.31	50.1	3.13	2.85	2.60
130.1	160.1	1.62	1.49	1.40	160.1	1.23	1.48	2.20	90.1	3.11	2.83	2.57
190.1	220.1	1.65	1.50	1.42	220.1	1.27	1.51	2.22	130.1	3.03	2.77	2.52
230.1	260.1	1.59	1.47	1.40	260.1	1.27	1.49	2.16	170.1	2.97	2.72	2.48
290.1	320.1	1.60	1.49	1.43	320.1	1.30	1.54	2.24	210.1	2.93	2.68	2.45
330.1	360.1	1.59	1.48	1.42	360.1	1.31	1.55	2.21	250.1	2.87	2.63	2.41
390.1	420.1	1.60	1.49	1.44	420.1	1.29	1.60	2.30	290.1	2.81	2.58	2.37
430.1	460.1	1.57	1.48	1.43	460.1	1.28	1.60	2.27	330.1	2.74	2.53	2.33
490.1	520.1	1.57	1.48	1.42	520.1	1.29	1.66	2.36	370.1	2.59	2.40	2.21
530.1	560.1	1.54	1.46	1.39	560.1	1.29	1.68	2.35	410.1	2.50	2.31	2.14
590.1	620.1	1.52	1.45	1.40	620.1	1.30	1.75	2.44	450.1	2.41	2.25	2.09
630.1	660.1	1.48	1.41	1.36	660.1	1.30	1.76	2.43	490.1	2.34	2.19	2.05
690.1	720.1	1.47	1.38	1.32	720.1	1.32	1.81	2.49	530.1	2.29	2.16	2.03
730.1	760.1	1.44	1.36	1.30	760.1	1.34	1.83	2.50	570.1	2.18	2.05	1.94
790.1	820.1	1.43	1.36	1.31	820.1	1.38	1.91	2.60	610.1	2.08	1.97	1.87
830.1	860.1	1.40	1.33	1.28	860.1	1.39	1.94	2.61	650.1	2.00	1.90	1.82
890.1	920.1	1.36	1.29	1.24	920.1	1.43	2.00	2.68	690.1	1.92	1.83	1.76
930.1	960.1	1.30	1.22	1.16	960.1	1.44	2.00	2.67	730.1	1.89	1.81	1.75
990.1	1020.1	1.25	1.14	1.08	1020.1	1.47	2.04	2.71	770.1	1.84	1.76	1.71
1030.1	1060.1	1.21	1.09	1.02	1060.1	1.50	2.06	2.72	810.1	1.77	1.71	1.67
1090.1	1120.1	1.25	1.10	1.07	1120.1	1.58	2.14	2.80	850.1	1.71	1.65	1.62
1130.1	1160.1	1.28	1.16	1.15	1160.1	1.62	2.18	2.83	890.1	1.65	1.60	1.58
1190.1	1220.1	1.36	1.27	1.25	1220.1	1.69	2.26	2.92	930.1	1.61	1.57	1.57
1230.1	1260.1	1.44	1.39	1.36	1260.1	1.72	2.30	2.95	970.1	1.59	1.55	1.56
1290.1	1320.1	1.53	1.51	1.49	1320.1	1.79	2.37	3.02	1010.1	1.56	1.53	1.54
1330.1	1360.1	1.65	1.64	1.64	1360.1	1.83	2.40	3.04	1050.1	1.51	1.50	1.52
1390.1	1420.1	1.80	1.82	1.82	1420.1	1.89	2.46	3.11	1090.1	1.49	1.47	1.49
1430.1	1460.1	1.95	1.99	2.00	1460.1	1.92	2.49	3.13	1130.1	1.44	1.44	1.48
1490.1	1520.1	2.10	2.15	2.18	1520.1	1.97	2.54	3.18	1170.1	1.42	1.43	1.48
1530.1	1560.1	2.21	2.26	2.30	1560.1	1.98	2.52	3.13	1210.1	1.41	1.43	1.48
1590.1	1620.1	2.34	2.43	2.51	1620.1	2.01	2.55	3.16	1250.1	1.38	1.41	1.47
1630.1	1660.1	2.42	2.51	2.58	1660.1	2.01	2.52	3.12	1290.1	1.37	1.40	1.46
1690.1	1720.1	2.55	2.63	2.69	1720.1	2.05	2.57	3.20	1310.1	1.36	1.39	1.46
1730.1	1760.1	2.57	2.62	2.66	1760.1	2.05	2.55	3.16	1350.1	1.33	1.39	1.47
1790.1	1820.1	2.63	2.66	2.68	1820.1	2.20	2.69	3.30	1370.1	1.32	1.37	1.45
1830.1	1860.1	2.62	2.63	2.64	1860.1	2.29	2.71	3.28	1410.1	1.32	1.37	1.45
1890.1	1920.1	2.65	2.65	2.66	1920.1	2.55	2.93	3.49	1430.1	1.31	1.36	1.44
1930.1	1960.1	2.63	2.61	2.61	1960.1	2.67	2.95	3.44	1470.1	1.30	1.36	1.45
1990.1	2020.1	2.61	2.58	2.57	2020.1	2.95	3.18	3.66	1490.1	1.33	1.40	1.49

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	5	21	14	36	22	52	27	55	34	48
1	-	14	+0	30	14	34	39	47	62	47	66	54
2	77	58	49	56	51	55	57	>76	64	71	68	>76
3	>90	67	64	66	59	66	57	>76	75	>76	>76	>76
4	>90	>76	>76	>76	>76	>76	>76	>76	>76	>76	>76	>76
5	>90	>76	>76	>76	>76	>76	>76	>76	>76	>76	>76	>76
6	>90	>76	>76	>76	>76	>76	>76	>76	>76	>76	>76	>76
7	>90	>76	>76	>76	>76	>76	>76	>76	>76	>76	>76	>76
8	>90	>76	>76	>76	>76	>76	>76	>76	>76	>76	>76	>76
9	>90	>76	>76	>76	>76	>76	>76	>76	>76	>76	>76	>76
10	>90	>76	>76	>76	>76	>76	>76	>76	>76	>76	>76	>76
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 750.1 MHz; -7.00 dBm.
LO IN: 780.1 MHz; +13.00 dBm
IF OUT: 30 MHz; -13.72 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	15	31	25	46	34	60	41	71	49	63
1	-	14	+0	32	14	36	39	49	66	52	65	61
2	57	51	40	51	39	48	48	67	53	67	58	83
3	86	46	52	53	43	50	41	56	58	69	72	67
4	>90	85	69	60	68	60	58	60	72	81	73	74
5	>90	77	72	77	60	60	57	65	56	66	72	77
6	>90	>86	>86	>86	85	82	72	75	70	67	75	>86
7	>90	>86	>86	>86	>86	>86	76	79	73	75	74	>86
8	>90	>86	>86	>86	>86	>86	>86	85	83	81	77	80
9	>90	>86	>86	>86	>86	>86	>86	>86	>86	>86	>86	>86
10	>90	>86	>86	>86	>86	>86	>86	>86	>86	>86	>86	>86
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 750.1 MHz; 3.00 dBm.
LO IN: 780.1 MHz; +13.00 dBm
IF OUT: 30 MHz; -3.66 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.