

Frequency Mixer

ADE-ED6828/1

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)		
		0	+3	+6			0	+3	+6			0	+3	+6
200.0	230.0	18.75	13.07	11.09	200.0	230.0	3.03	11.70	16.76	200.0	230.0	-1.86	-0.25	-0.01
240.0	270.0	15.12	10.81	9.55	240.0	270.0	4.12	14.94	15.11	240.0	270.0	-1.39	-0.03	0.04
280.0	310.0	11.80	9.51	8.85	280.0	310.0	9.39	13.47	14.35	280.0	310.0	-0.35	0.05	0.03
320.0	350.0	9.88	8.27	7.77	320.0	350.0	12.22	12.99	13.04	320.0	350.0	0.08	0.17	0.03
360.0	390.0	9.06	7.98	7.55	360.0	390.0	13.89	12.60	13.47	360.0	390.0	0.27	0.15	0.04
400.0	430.0	7.93	7.20	6.88	400.0	430.0	11.87	11.50	12.51	400.0	430.0	0.56	0.22	0.10
440.0	470.0	7.62	6.97	6.64	440.0	470.0	10.96	11.32	12.36	440.0	470.0	0.56	0.25	0.11
480.0	510.0	7.22	6.68	6.41	480.0	510.0	10.77	12.06	13.34	480.0	510.0	0.64	0.30	0.16
520.0	550.0	6.91	6.41	6.14	520.0	550.0	9.57	10.99	13.28	520.0	550.0	0.75	0.35	0.20
560.0	590.0	6.80	6.32	6.03	560.0	590.0	9.77	10.07	11.75	560.0	590.0	0.73	0.40	0.23
600.0	630.0	6.50	6.06	5.77	600.0	630.0	10.92	10.90	11.31	600.0	630.0	0.89	0.48	0.32
640.0	670.0	6.52	6.08	5.79	640.0	670.0	10.77	12.18	12.10	640.0	670.0	0.90	0.50	0.31
680.0	710.0	6.31	5.92	5.66	680.0	710.0	9.95	13.72	14.75	680.0	710.0	1.03	0.60	0.39
720.0	750.0	6.33	5.91	5.64	720.0	750.0	8.56	11.30	12.95	720.0	750.0	1.07	0.61	0.39
760.0	790.0	6.20	5.79	5.53	760.0	790.0	8.23	10.54	12.34	760.0	790.0	1.22	0.73	0.50
800.0	830.0	6.17	5.72	5.44	800.0	830.0	8.20	10.56	13.45	800.0	830.0	1.34	0.86	0.57
840.0	870.0	6.23	5.75	5.45	840.0	870.0	9.44	9.87	12.06	840.0	870.0	1.38	0.92	0.60
900.0	930.0	6.38	5.83	5.48	900.0	930.0	11.72	12.07	10.92	900.0	930.0	1.38	0.99	0.68
940.0	970.0	6.46	5.93	5.56	940.0	970.0	7.99	14.92	12.15	940.0	970.0	1.39	1.03	0.74
1000.0	1030.0	6.72	6.13	5.71	1000.0	1030.0	6.13	7.90	13.66	1000.0	1030.0	1.34	1.04	0.79
1040.0	1070.0	6.91	6.27	5.78	1040.0	1070.0	6.93	8.37	11.74	1040.0	1070.0	1.27	1.02	0.84
1100.0	1130.0	7.04	6.42	5.89	1100.0	1130.0	7.63	8.84	11.88	1100.0	1130.0	1.36	1.06	0.86
1140.0	1170.0	7.16	6.55	6.02	1140.0	1170.0	7.80	9.25	12.17	1140.0	1170.0	1.34	1.04	0.87
1200.0	1230.0	7.52	6.90	6.34	1200.0	1230.0	7.17	8.12	10.15	1200.0	1230.0	1.26	0.98	0.82
1240.0	1270.0	7.66	7.04	6.47	1240.0	1270.0	6.89	7.63	9.12	1240.0	1270.0	1.24	0.91	0.78
1300.0	1330.0	7.82	7.21	6.64	1300.0	1330.0	5.55	5.82	6.79	1300.0	1330.0	1.28	0.90	0.69
1340.0	1370.0	7.86	7.15	6.53	1340.0	1370.0	5.58	6.38	7.95	1340.0	1370.0	1.26	0.91	0.71
1400.0	1430.0	7.84	7.07	6.52	1400.0	1430.0	7.34	9.18	10.69	1400.0	1430.0	1.41	0.98	0.71
1440.0	1470.0	7.82	7.08	6.59	1440.0	1470.0	7.74	9.77	10.77	1440.0	1470.0	1.45	0.95	0.66
1500.0	1530.0	8.21	7.53	7.07	1500.0	1530.0	7.60	9.51	10.24	1500.0	1530.0	1.20	0.76	0.52
1540.0	1570.0	8.30	7.68	7.23	1540.0	1570.0	7.02	9.08	10.03	1540.0	1570.0	1.11	0.72	0.50
1600.0	1630.0	8.91	8.35	7.93	1600.0	1630.0	6.29	8.64	10.08	1600.0	1630.0	0.74	0.51	0.42
1640.0	1670.0	8.97	8.53	8.20	1640.0	1670.0	5.93	7.94	9.73	1640.0	1670.0	0.59	0.36	0.33
1700.0	1730.0	9.22	8.84	8.69	1700.0	1730.0	8.69	8.60	9.88	1700.0	1730.0	0.57	0.21	0.15
1740.0	1770.0	9.10	8.59	8.44	1740.0	1770.0	11.78	9.91	10.86	1740.0	1770.0	0.68	0.29	0.18
1800.0	1830.0	9.88	9.04	8.80	1800.0	1830.0	27.24	11.96	13.29	1800.0	1830.0	0.43	0.27	0.16
1840.0	1870.0	10.18	9.14	8.80	1840.0	1870.0	13.32	12.70	13.43	1840.0	1870.0	0.33	0.25	0.15
1900.0	1930.0	11.05	9.84	9.42	1900.0	1930.0	10.67	14.96	13.29	1900.0	1930.0	0.10	0.17	0.10
1940.0	1970.0	11.26	9.97	9.49	1940.0	1970.0	9.36	15.57	13.34	1940.0	1970.0	0.06	0.14	0.10
2000.0	2030.0	12.16	10.75	10.22	2000.0	2030.0	8.07	15.28	15.49	2000.0	2030.0	-0.18	0.03	0.05

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Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=739.9MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=389.9MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1510.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+3			+3			+3
10.1	750.0	6.3	10.1	400.0	7.35	1350.1	160.0	13.73
11.1	751.0	6.3	70.1	460.0	7.55	1310.1	200.0	10.61
12.1	752.0	6.3	130.1	520.0	7.69	1270.1	240.0	9.19
13.1	753.0	6.3	190.1	580.0	7.87	1230.1	280.0	8.72
14.1	754.0	6.3	250.1	640.0	8.15	1190.1	320.0	8.24
15.1	755.0	6.3	310.1	700.0	8.20	1150.1	360.0	8.12
16.1	756.0	6.3	370.1	760.0	8.20	1110.1	400.0	8.01
17.1	757.0	6.3	430.1	820.0	8.24	1070.1	440.0	7.97
18.1	758.0	6.3	490.1	880.0	8.10	1030.1	480.0	7.85
19.1	759.0	6.3	550.1	940.0	8.18	990.1	520.0	7.63
20.1	760.0	6.3	610.1	1000.0	8.25	950.1	560.0	7.40
21.1	761.0	6.2	670.1	1060.0	8.23	910.1	600.0	7.23
22.1	762.0	6.3	730.1	1120.0	8.38	870.1	640.0	7.07
23.1	763.0	6.3	790.1	1180.0	8.43	830.1	680.0	6.91
24.1	764.0	6.3	850.1	1240.0	8.61	790.1	720.0	6.77
25.1	765.0	6.3	910.1	1300.0	8.73	750.1	760.0	6.76
26.1	766.0	6.4	970.1	1360.0	8.66	710.1	800.0	6.83
27.1	767.0	6.4	1030.1	1420.0	8.43	670.1	840.0	6.91
29.1	769.0	6.4	1090.1	1480.0	8.18	630.1	880.0	7.09
30.1	770.0	6.4	1150.1	1540.0	8.16	610.1	900.0	7.19
32.1	772.0	6.4	1210.1	1600.0	8.20	570.1	940.0	7.42
33.1	773.0	6.4	1270.1	1660.0	8.25	550.1	960.0	7.58
35.1	775.0	6.4	1330.1	1720.0	8.32	510.1	1000.0	7.83
36.1	776.0	6.3	1390.1	1780.0	8.46	490.1	1020.0	7.96
38.1	778.0	6.3	1450.1	1840.0	8.54	450.1	1060.0	8.17
39.1	779.0	6.3	1510.1	1900.0	8.71	430.1	1080.0	8.25
41.1	781.0	6.3	1550.1	1940.0	8.80	390.1	1120.0	8.42
42.1	782.0	6.3	1610.1	2000.0	8.92	370.1	1140.0	8.53
44.1	784.0	6.3	1650.1	2040.0	8.96	330.1	1180.0	8.68
45.1	785.0	6.3	1710.1	2100.0	9.14	310.1	1200.0	8.81
47.1	787.0	6.3	1750.1	2140.0	9.20	270.1	1240.0	8.85
48.1	788.0	6.4	1810.1	2200.0	9.35	250.1	1260.0	8.81
50.1	790.0	6.4	1850.1	2240.0	9.39	210.1	1300.0	8.76
51.1	791.0	6.4	1910.1	2300.0	9.62	190.1	1320.0	8.64
53.1	793.0	6.4	1950.1	2340.0	9.64	150.1	1360.0	8.42
54.1	794.0	6.4	2010.1	2400.0	9.90	130.1	1380.0	8.25
56.1	796.0	6.4	2050.1	2440.0	10.01	90.1	1420.0	7.86
57.1	797.0	6.4	2110.1	2500.0	10.44	70.1	1440.0	7.75
59.1	799.0	6.3	2150.1	2540.0	10.67	30.1	1480.0	7.62
60.1	800.0	6.3	2210.1	2600.0	11.11	10.1	1500.0	7.58

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Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)		
	0	+3	+6	0	+3	+6
230.0	46.41	46.87	48.05	57.90	46.02	40.53
270.0	44.33	44.99	46.31	55.81	45.09	40.35
310.0	42.40	43.53	45.32	52.30	44.19	40.22
350.0	40.71	42.30	44.17	54.07	45.23	40.67
390.0	39.60	41.41	43.36	58.42	46.62	41.23
430.0	38.39	40.33	42.39	52.11	46.52	40.94
470.0	36.79	38.66	40.56	46.44	45.27	41.27
510.0	36.67	38.54	40.43	42.60	42.48	40.02
550.0	36.10	38.03	39.90	39.59	40.59	39.11
590.0	35.58	37.69	39.55	37.44	38.98	38.38
630.0	35.15	37.45	39.50	35.28	37.07	37.83
670.0	34.61	36.90	38.91	33.72	35.36	36.28
710.0	33.94	36.29	38.27	32.35	34.09	35.04
750.0	33.17	35.51	37.50	31.04	32.77	33.72
790.0	32.36	34.75	36.76	29.92	31.67	32.31
830.0	31.73	34.22	36.40	28.86	31.09	31.84
870.0	30.87	33.44	35.70	27.64	30.54	32.30
930.0	29.71	32.15	34.51	25.90	28.55	30.82
970.0	29.15	31.44	33.74	24.98	27.43	29.84
1030.0	29.20	31.32	33.45	23.90	26.11	28.49
1070.0	29.00	31.16	33.28	23.29	25.36	27.71
1130.0	29.08	31.31	33.44	22.40	24.32	26.50
1170.0	29.25	31.50	33.65	21.98	23.77	25.86
1230.0	29.62	31.90	34.03	21.31	22.76	24.37
1270.0	29.88	32.08	34.15	21.07	22.26	23.42
1330.0	30.73	32.66	34.42	21.10	22.70	23.97
1370.0	31.19	32.92	34.45	20.97	22.91	24.55
1430.0	31.63	33.11	34.47	20.48	22.53	24.49
1470.0	32.10	33.41	34.75	20.03	22.02	24.10
1530.0	32.32	33.44	34.68	19.51	21.50	23.70
1570.0	32.27	33.39	34.63	19.16	21.11	23.30
1630.0	31.78	32.89	34.23	19.04	20.95	23.16
1670.0	31.29	32.39	33.86	18.91	20.80	22.93
1730.0	30.91	31.64	33.19	19.07	20.92	23.05
1770.0	31.21	31.59	33.02	19.09	20.94	22.99
1830.0	31.44	31.83	32.98	19.34	21.28	23.21
1870.0	31.36	31.87	32.96	19.50	21.41	23.28
1930.0	31.15	31.89	33.05	20.07	21.97	23.80
1970.0	31.02	31.87	33.01	20.34	22.19	23.92
2030.0	31.32	32.20	33.25	21.34	23.01	24.38

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		0	+3	+6
200.0	230.0	29.39	30.77	30.86
240.0	270.0	27.28	28.45	28.46
280.0	310.0	25.36	26.15	25.83
320.0	350.0	23.85	24.41	24.62
360.0	390.0	22.71	23.17	23.22
400.0	430.0	21.64	22.01	22.33
440.0	470.0	20.84	21.26	21.75
480.0	510.0	20.07	20.60	20.97
520.0	550.0	19.66	20.28	20.53
560.0	590.0	19.32	20.01	20.39
600.0	630.0	19.63	19.98	20.59
640.0	670.0	19.99	20.50	20.90
680.0	710.0	20.80	21.49	21.89
720.0	750.0	21.79	22.71	23.38
760.0	790.0	22.91	24.48	25.51
800.0	830.0	23.31	25.43	27.02
840.0	870.0	23.28	25.64	27.14
900.0	930.0	22.29	23.67	24.48
940.0	970.0	21.56	22.37	22.81
1000.0	1030.0	20.48	20.79	20.64
1040.0	1070.0	19.82	19.95	19.89
1100.0	1130.0	18.84	18.77	18.68
1140.0	1170.0	18.53	18.50	18.34
1200.0	1230.0	18.13	18.08	17.97
1240.0	1270.0	17.91	17.77	17.73
1300.0	1330.0	17.80	17.70	17.77
1340.0	1370.0	17.76	17.89	18.03
1400.0	1430.0	17.91	18.16	18.35
1440.0	1470.0	17.93	18.30	18.46
1500.0	1530.0	17.86	18.14	18.23
1540.0	1570.0	17.59	17.84	17.89
1600.0	1630.0	17.01	17.08	16.94
1640.0	1670.0	16.52	16.28	15.98
1700.0	1730.0	15.93	15.32	14.78
1740.0	1770.0	15.43	14.58	13.93
1800.0	1830.0	14.63	13.59	12.61
1840.0	1870.0	14.02	12.85	11.81
1900.0	1930.0	13.30	11.85	10.82
1940.0	1970.0	12.84	11.40	10.24
2000.0	2030.0	12.07	10.37	9.24

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Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)			IF (OUT) (MHz)	IF VSWR @LO=1500MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		0	+3	+6		0	+3	+6		0	+3	+6
200.0	230.0	28.96	19.98	14.74	230.0	31.03	15.13	8.12	10.0	2.15	1.74	1.48
240.0	270.0	17.39	11.61	9.79	270.0	19.98	9.38	5.87	50.0	2.10	1.72	1.47
280.0	310.0	11.77	8.47	7.70	310.0	11.24	5.93	4.73	90.0	2.07	1.70	1.46
320.0	350.0	8.12	6.51	5.99	350.0	7.60	4.57	4.11	130.0	2.07	1.70	1.46
360.0	390.0	6.19	5.38	5.00	390.0	5.31	3.76	3.76	170.0	2.07	1.71	1.48
400.0	430.0	5.00	4.48	4.24	430.0	3.95	3.18	3.50	190.0	2.14	1.78	1.54
440.0	470.0	4.16	3.79	3.60	470.0	3.25	2.88	3.33	230.0	2.13	1.77	1.54
480.0	510.0	3.64	3.37	3.22	510.0	2.71	2.66	3.25	250.0	2.11	1.76	1.53
520.0	550.0	3.06	2.88	2.82	550.0	2.35	2.48	3.16	290.0	2.10	1.77	1.54
560.0	590.0	2.74	2.59	2.53	590.0	2.10	2.38	3.12	310.0	2.11	1.78	1.54
600.0	630.0	2.40	2.31	2.26	630.0	1.91	2.29	3.07	350.0	2.15	1.81	1.58
640.0	670.0	2.17	2.10	2.07	670.0	1.79	2.26	3.08	370.0	2.18	1.86	1.63
680.0	710.0	1.98	1.94	1.93	710.0	1.68	2.24	3.09	410.0	2.20	1.89	1.67
720.0	750.0	1.76	1.74	1.74	750.0	1.60	2.21	3.06	430.0	2.14	1.85	1.63
760.0	790.0	1.64	1.63	1.65	790.0	1.56	2.22	3.11	470.0	2.16	1.88	1.67
800.0	830.0	1.48	1.49	1.53	830.0	1.52	2.19	3.06	490.0	2.25	1.98	1.75
840.0	870.0	1.39	1.41	1.47	870.0	1.54	2.22	3.11	530.0	2.31	2.05	1.84
900.0	930.0	1.22	1.27	1.36	930.0	1.57	2.26	3.13	550.0	2.27	2.04	1.84
940.0	970.0	1.15	1.18	1.26	970.0	1.63	2.34	3.24	590.0	2.28	2.08	1.89
1000.0	1030.0	1.07	1.04	1.15	1030.0	1.69	2.39	3.27	610.0	2.35	2.16	1.97
1040.0	1070.0	1.14	1.06	1.11	1070.0	1.77	2.47	3.38	650.0	2.38	2.21	2.06
1100.0	1130.0	1.33	1.27	1.26	1130.0	1.83	2.50	3.39	670.0	2.40	2.27	2.12
1140.0	1170.0	1.44	1.39	1.36	1170.0	1.91	2.58	3.50	710.0	2.48	2.38	2.27
1200.0	1230.0	1.77	1.71	1.66	1230.0	1.97	2.59	3.47	730.0	2.42	2.34	2.23
1240.0	1270.0	1.93	1.87	1.81	1270.0	2.05	2.66	3.55	770.0	2.39	2.35	2.26
1300.0	1330.0	2.34	2.27	2.22	1330.0	2.09	2.62	3.47	790.0	2.50	2.46	2.40
1340.0	1370.0	2.50	2.42	2.37	1370.0	2.14	2.63	3.48	830.0	2.53	2.54	2.51
1400.0	1430.0	2.98	2.90	2.82	1430.0	2.20	2.62	3.43	850.0	2.46	2.47	2.45
1440.0	1470.0	3.12	3.05	2.99	1470.0	2.37	2.76	3.57	890.0	2.47	2.52	2.53
1500.0	1530.0	3.65	3.58	3.50	1530.0	2.68	2.93	3.65	910.0	2.50	2.56	2.57
1540.0	1570.0	3.76	3.73	3.66	1570.0	2.98	3.14	3.84	950.0	2.47	2.55	2.59
1600.0	1630.0	4.28	4.30	4.23	1630.0	3.37	3.34	3.91	970.0	2.48	2.58	2.63
1640.0	1670.0	4.27	4.34	4.36	1670.0	3.74	3.59	4.10	1010.0	2.51	2.66	2.76
1700.0	1730.0	4.45	4.57	4.63	1730.0	4.11	3.79	4.18	1030.0	2.47	2.61	2.71
1740.0	1770.0	4.51	4.47	4.53	1770.0	4.53	4.09	4.40	1070.0	2.41	2.57	2.69
1800.0	1830.0	5.10	4.82	4.74	1830.0	4.84	4.27	4.45	1090.0	2.47	2.67	2.81
1840.0	1870.0	5.30	4.88	4.74	1870.0	5.33	4.63	4.74	1130.0	2.44	2.67	2.84
1900.0	1930.0	5.72	5.16	4.91	1930.0	5.61	4.78	4.80	1150.0	2.43	2.66	2.84
1940.0	1970.0	5.75	5.19	4.88	1970.0	6.30	5.20	5.14	1190.0	2.36	2.63	2.84
2000.0	2030.0	6.05	5.36	5.00	2030.0	6.53	5.30	5.14	1210.0	2.34	2.64	2.86

Frequency Mixer

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Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	0	18	5	32	21	48	47	45	35	40
1	-	16	0	23	12	37	34	37	49	59	52	50
2	43	46	49	50	43	73	45	57	58	80	79	70
3	38	64	57	57	58	55	54	69	71	84	79	79
4	70	84	81	83	77	80	76	93	76	86	91	87
5	55	99	87	93	88	92	83	88	87	87	81	85
6	92	79	96	83	87	89	86	92	86	82	87	83
7	79	97	86	85	90	84	90	95	85	88	85	93
8	89	80	82	88	84	82	92	84	88	95	88	83
9	100	81	86	94	85	102	86	87	89	83	89	88
10	87	81	84	80	89	83	94	89	86	84	90	92
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 950 MHz; -16 dBm
LO IN: 980 MHz; +3.00 dBm
IF OUT: 30 MHz; -21.90 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	11	31	16	45	34	62	58	56	51	63
1	-	16	0	25	13	41	36	41	59	65	62	58
2	43	37	36	43	33	50	39	53	50	70	76	66
3	38	45	49	41	52	40	42	56	52	55	66	76
4	70	81	56	59	75	57	63	69	56	61	72	85
5	55	70	65	67	55	54	52	53	56	69	67	79
6	92	88	90	92	72	83	66	70	66	71	73	79
7	79	95	89	84	82	82	70	72	66	67	67	90
8	89	94	100	101	103	103	87	82	81	82	92	80
9	100	96	98	95	96	90	99	86	83	88	85	78
10	87	93	96	96	99	93	101	109	92	103	93	88
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 950 MHz; -6 dBm
LO IN: 980 MHz; +3.00 dBm
IF OUT: 30 MHz; -11.90 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.

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