

Frequency Mixer

ZX05-11X+

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
10.1	40.1	7.29	6.73	6.44	10.1	40.1	14.36	15.67	15.59	10.1	40.1	1.12	0.63	0.41
70.1	100.1	7.56	7.12	6.91	70.1	100.1	9.79	10.75	11.77	70.1	100.1	1.11	0.67	0.36
130.1	160.1	7.62	7.19	6.93	130.1	160.1	8.79	10.13	14.10	130.1	160.1	1.02	0.61	0.37
190.1	220.1	7.71	7.25	6.99	190.1	220.1	9.26	13.08	18.59	190.1	220.1	1.14	0.69	0.46
250.1	280.1	7.95	7.44	7.14	250.1	280.1	10.05	14.77	16.17	250.1	280.1	1.11	0.70	0.47
310.1	340.1	7.80	7.31	7.05	310.1	340.1	14.93	16.30	14.74	310.1	340.1	1.26	0.88	0.63
370.1	400.1	7.80	7.33	7.07	370.1	400.1	14.14	12.83	13.84	370.1	400.1	1.45	1.04	0.77
430.1	460.1	8.00	7.50	7.20	430.1	460.1	11.01	11.34	12.60	430.1	460.1	1.38	1.00	0.76
490.1	520.1	8.03	7.52	7.23	490.1	520.1	9.28	9.55	10.79	490.1	520.1	1.45	1.08	0.84
550.1	580.1	8.10	7.55	7.23	550.1	580.1	8.31	9.65	11.48	550.1	580.1	1.45	1.16	0.95
610.1	640.1	8.19	7.68	7.37	610.1	640.1	7.27	8.67	11.02	610.1	640.1	1.36	1.07	0.90
670.1	700.1	8.25	7.80	7.52	670.1	700.1	6.88	7.92	9.26	670.1	700.1	1.34	1.03	0.87
730.1	760.1	8.31	7.88	7.60	730.1	760.1	7.11	8.31	9.43	730.1	760.1	1.24	0.97	0.82
790.1	820.1	8.05	7.62	7.37	790.1	820.1	7.86	9.88	11.82	790.1	820.1	1.38	1.10	0.95
850.1	880.1	7.94	7.53	7.27	850.1	880.1	6.99	8.84	10.19	850.1	880.1	1.44	1.13	0.97
910.1	940.1	7.94	7.48	7.22	910.1	940.1	6.43	8.52	10.50	910.1	940.1	1.37	1.09	0.92
970.1	1000.1	7.90	7.37	7.11	970.1	1000.1	6.89	8.02	10.03	970.1	1000.1	1.29	1.07	0.88
1030.1	1060.1	7.88	7.31	7.03	1030.1	1060.1	8.19	8.24	9.22	1030.1	1060.1	1.27	1.09	0.89
1090.1	1120.1	7.84	7.28	6.96	1090.1	1120.1	8.53	9.08	9.80	1090.1	1120.1	1.35	1.16	0.98
1150.1	1180.1	7.99	7.40	7.04	1150.1	1180.1	8.04	9.83	10.78	1150.1	1180.1	1.26	1.12	1.00
1210.1	1240.1	8.09	7.50	7.10	1210.1	1240.1	6.72	9.02	11.01	1210.1	1240.1	1.22	1.08	1.02
1270.1	1300.1	8.10	7.61	7.23	1270.1	1300.1	5.32	6.52	8.07	1270.1	1300.1	1.18	0.91	0.84
1330.1	1360.1	8.06	7.63	7.31	1330.1	1360.1	4.81	5.62	6.82	1330.1	1360.1	1.21	0.85	0.70
1390.1	1420.1	8.04	7.58	7.27	1390.1	1420.1	5.23	6.63	8.40	1390.1	1420.1	1.26	0.87	0.68
1450.1	1480.1	8.04	7.56	7.26	1450.1	1480.1	6.36	8.42	10.50	1450.1	1480.1	1.27	0.87	0.62
1510.1	1540.1	8.03	7.57	7.32	1510.1	1540.1	7.24	9.72	11.71	1510.1	1540.1	1.47	0.93	0.60
1570.1	1600.1	8.12	7.64	7.39	1570.1	1600.1	8.41	11.27	12.85	1570.1	1600.1	1.44	0.84	0.51
1630.1	1660.1	8.25	7.79	7.55	1630.1	1660.1	9.00	12.12	13.66	1630.1	1660.1	1.35	0.71	0.41
1690.1	1720.1	8.41	8.00	7.79	1690.1	1720.1	8.72	11.95	14.26	1690.1	1720.1	1.42	0.69	0.38
1750.1	1780.1	8.58	8.18	7.97	1750.1	1780.1	9.11	12.42	14.81	1750.1	1780.1	1.29	0.58	0.31
1810.1	1840.1	8.88	8.48	8.29	1810.1	1840.1	8.94	12.34	14.59	1810.1	1840.1	1.21	0.53	0.27
1870.1	1900.1	9.19	8.81	8.63	1870.1	1900.1	8.59	12.49	15.43	1870.1	1900.1	1.25	0.54	0.27
1930.1	1960.1	9.48	9.09	8.91	1930.1	1960.1	8.79	12.88	16.42	1930.1	1960.1	1.10	0.46	0.23
1990.1	2020.1	9.92	9.54	9.38	1990.1	2020.1	8.31	12.63	16.60	1990.1	2020.1	1.09	0.47	0.22
2050.1	2080.1	10.30	9.90	9.75	2050.1	2080.1	9.06	12.70	16.60	2050.1	2080.1	1.00	0.43	0.20
2110.1	2140.1	10.74	10.30	10.16	2110.1	2140.1	9.39	13.15	16.62	2110.1	2140.1	0.91	0.40	0.18
2150.1	2180.1	11.06	10.65	10.52	2150.1	2180.1	10.32	13.40	16.61	2150.1	2180.1	0.87	0.41	0.19
2210.1	2240.1	11.44	11.00	10.87	2210.1	2240.1	11.82	14.68	16.69	2210.1	2240.1	0.82	0.43	0.20
2250.1	2280.1	11.89	11.44	11.32	2250.1	2280.1	12.43	13.97	16.58	2250.1	2280.1	0.80	0.44	0.23
2310.1	2340.1	12.26	11.81	11.69	2310.1	2340.1	11.32	12.50	15.38	2310.1	2340.1	0.75	0.45	0.28

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1000.1MHz (dB)
		@LO (dBm) +7
990.0	10.1	7.92
970.0	30.1	7.80
950.0	50.1	7.82
930.0	70.1	7.77
910.0	90.1	7.81
890.0	110.1	7.82
870.0	130.1	7.67
850.0	150.1	7.66
830.0	170.1	7.66
810.0	190.1	7.60
790.0	210.1	7.59
770.0	230.1	7.45
750.0	250.1	7.49
730.0	270.1	7.44
710.0	290.1	7.38
690.0	310.1	7.40
670.0	330.1	7.39
650.0	350.1	7.39
630.0	370.1	7.36
610.0	390.1	7.36
570.0	430.1	7.27
550.0	450.1	7.36
510.0	490.1	7.41
490.0	510.1	7.38
450.0	550.1	7.32
430.0	570.1	7.35
390.0	610.1	7.39
370.0	630.1	7.32
330.0	670.1	7.21
310.0	690.1	7.21
270.0	730.1	7.31
250.0	750.1	7.39
210.0	790.1	7.36
190.0	810.1	7.35
150.0	850.1	7.45
130.0	870.1	7.37
90.0	910.1	7.23
70.0	930.1	7.18
30.0	970.1	7.27
10.0	990.1	7.65

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=10.1MHz (dB)
		@LO (dBm) +7
10.0	20.1	7.22
50.0	60.1	6.76
90.0	100.1	6.63
130.0	140.1	6.55
170.0	180.1	6.67
210.0	220.1	6.35
250.0	260.1	6.67
290.0	300.1	6.51
330.0	340.1	6.21
370.0	380.1	6.24
410.0	420.1	6.29
450.0	460.1	6.24
490.0	500.1	6.28
530.0	540.1	6.43
570.0	580.1	6.33
610.0	620.1	6.50
650.0	660.1	6.28
690.0	700.1	6.26
730.0	740.1	6.48
770.0	780.1	6.73
810.0	820.1	6.67
850.0	860.1	6.61
890.0	900.1	6.70
930.0	940.1	6.84
970.0	980.1	6.87
1010.0	1020.1	7.07
1050.0	1060.1	7.12
1090.0	1100.1	7.25
1130.0	1140.1	7.57
1170.0	1180.1	7.60
1210.0	1220.1	7.88
1250.0	1260.1	8.22
1290.0	1300.1	8.39
1330.0	1340.1	8.81
1370.0	1380.1	8.88
1410.0	1420.1	9.14
1450.0	1460.1	9.46
1510.0	1520.1	9.60
1550.0	1560.1	10.35
1610.0	1620.1	10.85

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=2000.1MHz (dB)
		@LO (dBm) +7
1590.0	410.1	10.36
1550.0	450.1	10.10
1510.0	490.1	9.75
1470.0	530.1	9.72
1430.0	570.1	9.47
1390.0	610.1	9.25
1350.0	650.1	9.18
1310.0	690.1	8.85
1270.0	730.1	8.70
1230.0	770.1	8.47
1190.0	810.1	8.30
1150.0	850.1	8.23
1110.0	890.1	8.15
1070.0	930.1	8.13
1030.0	970.1	8.07
990.0	1010.1	7.95
950.0	1050.1	7.97
910.0	1090.1	7.98
870.0	1130.1	7.95
830.0	1170.1	7.96
790.0	1210.1	7.99
750.0	1250.1	8.04
710.0	1290.1	8.00
670.0	1330.1	8.02
630.0	1370.1	8.13
590.0	1410.1	8.15
550.0	1450.1	8.26
510.0	1490.1	8.41
470.0	1530.1	8.50
430.0	1570.1	8.62
390.0	1610.1	8.72
350.0	1650.1	8.81
310.0	1690.1	8.88
270.0	1730.1	8.95
230.0	1770.1	9.02
190.0	1810.1	9.07
150.0	1850.1	9.17
110.0	1890.1	9.27
70.0	1930.1	9.33
10.0	1990.1	9.83

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	56.48	56.74	56.99	61.44	62.38	63.32
100.1	56.23	55.61	54.65	56.62	57.68	58.84
160.1	54.35	53.41	52.55	53.05	54.30	55.59
220.1	51.82	51.27	50.42	50.41	51.89	53.09
280.1	48.81	48.76	48.45	48.24	49.65	50.80
340.1	45.90	46.40	46.53	46.87	48.30	49.40
400.1	43.57	44.60	45.36	45.06	46.47	47.54
460.1	41.44	42.93	44.04	43.88	45.14	46.20
520.1	39.61	40.72	41.96	43.09	44.44	45.49
580.1	38.08	39.64	40.67	42.47	43.68	44.68
640.1	36.98	39.21	41.26	41.57	42.79	43.66
700.1	36.32	38.51	40.96	40.20	41.73	42.87
760.1	35.25	36.92	38.57	38.86	40.35	41.71
820.1	34.48	36.18	37.26	38.15	39.74	41.16
880.1	33.30	36.34	38.91	37.39	38.91	40.17
940.1	31.95	34.67	37.61	36.39	38.05	39.55
1000.1	30.79	33.24	36.02	36.30	38.14	39.62
1060.1	29.94	32.14	34.54	35.84	37.71	39.05
1120.1	29.86	31.97	33.86	34.80	36.62	38.18
1180.1	29.55	31.54	33.13	33.99	35.65	37.36
1240.1	28.85	30.30	32.06	33.16	34.43	35.88
1300.1	30.08	31.57	33.57	33.06	33.74	34.55
1360.1	31.71	34.41	37.10	33.68	34.32	34.99
1420.1	31.16	33.24	34.73	34.13	35.09	36.06
1480.1	29.55	30.33	30.70	34.61	35.79	36.96
1540.1	27.79	27.95	28.00	35.17	36.49	37.83
1600.1	26.48	26.44	26.35	35.61	36.85	38.01
1660.1	25.70	25.44	25.10	35.80	36.63	37.06
1720.1	25.28	24.67	24.19	36.36	36.28	35.91
1780.1	25.13	24.21	23.56	36.94	35.84	34.78
1840.1	25.12	23.75	22.80	37.32	34.86	33.15
1900.1	25.14	23.42	22.27	37.64	33.96	31.85
1960.1	24.74	22.86	21.60	36.89	32.58	30.35
2020.1	24.45	22.50	21.24	37.18	32.08	29.59
2080.1	23.92	22.11	20.79	35.69	31.02	28.54
2140.1	23.47	21.58	20.29	33.86	29.45	27.15
2180.1	23.09	21.53	20.20	33.22	29.53	27.14
2240.1	22.60	21.25	19.95	31.64	28.43	26.19
2280.1	22.27	21.22	19.93	30.85	28.22	25.98
2340.1	21.67	20.99	19.72	29.48	27.52	25.32

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+4	+7	+10
10.1	40.1	56.77	55.55	54.40
70.1	100.1	38.67	38.95	38.58
130.1	160.1	34.06	34.22	34.20
190.1	220.1	31.40	31.64	31.63
250.1	280.1	30.24	30.44	30.60
310.1	340.1	29.60	29.78	29.93
370.1	400.1	29.39	29.91	30.30
430.1	460.1	29.21	29.93	30.52
490.1	520.1	28.59	29.04	29.39
550.1	580.1	28.32	28.86	29.19
610.1	640.1	26.70	27.63	28.35
670.1	700.1	24.37	24.84	25.41
730.1	760.1	22.13	22.26	22.32
790.1	820.1	20.56	20.56	20.52
850.1	880.1	19.27	19.30	19.29
910.1	940.1	18.44	18.52	18.56
970.1	1000.1	17.97	18.09	18.22
1030.1	1060.1	17.62	17.80	18.05
1090.1	1120.1	17.51	17.67	17.95
1150.1	1180.1	17.46	17.64	17.80
1210.1	1240.1	17.52	17.62	17.65
1270.1	1300.1	17.41	17.46	17.29
1330.1	1360.1	17.01	17.18	17.11
1390.1	1420.1	16.37	16.50	16.40
1450.1	1480.1	15.49	15.41	15.18
1510.1	1540.1	14.42	14.15	13.85
1570.1	1600.1	13.20	12.80	12.47
1630.1	1660.1	11.90	11.44	11.10
1690.1	1720.1	10.88	10.36	9.98
1750.1	1780.1	9.98	9.41	9.03
1810.1	1840.1	9.26	8.63	8.21
1870.1	1900.1	8.58	7.90	7.47
1930.1	1960.1	7.88	7.20	6.78
1990.1	2020.1	7.36	6.64	6.21
2050.1	2080.1	6.85	6.13	5.71
2110.1	2140.1	6.42	5.67	5.31
2150.1	2180.1	6.20	5.54	5.12
2210.1	2240.1	5.75	5.12	4.77
2250.1	2280.1	5.66	5.01	4.69
2310.1	2340.1	5.29	4.74	4.46

Frequency Mixer

ZX05-11X+

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	1.04	1.06	1.18	40.1	3.12	7.83	8.60	10.1	1.30	1.30	1.31
70.1	100.1	1.16	1.02	1.13	100.1	2.00	2.98	4.52	50.1	1.06	1.08	1.11
130.1	160.1	1.18	1.03	1.07	160.1	1.95	2.79	3.96	90.1	1.04	1.07	1.11
190.1	220.1	1.26	1.11	1.02	220.1	1.92	2.72	3.79	130.1	1.06	1.09	1.13
250.1	280.1	1.32	1.18	1.11	280.1	1.89	2.63	3.61	170.1	1.06	1.10	1.13
310.1	340.1	1.40	1.26	1.18	340.1	1.93	2.68	3.64	210.1	1.09	1.14	1.18
370.1	400.1	1.52	1.38	1.31	400.1	1.91	2.60	3.47	250.1	1.11	1.16	1.20
430.1	460.1	1.64	1.50	1.41	460.1	1.95	2.62	3.47	270.1	1.13	1.18	1.22
490.1	520.1	1.76	1.61	1.51	520.1	1.99	2.66	3.48	310.1	1.16	1.21	1.26
550.1	580.1	1.88	1.72	1.61	580.1	2.00	2.62	3.37	330.1	1.19	1.25	1.30
610.1	640.1	1.97	1.80	1.69	640.1	2.07	2.67	3.40	370.1	1.19	1.26	1.31
670.1	700.1	2.07	1.92	1.81	700.1	2.07	2.65	3.34	390.1	1.21	1.27	1.32
730.1	760.1	2.07	1.94	1.85	760.1	2.12	2.67	3.33	430.1	1.28	1.35	1.41
790.1	820.1	2.07	1.95	1.86	820.1	2.15	2.67	3.30	450.1	1.27	1.33	1.39
850.1	880.1	2.07	1.97	1.89	880.1	2.18	2.66	3.25	490.1	1.31	1.37	1.43
910.1	940.1	2.00	1.89	1.84	940.1	2.25	2.72	3.30	510.1	1.37	1.44	1.50
970.1	1000.1	2.01	1.86	1.81	1000.1	2.30	2.76	3.30	550.1	1.41	1.47	1.53
1030.1	1060.1	2.00	1.81	1.74	1060.1	2.34	2.80	3.33	570.1	1.43	1.51	1.57
1090.1	1120.1	2.02	1.80	1.67	1120.1	2.34	2.78	3.30	610.1	1.50	1.58	1.63
1150.1	1180.1	2.00	1.78	1.62	1180.1	2.35	2.79	3.31	630.1	1.53	1.60	1.66
1210.1	1240.1	1.95	1.74	1.55	1240.1	2.33	2.74	3.25	670.1	1.60	1.66	1.71
1270.1	1300.1	1.93	1.78	1.61	1300.1	2.33	2.72	3.20	690.1	1.61	1.66	1.70
1330.1	1360.1	1.77	1.66	1.57	1360.1	2.31	2.69	3.17	730.1	1.73	1.78	1.83
1390.1	1420.1	1.62	1.51	1.45	1420.1	2.31	2.65	3.12	750.1	1.81	1.88	1.92
1450.1	1480.1	1.50	1.40	1.39	1480.1	2.31	2.64	3.11	790.1	1.85	1.90	1.93
1510.1	1540.1	1.36	1.28	1.32	1540.1	2.32	2.63	3.08	810.1	1.90	1.95	1.97
1570.1	1600.1	1.25	1.19	1.26	1600.1	2.35	2.65	3.08	850.1	2.09	2.14	2.17
1630.1	1660.1	1.13	1.17	1.28	1660.1	2.46	2.73	3.16	870.1	2.08	2.11	2.13
1690.1	1720.1	1.04	1.16	1.28	1720.1	2.58	2.81	3.20	910.1	2.17	2.21	2.22
1750.1	1780.1	1.04	1.20	1.32	1780.1	2.70	2.89	3.24	930.1	2.27	2.32	2.34
1810.1	1840.1	1.10	1.28	1.39	1840.1	2.87	3.01	3.35	970.1	2.41	2.45	2.46
1870.1	1900.1	1.15	1.33	1.44	1900.1	3.00	3.08	3.37	990.1	2.51	2.56	2.57
1930.1	1960.1	1.23	1.42	1.54	1960.1	3.19	3.25	3.53	1030.1	2.61	2.68	2.71
1990.1	2020.1	1.29	1.50	1.62	2020.1	3.33	3.30	3.53	1050.1	2.70	2.78	2.81
2050.1	2080.1	1.34	1.55	1.68	2080.1	3.50	3.43	3.63	1090.1	2.86	2.95	2.99
2110.1	2140.1	1.43	1.68	1.83	2140.1	3.66	3.55	3.73	1110.1	2.79	2.89	2.93
2150.1	2180.1	1.46	1.70	1.86	2180.1	3.79	3.63	3.76	1150.1	2.95	3.06	3.12
2210.1	2240.1	1.54	1.80	1.99	2240.1	3.90	3.73	3.84	1170.1	3.10	3.22	3.29
2250.1	2280.1	1.55	1.81	2.00	2280.1	4.03	3.81	3.88	1210.1	3.09	3.21	3.29
2310.1	2340.1	1.66	1.93	2.12	2340.1	4.09	3.86	3.91	1230.1	3.15	3.28	3.36

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	10	13	6	22	12	30	33	43	42	55
1	-	15	+0	29	22	25	30	28	33	37	37	54
2	87	58	67	61	60	52	42	55	39	54	56	60
3	>90	57	60	65	52	62	>69	57	68	57	60	63
4	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	66	>69
5	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
6	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
7	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
8	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
9	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
10	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
	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; -21.22 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	20	25	18	35	28	43	51	56	59	74
1	-	15	+0	33	22	30	34	36	41	52	57	70
2	67	49	60	54	55	46	37	48	38	55	57	67
3	>90	38	41	43	35	48	51	42	49	44	50	54
4	>90	63	75	69	61	74	61	63	50	66	50	64
5	>90	68	72	68	63	69	51	62	62	55	70	55
6	>90	>79	70	>79	>79	76	72	75	75	72	63	70
7	>90	>79	>79	>79	77	76	72	72	62	69	70	69
8	>90	>79	>79	>79	78	>79	>79	>79	>79	77	>79	76
9	>90	>79	>79	>79	>79	>79	>79	>79	>79	>79	74	78
10	>90	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
	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; -11.36 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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