

Frequency Mixer

ZX05-ED13091

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=60MHz (dB)			RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)			RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+14dBm (dB)		
		@LO (dBm)					@LO (dBm)					@LO (dBm)		
+14	+17	+20	+14	+17	+20	+14	+17	+20						
10.1	70.1	11.34	10.91	10.68	10.1	70.1	18.52	20.81	22.84	10.1	70.1	0.86	0.59	0.47
70.1	130.1	8.92	8.41	8.19	70.1	130.1	18.20	19.65	20.90	70.1	130.1	1.03	0.51	0.26
130.1	190.1	8.35	7.91	7.73	130.1	190.1	18.24	19.40	22.91	130.1	190.1	0.97	0.42	0.19
190.1	250.1	8.31	7.93	7.76	190.1	250.1	17.14	19.43	24.67	190.1	250.1	1.06	0.49	0.23
250.1	310.1	8.05	7.72	7.60	250.1	310.1	17.91	21.95	27.73	250.1	310.1	1.03	0.43	0.18
310.1	370.1	8.16	7.82	7.63	310.1	370.1	17.43	21.31	26.53	310.1	370.1	1.09	0.44	0.21
370.1	430.1	8.14	7.87	7.71	370.1	430.1	19.80	26.10	34.56	370.1	430.1	0.94	0.33	0.12
430.1	490.1	8.08	7.79	7.62	430.1	490.1	21.52	26.92	32.65	430.1	490.1	1.13	0.49	0.24
490.1	550.1	8.09	7.73	7.55	490.1	550.1	22.79	29.19	30.59	490.1	550.1	0.84	0.39	0.21
550.1	610.1	8.13	7.78	7.59	550.1	610.1	23.96	32.04	34.99	550.1	610.1	1.11	0.47	0.30
610.1	670.1	8.16	7.80	7.60	610.1	670.1	23.26	25.65	27.76	610.1	670.1	0.95	0.45	0.30
670.1	730.1	8.21	7.88	7.72	670.1	730.1	26.22	30.15	29.79	670.1	730.1	1.10	0.45	0.26
730.1	790.1	8.14	7.80	7.62	730.1	790.1	25.17	29.02	32.61	730.1	790.1	1.03	0.46	0.35
790.1	850.1	8.21	7.85	7.65	790.1	850.1	27.95	31.06	28.52	790.1	850.1	1.11	0.51	0.40
850.1	910.1	8.34	7.97	7.78	850.1	910.1	28.89	26.80	26.63	850.1	910.1	0.94	0.42	0.39
910.1	970.1	8.34	7.98	7.76	910.1	970.1	26.88	31.49	28.02	910.1	970.1	1.07	0.51	0.47
970.1	1030.1	8.26	7.94	7.73	970.1	1030.1	23.20	36.00	19.96	970.1	1030.1	1.11	0.57	0.54
1030.1	1090.1	8.33	8.03	7.85	1030.1	1090.1	22.29	30.25	20.26	1030.1	1090.1	1.19	0.57	0.45
1090.1	1150.1	8.31	8.01	7.89	1090.1	1150.1	23.04	25.02	26.31	1090.1	1150.1	1.15	0.57	0.35
1150.1	1210.1	8.39	7.98	7.76	1150.1	1210.1	24.72	26.17	23.81	1150.1	1210.1	1.23	0.61	0.45
1230.1	1290.1	8.40	8.01	7.76	1230.1	1290.1	23.81	28.05	29.02	1230.1	1290.1	1.30	0.64	0.47
1290.1	1350.1	8.45	8.05	7.82	1290.1	1350.1	23.28	27.87	27.57	1290.1	1350.1	1.13	0.59	0.47
1370.1	1430.1	8.29	7.95	7.74	1370.1	1430.1	24.11	26.75	26.37	1370.1	1430.1	1.26	0.63	0.51
1430.1	1490.1	8.39	8.04	7.80	1430.1	1490.1	26.75	27.48	27.04	1430.1	1490.1	1.38	0.67	0.51
1510.1	1570.1	8.41	8.04	7.83	1510.1	1570.1	25.19	27.09	27.67	1510.1	1570.1	1.57	0.83	0.62
1570.1	1630.1	8.45	8.08	7.88	1570.1	1630.1	24.09	25.37	26.00	1570.1	1630.1	1.67	0.97	0.72
1650.1	1710.1	8.59	8.17	7.97	1650.1	1710.1	23.05	26.80	26.90	1650.1	1710.1	1.80	1.16	0.83
1710.1	1770.1	8.76	8.29	8.07	1710.1	1770.1	22.25	26.23	27.31	1710.1	1770.1	1.79	1.27	0.92
1790.1	1850.1	9.23	8.59	8.30	1790.1	1850.1	21.36	25.11	28.75	1790.1	1850.1	1.66	1.30	1.00
1850.1	1910.1	9.58	8.85	8.45	1850.1	1910.1	19.79	22.33	25.63	1850.1	1910.1	1.74	1.38	1.10
1930.1	1990.1	10.17	9.27	8.75	1930.1	1990.1	18.84	20.86	24.14	1930.1	1990.1	1.46	1.19	1.00
1990.1	2050.1	10.63	9.64	9.01	1990.1	2050.1	18.66	20.76	24.62	1990.1	2050.1	1.08	0.97	0.85
2070.1	2130.1	10.98	9.87	9.17	2070.1	2130.1	18.83	21.21	23.26	2070.1	2130.1	0.79	0.84	0.79
2130.1	2190.1	11.23	9.96	9.21	2130.1	2190.1	19.43	21.93	24.24	2130.1	2190.1	0.75	0.85	0.85
2210.1	2270.1	11.44	10.14	9.37	2210.1	2270.1	22.15	32.56	27.86	2210.1	2270.1	0.64	0.78	0.80
2270.1	2330.1	11.64	10.26	9.46	2270.1	2330.1	20.16	26.61	26.43	2270.1	2330.1	0.36	0.64	0.71
2350.1	2410.1	11.80	10.45	9.55	2350.1	2410.1	20.33	23.43	29.79	2350.1	2410.1	0.14	0.37	0.53
2410.1	2470.1	11.90	10.58	9.64	2410.1	2470.1	21.10	24.06	29.85	2410.1	2470.1	0.02	0.21	0.39
2490.1	2550.1	11.83	10.55	9.62	2490.1	2550.1	24.16	27.36	29.09	2490.1	2550.1	0.00	0.20	0.36
2550.1	2610.1	11.80	10.58	9.65	2550.1	2610.1	25.73	29.24	28.94	2550.1	2610.1	0.07	0.19	0.38

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=850.1MHz (dB)
		@LO (dBm)
		+17
840.0	10.1	7.49
819.8	30.3	6.97
799.5	50.6	6.83
779.3	70.8	6.78
759.0	91.1	6.85
738.8	111.3	6.83
718.5	131.6	6.80
698.3	151.8	6.73
678.0	172.1	6.79
657.8	192.3	6.75
637.6	212.5	6.70
617.3	232.8	6.72
597.1	253.0	6.80
576.8	273.3	6.81
556.6	293.5	6.83
536.3	313.8	6.82
516.1	334.0	6.87
495.9	354.2	6.81
475.6	374.5	6.83
455.4	394.7	6.81
435.1	415.0	6.75
414.9	435.2	6.69
394.6	455.5	6.85
374.4	475.7	6.87
354.1	496.0	6.93
333.9	516.2	6.93
313.7	536.4	6.99
293.4	556.7	6.98
273.2	576.9	7.00
252.9	597.2	7.00
232.7	617.4	7.09
212.4	637.7	7.13
192.2	657.9	7.22
172.0	678.1	7.25
151.7	698.4	7.28
131.5	718.6	7.40
91.0	759.1	7.62
70.7	779.4	7.69
30.2	819.9	8.19
10.0	840.1	11.16

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=100.1MHz (dB)
		@LO (dBm)
		+17
10.0	110.1	11.14
110.0	210.1	7.89
210.0	310.1	7.56
310.0	410.1	7.48
410.0	510.1	7.32
510.0	610.1	7.20
610.0	710.1	7.21
710.0	810.1	7.15
810.0	910.1	7.11
910.0	1010.1	7.20
1030.0	1130.1	7.04
1130.0	1230.1	7.10
1250.0	1350.1	6.92
1350.0	1450.1	6.81
1470.0	1570.1	6.77
1570.0	1670.1	6.79
1690.0	1790.1	7.03
1790.0	1890.1	7.27
1910.0	2010.1	7.74
2010.0	2110.1	8.18
2130.0	2230.1	8.17
2230.0	2330.1	8.11
2350.0	2450.1	8.11
2450.0	2550.1	7.88
2570.0	2670.1	7.70
2670.0	2770.1	7.44
2790.0	2890.1	7.14
2890.0	2990.1	6.90
3010.0	3110.1	6.72
3110.0	3210.1	6.61
3230.0	3330.1	6.60
3330.0	3430.1	6.61
3450.0	3550.1	6.68
3550.0	3650.1	7.07
3670.0	3770.1	7.39
3770.0	3870.1	7.64
3890.0	3990.1	8.06
3990.0	4090.1	8.46
4110.0	4210.1	9.23
4210.0	4310.1	9.86

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1719.1MHz (dB)
		@LO (dBm)
		+17
1692.0	27.1	7.68
1652.0	67.1	7.44
1612.0	107.1	7.52
1572.0	147.1	7.48
1532.0	187.1	7.60
1492.0	227.1	7.54
1452.0	267.1	7.53
1412.0	307.1	7.61
1372.0	347.1	7.55
1332.0	387.1	7.60
1292.0	427.1	7.57
1252.0	467.1	7.58
1212.0	507.1	7.59
1172.0	547.1	7.66
1132.0	587.1	7.64
1092.0	627.1	7.57
1052.0	667.1	7.50
1012.0	707.1	7.43
972.0	747.1	7.51
932.0	787.1	7.39
892.0	827.1	7.29
852.0	867.1	7.17
812.0	907.1	7.37
772.0	947.1	7.42
732.0	987.1	7.39
692.0	1027.1	7.41
652.0	1067.1	7.37
612.0	1107.1	7.43
572.0	1147.1	7.45
512.0	1207.1	7.35
472.0	1247.1	7.45
412.0	1307.1	7.45
372.0	1347.1	7.57
312.0	1407.1	7.59
272.0	1447.1	7.75
212.0	1507.1	7.76
172.0	1547.1	7.93
112.0	1607.1	8.09
72.0	1647.1	8.30
12.0	1707.1	10.74

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)		
	+14	+17	+20	+14	+17	+20
70.1	24.23	26.20	28.05	24.62	26.57	28.41
130.1	26.45	28.69	30.79	26.68	28.99	31.22
190.1	27.76	30.06	32.71	27.58	30.06	32.85
250.1	27.72	30.51	33.64	27.84	30.78	34.07
310.1	28.22	31.30	34.75	28.83	32.18	35.76
370.1	27.94	31.29	35.03	28.68	32.38	36.36
430.1	29.23	33.06	37.02	29.92	34.13	37.79
490.1	30.76	34.24	37.59	31.36	35.35	38.69
550.1	31.30	35.63	38.05	32.59	37.67	38.81
610.1	31.92	36.56	38.46	34.00	39.54	39.01
670.1	33.77	38.17	38.47	35.29	40.40	38.48
730.1	34.86	38.73	37.75	37.32	41.60	37.89
790.1	35.93	39.17	37.44	39.36	42.23	37.73
850.1	37.40	39.58	36.97	42.93	42.42	37.26
910.1	38.99	40.00	36.42	45.73	41.78	36.57
970.1	41.62	41.47	37.48	49.92	41.52	36.61
1030.1	44.28	41.90	37.57	51.67	40.30	35.69
1090.1	46.14	40.72	35.91	45.56	38.46	34.36
1150.1	44.23	40.82	36.70	42.12	38.47	35.07
1210.1	41.47	37.31	35.08	43.44	38.12	35.39
1290.1	40.52	35.62	33.43	48.05	38.97	35.76
1350.1	41.19	35.87	33.61	48.36	39.25	35.91
1430.1	42.19	36.37	33.74	44.87	38.58	35.63
1490.1	42.57	37.06	34.29	44.81	39.11	35.98
1570.1	41.14	37.56	35.00	43.30	39.01	36.06
1630.1	40.79	37.93	35.24	43.18	39.12	36.19
1710.1	39.95	38.93	36.87	43.39	39.88	37.19
1770.1	38.25	38.47	36.98	43.04	40.04	37.33
1850.1	37.40	38.53	38.40	43.57	39.45	37.36
1910.1	36.56	38.04	38.52	44.73	40.39	38.15
1990.1	35.83	37.73	38.82	45.35	41.09	38.94
2050.1	36.00	38.15	39.57	44.31	40.80	38.86
2130.1	36.21	38.73	40.64	42.83	40.79	39.53
2190.1	36.10	38.93	41.35	42.11	40.48	39.97
2270.1	34.22	36.41	38.73	41.65	41.09	41.33
2330.1	32.82	34.21	36.20	44.54	43.76	43.79
2410.1	33.10	34.53	36.04	45.10	44.51	43.72
2470.1	33.77	35.45	37.01	43.28	43.31	42.79
2550.1	36.47	38.50	40.23	45.74	45.82	44.44
2610.1	38.42	40.53	41.86	45.76	46.33	44.19

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+14	+17	+20
10.1	70.1	17.37	19.75	21.78
70.1	130.1	27.94	30.66	33.36
130.1	190.1	29.52	32.45	34.56
190.1	250.1	31.71	34.63	36.57
250.1	310.1	32.80	34.48	36.09
310.1	370.1	34.77	36.81	37.88
370.1	430.1	33.40	34.82	35.61
430.1	490.1	34.45	35.48	36.46
490.1	550.1	35.61	35.77	36.50
550.1	610.1	36.08	36.50	37.00
610.1	670.1	35.38	35.40	35.41
670.1	730.1	33.69	33.31	32.99
730.1	790.1	35.28	34.86	34.34
790.1	850.1	35.07	34.36	33.80
850.1	910.1	35.07	33.03	31.31
910.1	970.1	34.49	32.82	31.70
970.1	1030.1	34.31	31.67	28.46
1030.1	1090.1	34.92	32.30	28.72
1090.1	1150.1	36.00	32.61	26.23
1150.1	1210.1	36.30	33.84	29.79
1230.1	1290.1	36.07	34.21	31.46
1290.1	1350.1	34.40	31.79	29.37
1370.1	1430.1	32.64	30.58	28.90
1430.1	1490.1	32.81	30.94	29.89
1510.1	1570.1	33.40	32.14	31.61
1570.1	1630.1	34.02	33.37	33.65
1650.1	1710.1	34.40	35.59	37.85
1710.1	1770.1	37.57	40.40	42.55
1790.1	1850.1	39.35	38.92	38.11
1850.1	1910.1	36.13	35.09	34.22
1930.1	1990.1	32.29	31.57	31.49
1990.1	2050.1	30.87	30.73	30.92
2070.1	2130.1	30.03	30.05	30.38
2130.1	2190.1	29.89	29.54	29.45
2210.1	2270.1	28.99	28.68	28.50
2270.1	2330.1	27.82	27.18	26.98
2350.1	2410.1	27.13	26.74	26.32
2410.1	2470.1	26.48	26.24	25.89
2490.1	2550.1	26.05	25.96	25.87
2550.1	2610.1	26.23	26.16	26.09

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)			IF (OUT) (MHz)	IF VSWR @LO=1700.1MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+14	+17	+20		+14	+17	+20		+14	+17	+20
10.1	70.1	6.91	6.32	6.46	70.1	1.65	2.36	3.88	10.0	6.01	5.77	5.52
70.1	130.1	1.48	1.62	1.71	130.1	1.31	1.80	2.70	50.0	1.62	1.64	1.67
130.1	190.1	1.29	1.41	1.46	190.1	1.19	1.72	2.59	90.0	1.33	1.38	1.43
190.1	250.1	1.19	1.30	1.36	250.1	1.13	1.63	2.41	130.0	1.23	1.29	1.35
250.1	310.1	1.18	1.27	1.33	310.1	1.07	1.63	2.45	170.0	1.17	1.24	1.31
310.1	370.1	1.15	1.23	1.30	370.1	1.06	1.56	2.30	210.0	1.13	1.20	1.27
370.1	430.1	1.18	1.26	1.33	430.1	1.02	1.59	2.38	250.0	1.07	1.14	1.21
430.1	490.1	1.21	1.27	1.33	490.1	1.04	1.48	2.14	290.0	1.02	1.10	1.18
490.1	550.1	1.25	1.31	1.37	550.1	1.08	1.69	2.47	330.0	1.02	1.10	1.18
550.1	610.1	1.29	1.34	1.40	610.1	1.10	1.72	2.51	370.0	1.05	1.12	1.20
610.1	670.1	1.33	1.36	1.41	670.1	1.12	1.72	2.47	410.0	1.06	1.11	1.19
670.1	730.1	1.37	1.39	1.43	730.1	1.16	1.75	2.51	450.0	1.11	1.12	1.18
730.1	790.1	1.42	1.43	1.47	790.1	1.17	1.77	2.53	490.0	1.15	1.15	1.20
790.1	850.1	1.45	1.46	1.49	850.1	1.20	1.78	2.52	530.0	1.22	1.20	1.23
850.1	910.1	1.50	1.51	1.54	910.1	1.23	1.83	2.59	570.0	1.25	1.25	1.29
910.1	970.1	1.53	1.54	1.58	970.1	1.26	1.86	2.60	610.0	1.24	1.23	1.27
970.1	1030.1	1.53	1.54	1.61	1030.1	1.31	1.91	2.67	650.0	1.29	1.26	1.29
1030.1	1090.1	1.53	1.54	1.61	1090.1	1.34	1.93	2.67	690.0	1.31	1.28	1.30
1090.1	1150.1	1.51	1.52	1.60	1150.1	1.37	1.97	2.72	730.0	1.39	1.34	1.35
1150.1	1210.1	1.54	1.53	1.58	1210.1	1.38	1.97	2.72	770.0	1.43	1.40	1.42
1230.1	1290.1	1.56	1.53	1.55	1290.1	1.42	2.00	2.73	810.0	1.42	1.38	1.39
1290.1	1350.1	1.60	1.55	1.54	1350.1	1.48	2.08	2.83	850.0	1.47	1.44	1.44
1370.1	1430.1	1.64	1.58	1.56	1430.1	1.57	2.16	2.92	890.0	1.45	1.40	1.40
1430.1	1490.1	1.67	1.60	1.56	1490.1	1.63	2.18	2.91	930.0	1.55	1.48	1.47
1510.1	1570.1	1.67	1.59	1.55	1570.1	1.74	2.27	3.00	970.0	1.57	1.51	1.51
1570.1	1630.1	1.62	1.54	1.49	1630.1	1.83	2.36	3.12	1010.0	1.59	1.53	1.51
1650.1	1710.1	1.60	1.50	1.45	1710.1	1.95	2.44	3.19	1050.0	1.62	1.56	1.55
1710.1	1770.1	1.61	1.50	1.45	1770.1	2.07	2.50	3.20	1090.0	1.58	1.50	1.48
1790.1	1850.1	1.69	1.56	1.50	1850.1	2.23	2.67	3.36	1130.0	1.66	1.57	1.54
1850.1	1910.1	1.78	1.64	1.57	1910.1	2.35	2.80	3.54	1190.0	1.64	1.54	1.50
1930.1	1990.1	1.98	1.83	1.74	1990.1	2.46	2.86	3.58	1230.0	1.70	1.59	1.56
1990.1	2050.1	2.13	1.99	1.89	2050.1	2.58	2.97	3.66	1290.0	1.71	1.59	1.54
2070.1	2130.1	2.26	2.12	2.01	2130.1	2.73	3.14	3.88	1330.0	1.74	1.62	1.57
2130.1	2190.1	2.43	2.27	2.15	2190.1	2.78	3.13	3.85	1390.0	1.76	1.62	1.56
2210.1	2270.1	2.56	2.39	2.27	2270.1	2.88	3.15	3.81	1430.0	1.76	1.62	1.56
2270.1	2330.1	2.59	2.42	2.29	2330.1	3.00	3.33	4.06	1490.0	1.79	1.63	1.56
2350.1	2410.1	2.67	2.50	2.36	2410.1	3.15	3.45	4.20	1530.0	1.76	1.61	1.53
2410.1	2470.1	2.75	2.58	2.43	2470.1	3.24	3.39	4.00	1590.0	1.81	1.64	1.54
2490.1	2550.1	2.81	2.65	2.49	2550.1	3.31	3.43	4.01	1630.0	1.75	1.59	1.51
2550.1	2610.1	2.77	2.62	2.47	2610.1	3.35	3.51	4.19	1690.0	1.71	1.62	1.62

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(dBc)										
0	-	-	16	10	25	24	23	32	35	42	25	39
1	-	24	+0	30	10	64	21	39	32	43	44	38
2	64	50	49	53	44	54	48	53	44	57	56	62
3	>90	65	72	63	76	62	63	68	53	58	68	69
4	>90	75	72	72	69	70	68	72	74	72	68	79
5	>90	>81	>81	>81	>81	>81	>81	>81	>81	>81	>81	>81
6	>90	>81	>81	>81	>81	>81	>81	>81	>81	>81	>81	>81
7	>90	>81	>81	>81	>81	>81	>81	>81	>81	>81	>81	>81
8	>90	>81	>81	>81	>81	>81	>81	>81	>81	>81	>81	>81
9	>90	>81	>81	>81	>81	>81	>81	>81	>81	>81	>81	>81
10	>90	>81	>81	>81	>81	>81	>81	>81	>81	>81	>81	>81
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 900 MHz; -1.00 dBm.
LO IN: 960 MHz; +17.00 dBm
IF OUT: 60 MHz; -9.02 dBm

RF HARMONICS ORDER

	(-dBm)	(dBc)										
0	-	-	27	21	36	37	36	58	49	61	49	66
1	-	25	+0	33	11	53	25	46	40	50	45	48
2	44	41	36	48	35	45	44	47	44	53	58	57
3	68	53	43	50	46	48	49	68	37	56	60	63
4	>90	58	56	74	57	59	50	64	51	65	53	67
5	>90	62	53	65	58	59	59	57	57	59	53	60
6	>90	69	65	70	70	72	63	69	60	68	64	69
7	>90	81	77	79	77	80	75	70	74	66	72	70
8	>90	85	86	74	76	69	74	70	71	71	70	74
9	>90	79	76	79	67	82	70	72	66	74	70	75
10	>90	79	70	71	78	62	69	65	68	60	69	63
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 900 MHz; 9.00 dBm.
LO IN: 960 MHz; +17.00 dBm
IF OUT: 60 MHz; 0.98 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.