

Frequency Mixer

ADE-ED8019/1

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB)		
		@LO (dBm)		
		+4	+7	+10
10.1	40.1	7.90	6.83	6.45
70.1	100.1	7.82	7.16	6.87
130.1	160.1	8.04	7.26	6.89
190.1	220.1	8.00	7.27	6.92
250.1	280.1	8.25	7.40	7.05
310.1	340.1	8.04	7.24	6.97
370.1	400.1	7.86	7.20	6.98
430.1	460.1	8.02	7.35	7.09
490.1	520.1	8.01	7.40	7.16
550.1	580.1	7.98	7.39	7.14
630.1	660.1	8.19	7.60	7.32
690.1	720.1	8.11	7.55	7.30
770.1	800.1	8.13	7.61	7.38
830.1	860.1	8.17	7.64	7.38
910.1	940.1	8.21	7.72	7.45
970.1	1000.1	8.11	7.67	7.44
1050.1	1080.1	8.11	7.70	7.49
1110.1	1140.1	8.11	7.70	7.49
1190.1	1220.1	8.11	7.66	7.44
1250.1	1280.1	8.20	7.67	7.43
1330.1	1360.1	8.44	7.91	7.63
1390.1	1420.1	8.52	8.05	7.77
1470.1	1500.1	8.54	8.15	7.91
1530.1	1560.1	8.70	8.31	8.06
1610.1	1640.1	8.78	8.42	8.20
1670.1	1700.1	8.90	8.57	8.35
1750.1	1780.1	9.08	8.77	8.56
1810.1	1840.1	9.29	8.97	8.77
1890.1	1920.1	9.50	9.21	9.04
1950.1	1980.1	9.67	9.35	9.17
2030.1	2060.1	9.84	9.50	9.30
2090.1	2120.1	10.01	9.67	9.52
2170.1	2200.1	10.14	9.89	9.80
2230.1	2260.1	10.24	9.99	9.89
2310.1	2340.1	10.48	10.24	10.14
2370.1	2400.1	10.78	10.55	10.46
2450.1	2480.1	11.15	10.85	10.74
2510.1	2540.1	11.41	11.03	10.87
2590.1	2620.1	11.81	11.34	11.15
2650.1	2680.1	12.30	11.66	11.42

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)		
		@LO (dBm)		
		+4	+7	+10
10.1	40.1	8.50	11.65	15.97
70.1	100.1	9.47	11.94	13.87
130.1	160.1	8.62	11.77	12.95
190.1	220.1	8.76	11.73	15.88
250.1	280.1	8.17	11.79	17.36
310.1	340.1	9.38	15.56	18.77
370.1	400.1	10.57	18.06	16.92
430.1	460.1	11.75	14.99	15.32
490.1	520.1	13.70	13.62	14.50
550.1	580.1	13.95	14.22	14.69
630.1	660.1	10.55	10.53	12.62
690.1	720.1	11.11	11.42	11.92
770.1	800.1	8.81	10.64	11.86
830.1	860.1	8.48	10.20	12.83
910.1	940.1	8.96	9.02	10.51
970.1	1000.1	10.12	9.97	10.08
1050.1	1080.1	10.62	11.04	11.09
1110.1	1140.1	11.20	13.24	12.71
1190.1	1220.1	9.64	14.65	16.79
1250.1	1280.1	9.53	13.67	15.73
1330.1	1360.1	8.76	10.62	13.32
1390.1	1420.1	8.36	8.81	11.01
1470.1	1500.1	8.83	8.72	9.23
1530.1	1560.1	9.21	9.34	9.79
1610.1	1640.1	10.34	10.04	11.19
1670.1	1700.1	11.10	10.74	11.47
1750.1	1780.1	12.24	12.30	12.21
1810.1	1840.1	13.05	14.37	13.78
1890.1	1920.1	12.95	14.86	15.16
1950.1	1980.1	11.65	12.49	15.01
2030.1	2060.1	10.09	9.86	12.23
2090.1	2120.1	8.52	9.58	13.45
2170.1	2200.1	9.47	11.46	15.43
2230.1	2260.1	10.92	12.83	16.58
2310.1	2340.1	12.93	15.38	17.70
2370.1	2400.1	12.75	16.27	18.09
2450.1	2480.1	11.69	14.88	16.30
2510.1	2540.1	11.64	14.14	15.32
2590.1	2620.1	10.08	13.61	14.27
2650.1	2680.1	9.16	12.20	13.64

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+1dBm (dB)		
		@LO (dBm)		
		+4	+7	+10
10.1	40.1	1.10	0.65	0.18
70.1	100.1	0.96	0.52	0.32
130.1	160.1	0.81	0.43	0.28
190.1	220.1	0.88	0.53	0.34
250.1	280.1	0.75	0.48	0.31
310.1	340.1	0.97	0.64	0.42
370.1	400.1	1.14	0.76	0.53
430.1	460.1	1.14	0.74	0.54
490.1	520.1	1.18	0.82	0.61
550.1	580.1	1.28	0.92	0.72
630.1	660.1	1.22	0.90	0.73
690.1	720.1	1.31	0.98	0.80
770.1	800.1	1.32	1.00	0.80
830.1	860.1	1.25	0.97	0.82
910.1	940.1	1.22	0.89	0.75
970.1	1000.1	1.26	0.92	0.74
1050.1	1080.1	1.22	0.88	0.70
1110.1	1140.1	1.18	0.87	0.69
1190.1	1220.1	1.20	0.91	0.75
1250.1	1280.1	1.11	0.88	0.70
1330.1	1360.1	0.93	0.69	0.54
1390.1	1420.1	0.89	0.59	0.44
1470.1	1500.1	0.96	0.57	0.38
1530.1	1560.1	0.87	0.50	0.33
1610.1	1640.1	0.91	0.52	0.32
1670.1	1700.1	0.94	0.53	0.34
1750.1	1780.1	0.95	0.53	0.34
1810.1	1840.1	0.85	0.50	0.33
1890.1	1920.1	0.88	0.54	0.37
1950.1	1980.1	0.93	0.59	0.41
2030.1	2060.1	0.92	0.55	0.36
2090.1	2120.1	0.85	0.46	0.24
2170.1	2200.1	0.85	0.37	0.16
2230.1	2260.1	0.92	0.36	0.16
2310.1	2340.1	0.84	0.32	0.15
2370.1	2400.1	0.81	0.31	0.16
2450.1	2480.1	1.00	0.43	0.24
2510.1	2540.1	1.05	0.49	0.28
2590.1	2620.1	1.10	0.61	0.38
2650.1	2680.1	1.14	0.72	0.46

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1010.1MHz (dB)
		@LO (dBm) +7
990.0	20.1	7.51
970.0	40.1	7.44
950.0	60.1	7.53
930.0	80.1	7.55
910.0	100.1	7.47
890.0	120.1	7.54
870.0	140.1	7.53
850.0	160.1	7.58
830.0	180.1	7.54
810.0	200.1	7.49
790.0	220.1	7.44
770.0	240.1	7.36
750.0	260.1	7.44
730.0	280.1	7.45
710.0	300.1	7.39
690.0	320.1	7.30
670.0	340.1	7.31
650.0	360.1	7.34
630.0	380.1	7.35
610.0	400.1	7.39
570.0	440.1	7.29
550.0	460.1	7.31
510.0	500.1	7.37
490.0	520.1	7.39
450.0	560.1	7.45
430.0	580.1	7.39
390.0	620.1	7.45
370.0	640.1	7.49
330.0	680.1	7.48
310.0	700.1	7.49
270.0	740.1	7.54
250.0	760.1	7.65
210.0	800.1	7.71
190.0	820.1	7.62
150.0	860.1	7.62
130.0	880.1	7.60
90.0	920.1	7.62
70.0	940.1	7.63
30.0	980.1	7.56
10.0	1000.1	8.05

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=10.1MHz (dB)
		@LO (dBm) +7
10.0	20.1	7.36
50.0	60.1	6.85
90.0	100.1	6.93
130.0	140.1	7.02
170.0	180.1	6.88
210.0	220.1	6.66
250.0	260.1	6.64
290.0	300.1	6.83
330.0	340.1	6.52
370.0	380.1	6.47
410.0	420.1	6.58
470.0	480.1	6.68
510.0	520.1	6.47
570.0	580.1	6.43
610.0	620.1	6.26
670.0	680.1	6.35
710.0	720.1	6.40
770.0	780.1	6.41
810.0	820.1	6.60
870.0	880.1	6.56
910.0	920.1	6.37
970.0	980.1	6.58
1010.0	1020.1	6.77
1070.0	1080.1	6.75
1110.0	1120.1	6.65
1170.0	1180.1	6.82
1210.0	1220.1	6.80
1270.0	1280.1	6.87
1310.0	1320.1	7.28
1370.0	1380.1	7.53
1410.0	1420.1	7.70
1470.0	1480.1	8.03
1510.0	1520.1	8.39
1570.0	1580.1	8.90
1610.0	1620.1	9.24
1670.0	1680.1	9.76
1710.0	1720.1	9.96
1770.0	1780.1	10.44
1810.0	1820.1	10.71
1870.0	1880.1	11.10

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=2000.1MHz (dB)
		@LO (dBm) +7
1710.0	290.1	11.04
1670.0	330.1	10.72
1630.0	370.1	10.54
1590.0	410.1	10.20
1550.0	450.1	9.94
1510.0	490.1	9.79
1470.0	530.1	9.55
1430.0	570.1	9.42
1390.0	610.1	9.17
1350.0	650.1	9.09
1310.0	690.1	8.98
1270.0	730.1	8.80
1230.0	770.1	8.67
1190.0	810.1	8.59
1150.0	850.1	8.51
1110.0	890.1	8.48
1070.0	930.1	8.37
1030.0	970.1	8.41
990.0	1010.1	8.35
950.0	1050.1	8.38
910.0	1090.1	8.46
870.0	1130.1	8.53
830.0	1170.1	8.58
790.0	1210.1	8.65
750.0	1250.1	8.75
710.0	1290.1	8.75
670.0	1330.1	8.79
610.0	1390.1	8.81
570.0	1430.1	8.73
510.0	1490.1	8.83
470.0	1530.1	8.88
410.0	1590.1	8.99
370.0	1630.1	9.08
310.0	1690.1	9.16
270.0	1730.1	9.21
210.0	1790.1	9.33
170.0	1830.1	9.33
110.0	1890.1	9.45
70.0	1930.1	9.42
10.0	1990.1	9.90

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	34.16	31.50	29.63	57.85	57.41	57.11
100.1	35.45	33.35	31.86	50.63	50.58	50.46
160.1	36.07	34.03	32.60	46.67	46.72	46.80
220.1	36.47	34.41	32.96	43.91	44.04	44.27
280.1	36.78	34.58	33.07	41.88	42.14	42.38
340.1	37.41	35.09	33.49	40.36	40.77	41.06
400.1	38.25	35.91	34.29	39.10	39.57	39.86
460.1	38.82	36.23	34.56	38.07	38.55	38.92
520.1	39.46	36.68	34.91	37.14	37.63	38.01
580.1	40.33	37.35	35.45	36.38	36.96	37.45
660.1	41.86	38.47	36.32	35.37	36.05	36.55
720.1	43.17	39.10	36.74	34.70	35.44	36.02
800.1	46.21	41.03	38.15	33.79	34.64	35.28
860.1	48.77	42.36	38.97	33.19	34.08	34.76
940.1	54.30	44.26	40.15	32.44	33.36	34.08
1000.1	55.94	45.52	40.94	32.06	32.95	33.65
1080.1	49.97	46.82	42.36	31.61	32.56	33.24
1140.1	46.47	45.16	41.60	31.28	32.25	32.91
1220.1	43.24	42.54	40.55	31.05	32.01	32.62
1280.1	42.72	42.30	40.26	30.97	31.89	32.52
1360.1	42.17	41.39	39.20	30.97	31.90	32.53
1420.1	41.47	40.81	38.52	30.96	31.87	32.53
1500.1	39.13	38.52	36.69	31.29	32.09	32.74
1560.1	38.07	37.18	35.39	31.54	32.28	32.87
1640.1	36.18	35.30	33.91	32.14	32.74	33.19
1700.1	35.04	34.05	32.87	32.69	33.25	33.63
1780.1	33.15	32.25	31.34	33.55	33.98	34.28
1840.1	31.90	31.00	30.09	34.15	34.43	34.57
1920.1	30.58	29.64	28.78	34.64	34.52	34.33
1980.1	29.80	28.80	27.90	34.81	34.27	33.82
2060.1	28.90	27.79	26.95	34.29	33.32	32.72
2120.1	28.20	26.88	26.03	33.67	32.36	31.78
2200.1	27.58	26.47	25.57	33.34	32.11	31.43
2260.1	27.43	26.33	25.46	33.25	31.89	31.09
2340.1	27.08	25.97	25.31	32.89	31.27	30.52
2400.1	26.43	25.67	24.87	32.68	31.19	30.26
2480.1	26.07	25.66	24.96	32.69	31.28	30.29
2540.1	25.48	25.46	24.94	31.68	30.71	29.74
2620.1	24.48	24.92	24.75	30.47	30.08	29.35
2680.1	23.20	23.96	24.13	29.32	29.45	29.09

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+4	+7	+10
10.1	40.1	56.13	57.28	60.32
70.1	100.1	40.21	41.17	41.58
130.1	160.1	35.66	36.79	37.53
190.1	220.1	33.01	34.08	34.64
250.1	280.1	31.85	33.24	34.10
310.1	340.1	31.12	32.72	33.54
370.1	400.1	31.32	33.21	34.23
430.1	460.1	31.44	33.57	35.03
490.1	520.1	32.07	34.74	36.35
550.1	580.1	33.09	35.90	37.56
630.1	660.1	32.24	33.44	33.70
690.1	720.1	30.06	30.14	29.78
770.1	800.1	25.84	25.48	25.20
830.1	860.1	23.62	23.24	23.00
910.1	940.1	21.39	20.86	20.62
970.1	1000.1	20.46	19.97	19.60
1050.1	1080.1	19.51	19.14	18.86
1110.1	1140.1	19.20	18.92	18.70
1190.1	1220.1	18.72	18.43	18.17
1250.1	1280.1	18.54	18.21	17.94
1330.1	1360.1	18.45	18.00	17.73
1390.1	1420.1	18.22	17.68	17.29
1470.1	1500.1	17.59	16.95	16.40
1530.1	1560.1	16.85	16.22	15.62
1610.1	1640.1	15.61	14.96	14.35
1670.1	1700.1	14.65	13.99	13.43
1750.1	1780.1	13.47	12.82	12.25
1810.1	1840.1	12.58	11.97	11.42
1890.1	1920.1	11.42	10.84	10.35
1950.1	1980.1	10.68	10.10	9.61
2030.1	2060.1	9.52	8.93	8.46
2090.1	2120.1	8.60	8.07	7.67
2170.1	2200.1	7.78	7.30	7.03
2230.1	2260.1	7.34	6.92	6.64
2310.1	2340.1	6.87	6.47	6.29
2370.1	2400.1	6.66	6.33	6.07
2450.1	2480.1	6.49	6.09	5.85
2510.1	2540.1	6.43	6.07	5.82
2590.1	2620.1	6.30	5.97	5.75
2650.1	2680.1	6.13	5.86	5.66

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	1.49	1.25	1.15	40.1	1.17	1.93	3.82	10.1	1.29	1.30	1.31
70.1	100.1	1.39	1.11	1.05	100.1	1.12	1.53	2.24	50.1	1.02	1.04	1.08
130.1	160.1	1.44	1.14	1.05	160.1	1.17	1.52	2.14	90.1	1.01	1.05	1.09
190.1	220.1	1.46	1.14	1.04	220.1	1.21	1.55	2.14	130.1	1.02	1.06	1.10
250.1	280.1	1.45	1.13	1.01	280.1	1.25	1.54	2.08	170.1	1.03	1.06	1.11
310.1	340.1	1.42	1.13	1.02	340.1	1.29	1.56	2.13	210.1	1.04	1.08	1.12
370.1	400.1	1.40	1.15	1.05	400.1	1.31	1.58	2.13	250.1	1.05	1.09	1.13
430.1	460.1	1.42	1.19	1.08	460.1	1.33	1.60	2.14	270.1	1.05	1.09	1.13
490.1	520.1	1.45	1.23	1.13	520.1	1.35	1.65	2.21	310.1	1.07	1.10	1.14
550.1	580.1	1.49	1.28	1.19	580.1	1.36	1.68	2.22	330.1	1.08	1.11	1.15
630.1	660.1	1.53	1.33	1.25	660.1	1.38	1.72	2.25	370.1	1.09	1.13	1.16
690.1	720.1	1.57	1.39	1.30	720.1	1.40	1.77	2.31	390.1	1.10	1.14	1.18
770.1	800.1	1.62	1.47	1.40	800.1	1.43	1.83	2.38	430.1	1.13	1.17	1.21
830.1	860.1	1.60	1.48	1.42	860.1	1.45	1.86	2.39	450.1	1.13	1.16	1.20
910.1	940.1	1.60	1.50	1.48	940.1	1.49	1.92	2.45	490.1	1.17	1.20	1.24
970.1	1000.1	1.60	1.52	1.51	1000.1	1.52	1.96	2.49	510.1	1.18	1.22	1.26
1050.1	1080.1	1.58	1.51	1.51	1080.1	1.56	2.01	2.54	550.1	1.20	1.23	1.27
1110.1	1140.1	1.52	1.47	1.48	1140.1	1.60	2.07	2.58	570.1	1.24	1.28	1.31
1190.1	1220.1	1.51	1.46	1.48	1220.1	1.64	2.11	2.61	610.1	1.27	1.30	1.34
1250.1	1280.1	1.52	1.47	1.49	1280.1	1.66	2.12	2.62	630.1	1.29	1.32	1.36
1330.1	1360.1	1.52	1.50	1.51	1360.1	1.74	2.21	2.70	670.1	1.35	1.39	1.42
1390.1	1420.1	1.49	1.51	1.54	1420.1	1.80	2.27	2.77	690.1	1.36	1.39	1.43
1470.1	1500.1	1.48	1.51	1.58	1500.1	1.85	2.33	2.82	730.1	1.40	1.44	1.48
1530.1	1560.1	1.47	1.53	1.61	1560.1	1.91	2.38	2.86	750.1	1.46	1.50	1.54
1610.1	1640.1	1.42	1.50	1.61	1640.1	2.00	2.48	2.95	790.1	1.51	1.55	1.59
1670.1	1700.1	1.37	1.45	1.55	1700.1	2.05	2.52	3.00	810.1	1.55	1.59	1.63
1750.1	1780.1	1.36	1.42	1.52	1780.1	2.11	2.57	3.03	850.1	1.65	1.69	1.73
1810.1	1840.1	1.34	1.42	1.53	1840.1	2.19	2.64	3.10	870.1	1.66	1.70	1.74
1890.1	1920.1	1.31	1.40	1.51	1920.1	2.27	2.72	3.17	910.1	1.75	1.79	1.83
1950.1	1980.1	1.28	1.36	1.47	1980.1	2.27	2.69	3.13	930.1	1.78	1.82	1.86
2030.1	2060.1	1.32	1.44	1.58	2060.1	2.31	2.70	3.13	970.1	1.89	1.93	1.98
2090.1	2120.1	1.40	1.57	1.72	2120.1	2.39	2.80	3.25	990.1	1.97	2.02	2.07
2170.1	2200.1	1.43	1.59	1.70	2200.1	2.51	2.90	3.34	1030.1	2.06	2.11	2.15
2230.1	2260.1	1.43	1.57	1.68	2260.1	2.61	2.95	3.35	1050.1	2.16	2.21	2.25
2310.1	2340.1	1.45	1.59	1.68	2340.1	2.86	3.14	3.51	1090.1	2.27	2.32	2.37
2370.1	2400.1	1.40	1.53	1.62	2400.1	3.03	3.28	3.63	1110.1	2.26	2.31	2.36
2450.1	2480.1	1.31	1.43	1.51	2480.1	3.24	3.40	3.70	1150.1	2.46	2.52	2.57
2510.1	2540.1	1.28	1.39	1.47	2540.1	3.41	3.51	3.77	1170.1	2.53	2.59	2.64
2590.1	2620.1	1.23	1.33	1.39	2620.1	3.65	3.70	3.93	1210.1	2.63	2.68	2.73
2650.1	2680.1	1.17	1.25	1.31	2680.1	3.82	3.79	3.96	1230.1	2.78	2.84	2.90

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	4	23	16	43	14	37	40	51	47	55
1	-	12	+0	27	19	23	32	28	42	34	51	44
2	87	>68	63	61	59	68	56	67	43	66	60	>68
3	>90	53	59	59	58	65	59	54	65	60	67	61
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: 1000.1 MHz; -14.00 dBm.
LO IN: 1030.1 MHz; +7.00 dBm
IF OUT: 30 MHz; -21.6 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	14	33	28	50	28	53	56	65	57	73
1	-	12	+0	29	19	28	36	35	58	47	64	64
2	68	55	55	63	59	63	51	65	40	64	63	74
3	>90	36	43	45	38	51	48	39	52	45	61	51
4	>90	73	69	>78	72	69	68	78	65	72	53	73
5	>90	71	69	57	59	61	52	61	58	53	64	58
6	>90	>78	>78	>78	>78	>78	>78	77	>78	>78	77	>78
7	>90	77	>78	76	>78	70	>78	74	66	69	72	64
8	>90	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78
9	>90	>78	>78	>78	>78	>78	>78	>78	>78	>78	75	>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: 1000.1 MHz; -4.00 dBm.
LO IN: 1030.1 MHz; +7.00 dBm
IF OUT: 30 MHz; -11.66 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.