

Frequency Mixer

ADE-ED7185/1

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB)		
		@LO (dBm)		
		+4	+7	+10
180.0	210.0	11.57	10.65	10.39
220.0	250.0	9.80	9.18	8.95
260.0	290.0	8.85	8.43	8.23
300.0	330.0	7.94	7.63	7.47
340.0	370.0	7.47	7.18	7.01
380.0	410.0	7.02	6.78	6.63
420.0	450.0	6.76	6.52	6.36
460.0	490.0	6.56	6.33	6.18
500.0	530.0	6.30	6.09	5.95
540.0	570.0	6.25	6.02	5.86
580.0	610.0	6.04	5.81	5.68
620.0	650.0	6.01	5.76	5.59
660.0	690.0	5.95	5.69	5.50
700.0	730.0	5.84	5.60	5.42
740.0	770.0	5.82	5.58	5.41
800.0	830.0	5.80	5.53	5.33
840.0	870.0	5.78	5.52	5.32
900.0	930.0	5.77	5.48	5.30
940.0	970.0	5.82	5.50	5.30
1000.0	1030.0	5.95	5.60	5.37
1040.0	1070.0	6.08	5.71	5.44
1100.0	1130.0	6.21	5.86	5.66
1140.0	1170.0	6.42	5.95	5.67
1200.0	1230.0	6.69	6.19	5.85
1240.0	1270.0	6.88	6.37	5.98
1300.0	1330.0	7.16	6.66	6.26
1340.0	1370.0	7.39	6.91	6.49
1400.0	1430.0	7.70	7.27	6.90
1440.0	1470.0	7.83	7.39	7.03
1500.0	1530.0	8.10	7.66	7.34
1540.0	1570.0	8.24	7.82	7.50
1600.0	1630.0	8.55	8.18	7.91
1640.0	1670.0	8.75	8.37	8.11
1700.0	1730.0	9.17	8.87	8.66
1740.0	1770.0	9.43	9.14	8.93
1800.0	1830.0	9.84	9.62	9.46
1840.0	1870.0	9.92	9.75	9.63
1900.0	1930.0	9.96	9.82	9.74
1940.0	1970.0	10.17	9.94	9.87
2000.0	2030.0	10.82	10.50	10.38

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)		
		@LO (dBm)		
		+4	+7	+10
180.0	210.0	18.35	15.56	15.87
220.0	250.0	14.41	14.52	14.93
260.0	290.0	13.06	13.15	14.43
300.0	330.0	11.81	12.53	13.76
340.0	370.0	10.93	11.72	13.44
380.0	410.0	10.57	11.87	13.04
420.0	450.0	10.29	11.43	12.65
460.0	490.0	11.16	12.45	13.54
500.0	530.0	10.89	11.93	13.17
540.0	570.0	11.04	12.06	12.83
580.0	610.0	10.96	12.08	12.47
620.0	650.0	9.29	10.54	11.70
660.0	690.0	9.42	10.41	11.58
700.0	730.0	10.02	10.51	11.28
740.0	770.0	11.02	11.17	11.18
800.0	830.0	10.19	11.34	11.84
840.0	870.0	10.04	11.21	12.01
900.0	930.0	9.71	10.87	11.64
940.0	970.0	9.34	10.53	11.44
1000.0	1030.0	9.65	9.69	10.69
1040.0	1070.0	10.61	9.23	9.77
1100.0	1130.0	17.17	10.87	9.34
1140.0	1170.0	12.66	13.61	11.15
1200.0	1230.0	9.83	11.48	11.56
1240.0	1270.0	8.74	10.32	11.29
1300.0	1330.0	8.09	9.46	10.56
1340.0	1370.0	7.59	8.79	9.85
1400.0	1430.0	7.12	8.07	9.46
1440.0	1470.0	7.54	8.83	10.46
1500.0	1530.0	8.70	10.40	12.05
1540.0	1570.0	8.98	10.71	12.22
1600.0	1630.0	10.00	11.77	12.83
1640.0	1670.0	10.14	12.00	13.15
1700.0	1730.0	9.60	11.92	13.26
1740.0	1770.0	8.97	11.32	12.83
1800.0	1830.0	8.76	10.90	12.89
1840.0	1870.0	9.04	10.36	12.52
1900.0	1930.0	14.09	13.25	14.71
1940.0	1970.0	15.62	14.47	15.68
2000.0	2030.0	17.80	16.44	16.99

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=0dBm (dB)		
		@LO (dBm)		
		+4	+7	+10
180.0	210.0	0.00	0.00	0.01
220.0	250.0	0.07	0.01	0.00
260.0	290.0	0.10	0.02	0.00
300.0	330.0	0.19	0.08	0.03
340.0	370.0	0.25	0.12	0.07
380.0	410.0	0.31	0.18	0.12
420.0	450.0	0.41	0.25	0.16
460.0	490.0	0.47	0.31	0.21
500.0	530.0	0.57	0.39	0.28
540.0	570.0	0.63	0.44	0.33
580.0	610.0	0.76	0.55	0.41
620.0	650.0	0.88	0.67	0.52
660.0	690.0	0.95	0.74	0.59
700.0	730.0	1.09	0.87	0.70
740.0	770.0	1.13	0.91	0.73
800.0	830.0	1.32	1.09	0.90
840.0	870.0	1.42	1.15	0.93
900.0	930.0	1.56	1.27	1.01
940.0	970.0	1.59	1.30	1.07
1000.0	1030.0	1.66	1.37	1.15
1040.0	1070.0	1.66	1.40	1.21
1100.0	1130.0	1.66	1.36	1.08
1140.0	1170.0	1.58	1.38	1.17
1200.0	1230.0	1.46	1.27	1.08
1240.0	1270.0	1.44	1.24	1.07
1300.0	1330.0	1.27	1.08	0.92
1340.0	1370.0	1.17	0.96	0.83
1400.0	1430.0	0.98	0.73	0.59
1440.0	1470.0	0.95	0.70	0.56
1500.0	1530.0	0.79	0.55	0.40
1540.0	1570.0	0.78	0.52	0.38
1600.0	1630.0	0.60	0.39	0.27
1640.0	1670.0	0.56	0.37	0.26
1700.0	1730.0	0.41	0.29	0.22
1740.0	1770.0	0.35	0.28	0.22
1800.0	1830.0	0.24	0.21	0.18
1840.0	1870.0	0.22	0.15	0.13
1900.0	1930.0	0.30	0.16	0.12
1940.0	1970.0	0.33	0.17	0.13
2000.0	2030.0	0.17	0.10	0.09

Frequency Mixer

ADE-ED7185/1

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=839.9MHz (dB)
		@LO (dBm)
		+7
10.1	850.0	6.0
70.1	910.0	5.8
130.1	970.0	5.8
190.1	1030.0	5.9
230.1	1070.0	6.0
290.1	1130.0	5.9
330.1	1170.0	5.9
390.1	1230.0	5.9
430.1	1270.0	5.8
490.1	1330.0	5.9
530.1	1370.0	6.0
590.1	1430.0	6.0
630.1	1470.0	5.9
690.1	1530.0	5.9
730.1	1570.0	5.8
790.1	1630.0	5.7
830.1	1670.0	5.5
890.1	1730.0	5.3
930.1	1770.0	5.3
990.1	1830.0	5.3
1030.1	1870.0	5.3
1090.1	1930.0	5.4
1130.1	1970.0	5.5
1190.1	2030.0	5.6
1230.1	2070.0	5.7
1290.1	2130.0	5.7
1330.1	2170.0	5.9
1390.1	2230.0	6.0
1430.1	2270.0	6.1
1490.1	2330.0	6.2
1530.1	2370.0	6.2
1590.1	2430.0	6.1
1630.1	2470.0	6.1
1690.1	2530.0	6.2
1730.1	2570.0	6.5
1790.1	2630.0	6.8
1830.1	2670.0	7.3
1890.1	2730.0	8.0
1930.1	2770.0	8.7
1990.1	2830.0	9.7

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=689.9MHz (dB)
		@LO (dBm)
		+7
10.1	700.0	5.81
70.1	760.0	5.71
130.1	820.0	5.70
190.1	880.0	5.72
250.1	940.0	5.71
310.1	1000.0	5.73
370.1	1060.0	5.87
430.1	1120.0	5.74
490.1	1180.0	5.75
550.1	1240.0	5.60
610.1	1300.0	5.63
670.1	1360.0	5.64
730.1	1420.0	5.72
790.1	1480.0	5.74
850.1	1540.0	5.65
910.1	1600.0	5.66
970.1	1660.0	5.45
1030.1	1720.0	5.24
1070.1	1760.0	5.28
1130.1	1820.0	5.22
1170.1	1860.0	5.31
1230.1	1920.0	5.27
1270.1	1960.0	5.38
1330.1	2020.0	5.37
1370.1	2060.0	5.51
1430.1	2120.0	5.47
1470.1	2160.0	5.68
1530.1	2220.0	5.77
1570.1	2260.0	6.00
1630.1	2320.0	6.14
1670.1	2360.0	6.37
1730.1	2420.0	6.68
1770.1	2460.0	6.78
1830.1	2520.0	6.69
1870.1	2560.0	6.61
1930.1	2620.0	6.84
1970.1	2660.0	7.14
2030.1	2720.0	7.74
2070.1	2760.0	8.57
2130.1	2820.0	10.74

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1010.1MHz (dB)
		@LO (dBm)
		+7
930.1	80.0	11.15
910.1	100.0	8.41
890.1	120.0	6.47
870.1	140.0	5.93
850.1	160.0	5.91
830.1	180.0	5.72
810.1	200.0	5.59
790.1	220.0	5.50
770.1	240.0	5.43
750.1	260.0	5.41
730.1	280.0	5.39
710.1	300.0	5.35
690.1	320.0	5.34
670.1	340.0	5.28
650.1	360.0	5.22
630.1	380.0	5.15
610.1	400.0	5.05
590.1	420.0	4.97
570.1	440.0	4.87
550.1	460.0	4.81
530.1	480.0	4.76
510.1	500.0	4.74
490.1	520.0	4.74
470.1	540.0	4.76
450.1	560.0	4.81
430.1	580.0	4.84
390.1	620.0	5.03
370.1	640.0	5.09
330.1	680.0	5.20
310.1	700.0	5.23
270.1	740.0	5.32
250.1	760.0	5.39
210.1	800.0	5.47
190.1	820.0	5.50
150.1	860.0	5.61
130.1	880.0	5.58
90.1	920.0	5.57
70.1	940.0	5.60
30.1	980.0	5.59
10.1	1000.0	5.81

Frequency Mixer

ADE-ED7185/1

Typical Performance Data

LO	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)			RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)					@LO (dBm)		
	+4	+7	+10	+4	+7	+10			+4	+7	+10
210.0	53.82	54.54	55.93	39.74	40.92	43.18	180.0	210.0	31.22	30.55	30.61
250.0	49.63	50.84	52.17	38.11	39.78	42.26	220.0	250.0	28.67	28.63	28.13
290.0	47.11	48.44	50.01	36.72	38.66	41.13	260.0	290.0	26.35	26.34	26.19
330.0	45.51	47.12	48.54	35.74	37.99	40.53	300.0	330.0	24.67	24.70	24.70
370.0	43.77	45.43	46.79	34.54	36.78	39.29	340.0	370.0	23.44	23.32	23.62
410.0	42.69	44.39	45.73	33.80	36.19	38.71	380.0	410.0	22.45	22.53	22.62
450.0	41.30	43.09	44.54	32.91	35.32	37.82	420.0	450.0	21.52	21.88	22.02
490.0	40.39	41.98	43.40	32.32	34.83	37.31	460.0	490.0	21.08	21.38	21.52
530.0	39.60	41.13	42.49	31.63	34.14	36.73	500.0	530.0	20.77	21.04	21.28
570.0	39.24	40.92	42.34	30.87	33.21	35.50	540.0	570.0	20.64	20.99	21.31
610.0	38.69	40.43	41.87	30.12	32.60	34.91	580.0	610.0	21.00	21.35	21.53
650.0	37.92	39.74	41.12	29.23	31.74	34.21	620.0	650.0	21.50	21.86	22.22
690.0	37.01	38.96	40.49	28.71	31.32	34.10	660.0	690.0	22.64	23.23	23.60
730.0	35.90	37.79	39.42	28.10	30.62	33.15	700.0	730.0	24.29	24.93	25.55
770.0	34.91	36.79	38.52	27.59	30.13	32.60	740.0	770.0	26.19	27.22	28.18
830.0	33.73	35.77	37.53	26.67	29.34	31.80	800.0	830.0	27.32	28.37	28.92
870.0	33.14	35.32	37.24	26.07	28.78	31.29	840.0	870.0	25.58	26.01	26.33
930.0	32.44	34.76	36.90	24.99	27.90	30.97	900.0	930.0	22.31	22.37	22.37
970.0	32.13	34.48	36.64	24.46	27.12	29.91	940.0	970.0	20.66	20.62	20.59
1030.0	32.02	34.39	36.52	23.86	26.40	29.07	1000.0	1030.0	18.66	18.51	18.47
1070.0	32.07	34.49	36.64	23.55	26.02	28.60	1040.0	1070.0	17.76	17.49	17.37
1130.0	32.06	34.48	37.01	23.18	25.57	28.02	1100.0	1130.0	16.71	16.54	16.39
1170.0	32.34	34.48	36.79	22.93	25.23	27.60	1140.0	1170.0	16.28	16.19	16.10
1230.0	33.31	35.27	37.25	22.68	24.91	27.16	1200.0	1230.0	15.69	15.78	15.78
1270.0	33.86	35.74	37.51	22.53	24.67	26.76	1240.0	1270.0	15.64	15.75	15.83
1330.0	34.71	36.33	37.84	22.33	24.34	26.28	1300.0	1330.0	15.74	15.93	16.07
1370.0	34.80	36.11	37.45	22.32	24.24	26.12	1340.0	1370.0	15.80	16.06	16.28
1430.0	35.31	36.29	37.27	22.52	24.92	27.24	1400.0	1430.0	15.97	16.24	16.51
1470.0	35.86	36.72	37.58	22.11	24.47	26.77	1440.0	1470.0	16.18	16.44	16.73
1530.0	36.49	37.25	38.02	21.48	23.45	25.32	1500.0	1530.0	16.61	16.87	17.03
1570.0	36.49	37.38	38.19	20.87	22.64	24.25	1540.0	1570.0	16.54	16.75	16.85
1630.0	35.91	37.00	37.99	20.44	22.02	23.37	1600.0	1630.0	16.35	16.38	16.29
1670.0	35.35	36.42	37.51	20.18	21.58	22.85	1640.0	1670.0	15.86	15.80	15.69
1730.0	34.70	35.86	36.98	20.52	21.74	22.73	1700.0	1730.0	15.04	14.76	14.48
1770.0	34.18	35.32	36.39	20.53	21.55	22.33	1740.0	1770.0	14.48	14.08	13.72
1830.0	34.15	35.05	35.83	21.15	21.73	22.06	1800.0	1830.0	13.48	12.92	12.56
1870.0	34.20	34.91	35.29	21.32	21.66	21.56	1840.0	1870.0	13.01	12.27	11.83
1930.0	34.91	34.79	34.51	21.82	21.43	20.95	1900.0	1930.0	12.15	11.33	10.84
1970.0	35.08	34.64	33.97	22.02	21.45	20.75	1940.0	1970.0	11.72	10.75	10.30
2030.0	34.98	33.82	32.35	22.12	21.06	19.81	2000.0	2030.0	10.74	9.83	9.27

Frequency Mixer

ADE-ED7185/1

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)			IF (OUT) (MHz)	IF VSWR @LO=1000MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+4	+7	+10		+4	+7	+10		+4	+7	+10
180.0	210.0	13.60	11.77	11.03	210.0	7.63	5.59	5.61	10.0	2.06	1.81	1.64
220.0	250.0	9.96	8.86	8.47	250.0	5.36	4.57	5.09	30.0	2.09	1.84	1.67
260.0	290.0	7.63	7.00	6.71	290.0	4.06	3.98	4.69	50.0	2.08	1.82	1.65
300.0	330.0	5.65	5.36	5.20	330.0	3.38	3.72	4.66	70.0	2.06	1.81	1.64
340.0	370.0	4.87	4.62	4.50	370.0	3.00	3.46	4.41	90.0	2.10	1.85	1.69
380.0	410.0	4.07	3.90	3.81	410.0	2.77	3.41	4.46	110.0	2.09	1.85	1.68
420.0	450.0	3.52	3.40	3.33	450.0	2.57	3.28	4.35	130.0	2.06	1.82	1.66
460.0	490.0	3.17	3.08	3.03	490.0	2.47	3.25	4.35	150.0	2.09	1.85	1.69
500.0	530.0	2.78	2.72	2.70	530.0	2.40	3.24	4.37	170.0	2.08	1.85	1.70
540.0	570.0	2.52	2.48	2.46	570.0	2.34	3.19	4.32	190.0	2.08	1.85	1.70
580.0	610.0	2.28	2.26	2.25	610.0	2.35	3.26	4.43	210.0	2.11	1.88	1.73
620.0	650.0	2.06	2.05	2.06	650.0	2.30	3.20	4.35	230.0	2.11	1.89	1.74
660.0	690.0	1.91	1.90	1.92	690.0	2.35	3.29	4.47	250.0	2.08	1.87	1.72
700.0	730.0	1.75	1.76	1.78	730.0	2.35	3.29	4.46	270.0	2.10	1.89	1.75
740.0	770.0	1.62	1.64	1.67	770.0	2.37	3.32	4.51	290.0	2.14	1.93	1.79
800.0	830.0	1.44	1.48	1.53	830.0	2.42	3.38	4.59	310.0	2.12	1.91	1.77
840.0	870.0	1.33	1.38	1.44	870.0	2.46	3.43	4.63	330.0	2.12	1.93	1.80
900.0	930.0	1.27	1.36	1.43	930.0	2.53	3.49	4.70	350.0	2.15	1.96	1.84
940.0	970.0	1.22	1.32	1.40	970.0	2.59	3.56	4.77	370.0	2.15	1.97	1.84
1000.0	1030.0	1.23	1.34	1.42	1030.0	2.71	3.69	4.91	390.0	2.14	1.97	1.85
1040.0	1070.0	1.28	1.38	1.46	1070.0	2.78	3.76	4.96	410.0	2.19	2.02	1.90
1100.0	1130.0	1.38	1.46	1.56	1130.0	2.90	3.89	5.13	430.0	2.18	2.02	1.91
1140.0	1170.0	1.54	1.58	1.65	1170.0	2.96	3.95	5.17	450.0	2.15	2.00	1.90
1200.0	1230.0	1.80	1.80	1.84	1230.0	3.09	4.09	5.34	470.0	2.20	2.06	1.96
1240.0	1270.0	2.09	2.09	2.11	1270.0	3.11	4.08	5.31	490.0	2.22	2.09	1.99
1300.0	1330.0	2.44	2.42	2.42	1330.0	3.24	4.22	5.49	510.0	2.21	2.09	2.00
1340.0	1370.0	2.81	2.79	2.77	1370.0	3.26	4.20	5.41	530.0	2.23	2.12	2.03
1400.0	1430.0	3.19	3.18	3.17	1430.0	3.37	4.31	5.58	550.0	2.23	2.13	2.06
1440.0	1470.0	3.58	3.58	3.56	1470.0	3.37	4.23	5.41	570.0	2.23	2.15	2.07
1500.0	1530.0	3.98	3.97	3.95	1530.0	3.50	4.37	5.59	590.0	2.26	2.20	2.13
1540.0	1570.0	4.35	4.34	4.32	1570.0	3.53	4.31	5.44	610.0	2.28	2.23	2.18
1600.0	1630.0	4.73	4.72	4.70	1630.0	3.72	4.48	5.66	630.0	2.26	2.23	2.18
1640.0	1670.0	5.03	5.03	4.99	1670.0	3.86	4.51	5.58	650.0	2.27	2.25	2.22
1700.0	1730.0	5.14	5.14	5.12	1730.0	4.24	4.80	5.87	670.0	2.29	2.30	2.28
1740.0	1770.0	5.46	5.47	5.46	1770.0	4.47	4.87	5.79	690.0	2.30	2.32	2.31
1800.0	1830.0	5.54	5.58	5.56	1830.0	4.87	5.16	6.05	710.0	2.28	2.32	2.34
1840.0	1870.0	5.39	5.46	5.47	1870.0	5.16	5.25	6.01	730.0	2.28	2.35	2.38
1900.0	1930.0	5.54	5.52	5.54	1930.0	5.49	5.52	6.21	750.0	2.29	2.37	2.41
1940.0	1970.0	5.58	5.44	5.38	1970.0	5.81	5.63	6.15	790.0	2.26	2.39	2.46
2000.0	2030.0	5.85	5.59	5.51	2030.0	6.07	5.87	6.35	810.0	2.26	2.40	2.49

Frequency Mixer

ADE-ED7185/1

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	1	17	2	36	11	26	40	45	39	48
1	-	20	0	23	10	34	33	37	53	36	60	64
2	73	52	41	51	42	58	47	79	51	51	69	67
3	115	67	68	69	66	62	66	80	71	72	83	71
4	119	88	93	81	85	82	85	84	82	101	95	79
5	117	94	92	89	83	87	88	101	90	87	97	94
6	121	97	93	96	88	81	97	88	90	94	100	98
7	109	91	92	88	103	97	90	91	92	89	89	91
8	113	90	89	95	90	105	90	94	87	82	91	84
9	122	93	88	97	98	92	100	86	87	91	89	91
10	109	102	87	88	99	91	92	93	89	96	100	94
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions: RF IN: 850 MHz; -15.00 dBm.
LO IN: 880 MHz; +7.00 dBm
IF OUT: 30 MHz; -20.62 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	12	28	13	45	23	37	59	62	51	64
1	-	19	0	26	11	38	33	42	54	43	63	72
2	73	42	33	45	33	53	41	70	43	52	65	68
3	115	45	44	64	44	42	38	57	63	52	63	54
4	119	81	65	80	52	59	57	61	57	76	61	57
5	117	70	80	69	58	61	55	62	59	68	66	69
6	121	75	90	88	75	72	69	68	64	75	75	82
7	109	80	84	91	85	77	75	76	72	74	72	81
8	113	96	91	105	96	94	88	85	78	80	78	77
9	122	104	101	102	99	94	103	97	84	85	86	85
10	109	114	100	101	96	100	98	101	99	92	86	87
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions: RF IN: 850 MHz; -5.00 dBm.
LO IN: 880 MHz; +7.00 dBm
IF OUT: 30 MHz; -10.59 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.

REV. X3
ADE-ED7185/1
101013
Page 5 of 5

