

Frequency Mixer

ADE-ED7941/1

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=+1dBm (dB)		
		@LO (dBm)					@LO (dBm)					@LO (dBm)		
+4	+7	+10	+4	+7	+10	+4	+7	+10	+4	+7	+10			
10.1	40.1	7.75	7.01	6.47	10.1	40.1	8.87	12.49	13.84	10.1	40.1	0.90	0.54	0.25
70.1	100.1	7.60	6.94	6.62	70.1	100.1	9.29	11.19	13.24	70.1	100.1	0.97	0.62	0.37
130.1	160.1	7.81	7.05	6.65	130.1	160.1	8.70	11.32	12.38	130.1	160.1	0.86	0.49	0.32
190.1	220.1	7.80	7.05	6.70	190.1	220.1	8.85	11.28	17.63	190.1	220.1	0.98	0.61	0.39
250.1	280.1	8.02	7.17	6.82	250.1	280.1	8.21	11.50	19.11	250.1	280.1	0.90	0.57	0.37
310.1	340.1	7.82	7.03	6.74	310.1	340.1	9.13	16.90	18.76	310.1	340.1	1.08	0.73	0.50
370.1	400.1	7.65	7.00	6.77	370.1	400.1	10.59	20.50	18.31	370.1	400.1	1.30	0.88	0.63
430.1	460.1	7.91	7.22	6.95	430.1	460.1	12.04	16.00	16.88	430.1	460.1	1.28	0.86	0.65
490.1	520.1	7.84	7.21	6.96	490.1	520.1	15.15	14.72	14.85	490.1	520.1	1.38	0.98	0.75
550.1	580.1	7.77	7.15	6.89	550.1	580.1	14.03	12.87	14.06	550.1	580.1	1.50	1.15	0.92
610.1	640.1	7.89	7.27	6.99	610.1	640.1	10.20	11.02	12.42	610.1	640.1	1.53	1.16	0.94
670.1	700.1	7.92	7.33	7.07	670.1	700.1	8.68	9.42	11.06	670.1	700.1	1.53	1.19	0.96
730.1	760.1	8.03	7.46	7.15	730.1	760.1	9.17	10.24	11.39	730.1	760.1	1.42	1.15	0.97
790.1	820.1	7.94	7.44	7.17	790.1	820.1	8.39	10.16	11.36	790.1	820.1	1.52	1.17	0.98
850.1	880.1	7.90	7.47	7.24	850.1	880.1	7.82	9.01	10.22	850.1	880.1	1.51	1.14	0.93
910.1	940.1	8.03	7.56	7.30	910.1	940.1	8.65	9.03	11.47	910.1	940.1	1.35	1.03	0.86
970.1	1000.1	7.96	7.50	7.26	970.1	1000.1	10.77	10.05	11.14	970.1	1000.1	1.36	1.03	0.83
1030.1	1060.1	7.94	7.51	7.29	1030.1	1060.1	12.50	12.38	11.33	1030.1	1060.1	1.34	1.00	0.79
1090.1	1120.1	7.99	7.55	7.32	1090.1	1120.1	13.84	14.48	12.94	1090.1	1120.1	1.26	0.95	0.76
1150.1	1180.1	8.09	7.63	7.37	1150.1	1180.1	13.99	16.80	16.16	1150.1	1180.1	1.13	0.87	0.71
1210.1	1240.1	8.16	7.69	7.43	1210.1	1240.1	11.61	15.94	17.39	1210.1	1240.1	1.08	0.81	0.70
1270.1	1300.1	8.20	7.73	7.44	1270.1	1300.1	8.67	12.15	14.92	1270.1	1300.1	1.08	0.78	0.67
1330.1	1360.1	8.33	7.82	7.53	1330.1	1360.1	7.64	11.11	14.46	1330.1	1360.1	0.97	0.67	0.53
1390.1	1420.1	8.36	7.87	7.59	1390.1	1420.1	8.22	9.21	12.62	1390.1	1420.1	0.98	0.63	0.46
1450.1	1480.1	8.34	7.90	7.62	1450.1	1480.1	9.28	8.68	10.13	1450.1	1480.1	1.03	0.62	0.43
1510.1	1540.1	8.41	8.01	7.76	1510.1	1540.1	9.65	9.23	9.46	1510.1	1540.1	1.02	0.60	0.40
1570.1	1600.1	8.44	8.05	7.80	1570.1	1600.1	10.09	10.08	9.83	1570.1	1600.1	1.10	0.62	0.40
1630.1	1660.1	8.50	8.10	7.86	1630.1	1660.1	10.22	10.69	11.51	1630.1	1660.1	1.09	0.60	0.38
1690.1	1720.1	8.61	8.25	8.03	1690.1	1720.1	10.04	10.29	11.80	1690.1	1720.1	1.11	0.61	0.37
1750.1	1780.1	8.75	8.37	8.12	1750.1	1780.1	10.41	10.45	11.11	1750.1	1780.1	1.13	0.60	0.37
1810.1	1840.1	8.93	8.54	8.29	1810.1	1840.1	11.02	11.32	11.14	1810.1	1840.1	1.01	0.55	0.34
1870.1	1900.1	9.07	8.72	8.50	1870.1	1900.1	10.88	12.01	11.79	1870.1	1900.1	1.10	0.61	0.38
1930.1	1960.1	9.31	8.94	8.70	1930.1	1960.1	12.06	14.22	13.99	1930.1	1960.1	1.07	0.59	0.38
1990.1	2020.1	9.58	9.20	8.96	1990.1	2020.1	13.03	15.29	16.23	1990.1	2020.1	0.95	0.54	0.37
2050.1	2080.1	9.75	9.40	9.17	2050.1	2080.1	12.12	13.20	13.17	2050.1	2080.1	1.09	0.62	0.44
2110.1	2140.1	10.07	9.69	9.45	2110.1	2140.1	13.93	12.77	11.95	2110.1	2140.1	0.93	0.54	0.39
2150.1	2180.1	10.31	9.96	9.73	2150.1	2180.1	12.79	11.43	10.83	2150.1	2180.1	1.00	0.58	0.40
2210.1	2240.1	10.45	10.05	9.80	2210.1	2240.1	10.53	9.27	10.40	2210.1	2240.1	0.97	0.56	0.33
2250.1	2280.1	10.64	10.25	10.05	2250.1	2280.1	9.59	9.46	12.31	2250.1	2280.1	1.03	0.54	0.24
2310.1	2340.1	10.77	10.41	10.23	2310.1	2340.1	10.02	12.23	15.86	2310.1	2340.1	0.96	0.41	0.15

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=950.1MHz (dB)
		@LO (dBm) +7
940.0	10.1	7.25
920.0	30.1	7.22
900.0	50.1	7.32
880.0	70.1	7.31
860.0	90.1	7.42
840.0	110.1	7.43
820.0	130.1	7.40
800.0	150.1	7.38
780.0	170.1	7.42
760.0	190.1	7.43
740.0	210.1	7.32
710.0	240.1	7.30
690.0	260.1	7.26
660.0	290.1	7.25
640.0	310.1	7.23
610.0	340.1	7.26
590.0	360.1	7.23
560.0	390.1	7.26
540.0	410.1	7.21
510.0	440.1	7.29
490.0	460.1	7.27
460.0	490.1	7.30
440.0	510.1	7.26
410.0	540.1	7.39
390.0	560.1	7.44
360.0	590.1	7.42
340.0	610.1	7.45
310.0	640.1	7.42
290.0	660.1	7.46
260.0	690.1	7.45
240.0	710.1	7.49
210.0	740.1	7.53
190.0	760.1	7.55
160.0	790.1	7.56
140.0	810.1	7.58
110.0	840.1	7.62
90.0	860.1	7.56
60.0	890.1	7.53
40.0	910.1	7.50
10.0	940.1	7.85

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=10.1MHz (dB)
		@LO (dBm) +7
10.0	20.1	7.43
50.0	60.1	7.10
90.0	100.1	7.00
130.0	140.1	7.05
170.0	180.1	7.15
210.0	220.1	6.89
250.0	260.1	6.86
290.0	300.1	7.07
330.0	340.1	6.63
370.0	380.1	6.77
410.0	420.1	7.04
450.0	460.1	6.92
490.0	500.1	6.63
530.0	540.1	6.74
570.0	580.1	6.92
610.0	620.1	6.75
650.0	660.1	6.82
690.0	700.1	6.66
730.0	740.1	6.73
770.0	780.1	6.55
810.0	820.1	6.62
850.0	860.1	6.64
890.0	900.1	6.69
930.0	940.1	6.98
970.0	980.1	6.92
1010.0	1020.1	6.58
1050.0	1060.1	6.89
1110.0	1120.1	7.08
1150.0	1160.1	6.99
1210.0	1220.1	7.50
1250.0	1260.1	7.38
1310.0	1320.1	7.77
1350.0	1360.1	7.82
1410.0	1420.1	8.28
1450.0	1460.1	8.55
1510.0	1520.1	9.28
1550.0	1560.1	9.44
1610.0	1620.1	10.13
1650.0	1660.1	10.61
1710.0	1720.1	11.03

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1900.1MHz (dB)
		@LO (dBm) +7
1710.0	190.1	11.07
1670.0	230.1	10.72
1630.0	270.1	10.52
1590.0	310.1	10.08
1550.0	350.1	9.83
1510.0	390.1	9.63
1470.0	430.1	9.34
1430.0	470.1	9.17
1390.0	510.1	8.83
1350.0	550.1	8.72
1310.0	590.1	8.56
1270.0	630.1	8.41
1230.0	670.1	8.29
1190.0	710.1	8.19
1150.0	750.1	8.08
1110.0	790.1	8.01
1070.0	830.1	7.87
1030.0	870.1	7.91
990.0	910.1	7.86
950.0	950.1	7.94
910.0	990.1	7.93
870.0	1030.1	7.94
830.0	1070.1	8.00
790.0	1110.1	8.12
750.0	1150.1	8.21
710.0	1190.1	8.20
670.0	1230.1	8.25
610.0	1290.1	8.28
570.0	1330.1	8.30
510.0	1390.1	8.36
470.0	1430.1	8.32
410.0	1490.1	8.45
370.0	1530.1	8.53
310.0	1590.1	8.59
270.0	1630.1	8.64
210.0	1690.1	8.69
170.0	1730.1	8.66
110.0	1790.1	8.74
70.0	1830.1	8.68
10.0	1890.1	9.09

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)		
	+4	+7	+10	+4	+7	+10
40.1	54.38	50.17	47.47	59.47	59.84	60.09
100.1	55.22	51.44	49.02	52.17	52.80	53.32
160.1	54.05	50.57	48.32	48.23	48.82	49.45
220.1	52.65	49.58	47.67	45.45	46.15	46.99
280.1	51.93	49.21	46.94	43.31	44.09	44.91
340.1	50.99	48.15	45.68	41.70	42.67	43.48
400.1	49.26	46.62	44.55	40.43	41.39	42.21
460.1	47.19	44.95	43.30	39.41	40.37	41.21
520.1	45.27	43.43	41.90	38.40	39.33	40.16
580.1	42.89	41.81	40.96	37.61	38.58	39.49
640.1	40.78	39.90	39.31	36.93	37.90	38.80
700.1	38.99	38.27	37.87	36.37	37.38	38.30
760.1	37.24	37.01	36.65	35.79	36.99	37.89
820.1	35.84	35.85	35.96	35.14	36.46	37.60
880.1	34.94	34.97	35.14	34.66	36.08	37.32
940.1	33.72	33.67	33.92	34.00	35.43	36.82
1000.1	32.98	32.91	32.92	33.85	35.34	36.74
1060.1	32.08	32.44	32.47	31.26	33.03	34.56
1120.1	31.81	32.42	32.62	33.41	35.27	36.86
1180.1	30.94	31.65	32.11	33.38	35.24	36.86
1240.1	30.03	30.72	31.41	33.66	35.52	37.11
1300.1	29.60	30.30	31.12	33.89	35.79	37.33
1360.1	29.15	29.80	30.60	34.22	36.10	37.48
1420.1	28.53	29.04	29.76	34.49	36.19	37.39
1480.1	28.27	28.81	29.45	34.56	35.94	37.00
1540.1	28.20	28.84	29.46	34.48	35.51	36.36
1600.1	27.91	28.61	29.22	34.34	35.00	35.58
1660.1	27.68	28.46	29.15	34.25	34.50	34.85
1720.1	27.72	28.65	29.41	34.33	34.35	34.46
1780.1	27.72	28.76	29.62	34.45	34.39	34.34
1840.1	27.46	28.60	29.54	34.16	34.17	34.12
1900.1	27.32	28.55	29.61	33.88	33.96	33.98
1960.1	27.16	28.38	29.49	33.44	33.56	33.69
2020.1	27.07	28.21	29.29	32.85	33.02	33.27
2080.1	27.01	28.08	29.00	32.47	32.66	32.84
2140.1	27.15	28.05	28.95	32.05	32.13	32.39
2180.1	27.17	28.07	28.88	31.75	31.92	32.09
2240.1	27.60	28.48	29.32	31.50	31.63	31.89
2280.1	27.89	28.68	29.45	31.48	31.55	31.75
2340.1	28.57	29.13	29.85	31.57	31.49	31.76

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+4	+7	+10
10.1	40.1	52.93	51.65	51.36
70.1	100.1	36.36	36.74	36.70
130.1	160.1	32.03	32.19	32.45
190.1	220.1	29.32	29.79	29.92
250.1	280.1	28.14	28.67	28.88
310.1	340.1	27.44	28.08	28.33
370.1	400.1	27.49	28.23	28.50
430.1	460.1	27.92	29.01	29.50
490.1	520.1	28.66	30.14	31.09
550.1	580.1	29.75	31.09	31.79
610.1	640.1	29.40	30.44	30.89
670.1	700.1	26.46	26.99	27.23
730.1	760.1	22.74	22.91	22.99
790.1	820.1	19.76	19.73	19.80
850.1	880.1	17.61	17.43	17.42
910.1	940.1	16.11	15.81	15.71
970.1	1000.1	15.06	14.74	14.59
1030.1	1060.1	14.30	14.08	13.91
1090.1	1120.1	13.72	13.60	13.54
1150.1	1180.1	13.21	13.15	13.13
1210.1	1240.1	12.88	12.89	12.92
1270.1	1300.1	12.68	12.74	12.81
1330.1	1360.1	12.67	12.77	12.87
1390.1	1420.1	12.69	12.82	12.93
1450.1	1480.1	12.68	12.81	12.89
1510.1	1540.1	12.74	12.84	12.84
1570.1	1600.1	12.63	12.72	12.67
1630.1	1660.1	12.35	12.39	12.30
1690.1	1720.1	11.94	11.88	11.73
1750.1	1780.1	11.42	11.23	11.01
1810.1	1840.1	10.82	10.53	10.22
1870.1	1900.1	10.22	9.88	9.51
1930.1	1960.1	9.65	9.27	8.89
1990.1	2020.1	9.05	8.66	8.29
2050.1	2080.1	8.53	8.11	7.77
2110.1	2140.1	8.06	7.54	7.17
2150.1	2180.1	7.71	7.23	6.80
2210.1	2240.1	7.03	6.45	5.99
2250.1	2280.1	6.74	6.17	5.77
2310.1	2340.1	6.23	5.76	5.49

Frequency Mixer

ADE-ED7941/1

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)			IF (OUT) (MHz)	IF VSWR @LO=2000.1MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+4	+7	+10		+4	+7	+10		+4	+7	+10
10.1	40.1	1.17	1.08	1.15	40.1	1.21	2.05	4.11	10.1	1.48	1.49	1.50
70.1	100.1	1.40	1.12	1.04	100.1	1.17	1.62	2.38	70.1	1.05	1.09	1.13
130.1	160.1	1.38	1.09	1.09	160.1	1.20	1.58	2.23	130.1	1.06	1.09	1.13
190.1	220.1	1.42	1.10	1.07	220.1	1.25	1.63	2.27	190.1	1.07	1.11	1.15
250.1	280.1	1.41	1.11	1.04	280.1	1.30	1.61	2.18	230.1	1.06	1.10	1.14
310.1	340.1	1.37	1.10	1.03	340.1	1.34	1.64	2.23	290.1	1.07	1.11	1.15
370.1	400.1	1.38	1.15	1.07	400.1	1.38	1.66	2.24	330.1	1.07	1.12	1.16
430.1	460.1	1.43	1.22	1.13	460.1	1.40	1.67	2.23	390.1	1.08	1.13	1.17
490.1	520.1	1.48	1.28	1.19	520.1	1.43	1.73	2.30	430.1	1.09	1.14	1.18
550.1	580.1	1.56	1.37	1.28	580.1	1.45	1.76	2.30	490.1	1.11	1.15	1.19
610.1	640.1	1.63	1.45	1.36	640.1	1.46	1.79	2.32	530.1	1.12	1.17	1.21
670.1	700.1	1.67	1.49	1.42	700.1	1.48	1.83	2.37	590.1	1.16	1.19	1.23
730.1	760.1	1.74	1.58	1.50	760.1	1.50	1.85	2.38	630.1	1.19	1.22	1.25
790.1	820.1	1.75	1.64	1.58	820.1	1.52	1.89	2.42	690.1	1.24	1.27	1.30
850.1	880.1	1.74	1.67	1.64	880.1	1.55	1.94	2.46	730.1	1.29	1.31	1.33
910.1	940.1	1.73	1.67	1.68	940.1	1.56	1.96	2.47	790.1	1.39	1.40	1.43
970.1	1000.1	1.68	1.64	1.67	1000.1	1.58	1.99	2.49	830.1	1.45	1.46	1.48
1030.1	1060.1	1.69	1.64	1.67	1060.1	1.61	2.04	2.53	890.1	1.59	1.61	1.63
1090.1	1120.1	1.66	1.60	1.62	1120.1	1.64	2.07	2.55	930.1	1.68	1.69	1.70
1150.1	1180.1	1.66	1.60	1.59	1180.1	1.67	2.11	2.59	990.1	1.86	1.88	1.90
1210.1	1240.1	1.67	1.62	1.60	1240.1	1.70	2.14	2.62	1030.1	1.99	2.00	2.02
1270.1	1300.1	1.63	1.59	1.58	1300.1	1.73	2.16	2.63	1090.1	2.19	2.21	2.22
1330.1	1360.1	1.63	1.62	1.64	1360.1	1.76	2.20	2.66	1130.1	2.38	2.40	2.42
1390.1	1420.1	1.60	1.62	1.66	1420.1	1.81	2.25	2.71	1190.1	2.53	2.55	2.57
1450.1	1480.1	1.60	1.61	1.67	1480.1	1.85	2.29	2.74	1230.1	2.81	2.84	2.86
1510.1	1540.1	1.56	1.58	1.64	1540.1	1.91	2.36	2.81	1290.1	2.91	2.93	2.95
1570.1	1600.1	1.50	1.53	1.60	1600.1	1.94	2.38	2.82	1330.1	3.21	3.24	3.26
1630.1	1660.1	1.46	1.50	1.57	1660.1	2.00	2.44	2.88	1390.1	3.29	3.29	3.31
1690.1	1720.1	1.43	1.47	1.56	1720.1	2.06	2.51	2.95	1430.1	3.60	3.62	3.65
1750.1	1780.1	1.36	1.40	1.48	1780.1	2.10	2.53	2.95	1490.1	3.69	3.69	3.69
1810.1	1840.1	1.32	1.35	1.44	1840.1	2.18	2.61	3.04	1530.1	3.95	3.95	3.95
1870.1	1900.1	1.29	1.32	1.41	1900.1	2.22	2.65	3.06	1590.1	4.07	4.05	4.02
1930.1	1960.1	1.23	1.25	1.32	1960.1	2.30	2.71	3.13	1630.1	4.21	4.20	4.17
1990.1	2020.1	1.22	1.24	1.30	2020.1	2.37	2.77	3.18	1690.1	4.40	4.35	4.30
2050.1	2080.1	1.14	1.18	1.25	2080.1	2.40	2.79	3.19	1730.1	4.37	4.32	4.27
2110.1	2140.1	1.13	1.18	1.26	2140.1	2.47	2.84	3.24	1790.1	4.56	4.48	4.40
2150.1	2180.1	1.11	1.18	1.28	2180.1	2.48	2.83	3.22	1830.1	4.44	4.35	4.27
2210.1	2240.1	1.10	1.21	1.33	2240.1	2.51	2.84	3.24	1890.1	4.52	4.42	4.32
2250.1	2280.1	1.12	1.26	1.38	2280.1	2.52	2.85	3.25	1930.1	4.40	4.29	4.18
2310.1	2340.1	1.14	1.26	1.34	2340.1	2.62	2.93	3.33	1990.1	4.36	4.23	4.11

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	7	20	25	28	14	32	27	40	41	45
1	-	7	+0	25	22	22	29	27	39	35	41	46
2	88	68	60	63	55	56	52	>68	43	56	50	60
3	>90	56	62	>68	60	66	61	55	64	60	66	62
4	>90	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68
5	>90	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68
6	>90	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68
7	>90	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68
8	>90	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68
9	>90	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68
10	>90	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 1005.1 MHz; -14.00 dBm.
LO IN: 1035.1 MHz; +7.00 dBm
IF OUT: 30 MHz; -21.53 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	17	30	36	39	29	56	45	63	62	69
1	-	7	+0	26	22	26	33	34	55	47	58	78
2	68	51	51	51	62	54	50	57	40	56	52	65
3	>90	38	45	51	39	47	50	40	47	45	56	51
4	>90	69	76	71	66	65	62	62	60	69	51	62
5	>90	76	69	64	63	60	58	60	56	55	61	59
6	>90	77	77	>78	>78	>78	69	78	68	74	70	71
7	>90	>78	>78	>78	>78	75	>78	68	74	66	71	67
8	>90	>78	>78	>78	>78	>78	>78	>78	77	>78	78	>78
9	>90	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78	78
10	>90	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 1005.1 MHz; -4.00 dBm.
LO IN: 1035.1 MHz; +7.00 dBm
IF OUT: 30 MHz; -11.63 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.