

Frequency Mixer

ZFY-2+

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=+19.97dBm (dB)		
		@LO (dBm)					@LO (dBm)					@LO (dBm)		
+20	+23	+26	+20	+23	+26	+20	+23	+26						
0.1	30.1	6.43	6.00	5.73	10.1	40.1	33.31	33.10	33.74	10.1	40.1	1.11	0.61	0.35
0.5	30.5	6.48	6.04	5.80	20.1	50.1	36.00	36.71	37.28	20.1	50.1	1.33	0.81	0.51
5.0	35.0	6.24	5.85	5.72	30.1	60.1	36.57	37.08	37.49	30.1	60.1	1.47	0.89	0.54
10.1	40.1	5.68	5.34	5.15	40.1	70.1	36.00	36.81	37.13	40.1	70.1	1.41	0.84	0.49
20.1	50.1	5.55	5.23	5.06	50.1	80.1	35.21	35.30	36.22	50.1	80.1	1.38	0.75	0.41
30.1	60.1	5.63	5.27	5.07	70.1	100.1	32.52	34.59	33.85	70.1	100.1	1.00	0.50	0.23
40.1	70.1	5.63	5.26	5.08	90.1	120.1	31.27	34.02	34.06	90.1	120.1	0.90	0.50	0.26
50.1	80.1	5.65	5.27	5.10	110.1	140.1	36.06	35.55	35.09	110.1	140.1	1.17	0.70	0.40
90.1	120.1	5.98	5.55	5.29	130.1	160.1	31.32	33.75	34.67	130.1	160.1	1.26	0.82	0.49
110.1	140.1	5.77	5.41	5.19	150.1	180.1	29.28	32.94	35.72	150.1	180.1	1.23	0.79	0.45
130.1	160.1	5.92	5.49	5.22	170.1	200.1	31.24	32.06	33.30	170.1	200.1	0.97	0.51	0.23
150.1	180.1	6.18	5.59	5.28	190.1	220.1	28.59	31.22	33.00	190.1	220.1	0.79	0.50	0.30
170.1	200.1	6.18	5.62	5.34	220.1	250.1	30.75	33.37	32.70	220.1	250.1	1.25	0.80	0.49
190.1	220.1	6.34	5.80	5.45	250.1	280.1	30.43	33.09	33.54	250.1	280.1	1.08	0.60	0.32
220.1	250.1	6.17	5.62	5.32	280.1	310.1	30.29	31.67	34.85	280.1	310.1	0.79	0.47	0.22
250.1	280.1	6.54	5.85	5.52	310.1	340.1	31.38	32.14	35.28	310.1	340.1	1.13	0.68	0.38
280.1	310.1	6.36	5.82	5.57	340.1	370.1	31.97	33.61	38.21	340.1	370.1	1.17	0.59	0.28
310.1	340.1	6.24	5.73	5.50	370.1	400.1	32.38	35.02	34.97	370.1	400.1	0.66	0.29	0.11
340.1	370.1	6.67	5.95	5.70	400.1	430.1	34.04	37.00	35.18	400.1	430.1	0.97	0.47	0.24
400.1	430.1	6.29	5.85	5.68	450.1	480.1	34.60	39.20	34.81	450.1	480.1	0.66	0.24	0.09
450.1	480.1	7.22	6.34	6.09	500.1	530.1	32.91	41.89	34.49	500.1	530.1	0.56	0.34	0.16
500.1	530.1	7.12	6.34	6.07	550.1	580.1	36.38	38.44	35.97	550.1	580.1	0.25	0.10	-0.01
550.1	580.1	8.03	6.82	6.45	600.1	630.1	33.19	40.26	37.01	600.1	630.1	0.44	0.24	0.11
600.1	630.1	7.63	6.64	6.31	650.1	680.1	30.24	40.03	32.38	650.1	680.1	0.10	0.04	-0.01
650.1	680.1	8.72	7.21	6.77	700.1	730.1	32.97	34.62	34.37	700.1	730.1	0.71	0.33	0.16
700.1	730.1	7.86	6.76	6.46	800.1	830.1	31.23	34.49	34.99	800.1	830.1	0.88	0.40	0.19
800.1	830.1	7.92	6.90	6.60	900.1	930.1	29.42	34.72	33.87	900.1	930.1	0.96	0.41	0.20
900.1	930.1	8.05	7.11	6.78	1000.1	1030.1	30.71	32.23	34.67	1000.1	1030.1	1.05	0.42	0.19
1000.1	1030.1	8.47	7.47	7.08	1100.1	1130.1	29.36	31.99	35.65	1100.1	1130.1	1.17	0.48	0.21
1100.1	1130.1	8.27	7.44	7.10	1200.1	1230.1	30.16	31.02	36.89	1200.1	1230.1	1.32	0.56	0.24
1200.1	1230.1	8.12	7.42	7.13	1300.1	1330.1	29.65	33.16	35.33	1300.1	1330.1	1.35	0.64	0.28
1300.1	1330.1	8.20	7.52	7.24	1400.1	1430.1	28.06	30.05	36.69	1400.1	1430.1	1.34	0.72	0.33
1400.1	1430.1	8.35	7.65	7.37	1500.1	1530.1	27.29	28.95	34.95	1500.1	1530.1	1.32	0.68	0.30
1500.1	1530.1	8.45	7.77	7.50	1600.1	1630.1	27.77	30.22	39.74	1600.1	1630.1	1.17	0.59	0.28
1600.1	1630.1	8.65	7.93	7.63	1700.1	1730.1	26.29	30.73	40.04	1700.1	1730.1	1.15	0.54	0.28
1800.1	1830.1	9.41	8.62	8.33	1800.1	1830.1	25.50	29.67	44.34	1800.1	1830.1	1.11	0.45	0.22
1900.1	1930.1	9.87	9.02	8.68	1900.1	1930.1	25.50	34.18	32.30	1900.1	1930.1	1.07	0.56	0.35
2000.1	2030.1	10.61	9.65	9.16	2000.1	2030.1	28.67	35.28	30.97	2000.1	2030.1	0.93	0.53	0.43
2100.1	2130.1	11.23	10.18	9.73	2100.1	2130.1	31.88	32.25	31.73	2100.1	2130.1	0.91	0.61	0.41
2200.1	2230.1	11.08	10.19	9.74	2200.1	2230.1	27.39	31.02	33.06	2200.1	2230.1	1.35	0.85	0.49

REV. X2

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IF/RF MICROWAVE COMPONENTS • ISO 9001 ISO 14001 AS 9100 CERTIFIED • RoHS compliant

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Frequency Mixer

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Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=500.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=10.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1000.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+23			+23			+23
0.5	499.6	6.48	0.5	10.6	5.37	0.5	999.6	7.43
0.8	499.4	6.46	0.8	10.9	5.35	0.8	999.4	7.41
1.0	499.1	6.45	1.0	11.1	5.34	1.0	999.1	7.41
2.0	498.1	6.39	2.0	12.1	5.29	2.0	998.1	7.35
3.0	497.1	6.36	3.0	13.1	5.28	3.0	997.1	7.34
4.0	496.1	6.36	4.0	14.1	5.27	4.0	996.1	7.33
5.0	495.1	6.34	5.0	15.1	5.28	5.0	995.1	7.34
6.0	494.1	6.33	6.0	16.1	5.29	6.0	994.1	7.33
8.0	492.1	6.30	8.0	18.1	5.30	8.0	992.1	7.33
10.0	490.1	6.32	10.0	20.1	5.30	10.0	990.1	7.34
15.0	485.1	6.30	15.0	25.1	5.33	15.0	985.1	7.35
20.0	480.1	6.33	20.0	30.1	5.37	20.0	980.1	7.35
25.0	475.1	6.40	25.0	35.1	5.38	25.0	975.1	7.35
30.0	470.1	6.45	30.0	40.1	5.33	30.0	970.1	7.36
35.0	465.1	6.48	35.0	45.1	5.25	35.0	965.1	7.38
40.0	460.1	6.46	40.0	50.1	5.28	40.0	960.1	7.40
50.0	450.1	6.40	50.0	60.1	5.39	50.0	950.1	7.35
60.0	440.1	6.41	65.0	75.1	5.37	65.0	935.1	7.20
70.0	430.1	6.39	80.0	90.1	5.38	80.0	920.1	7.07
90.0	410.1	6.45	100.0	110.1	5.33	100.0	900.1	7.08
110.0	390.1	6.45	120.0	130.1	5.45	120.0	880.1	7.05
130.0	370.1	6.63	140.0	150.1	5.37	140.0	860.1	7.09
150.0	350.1	6.55	160.0	170.1	5.32	160.0	840.1	6.97
170.0	330.1	6.55	180.0	190.1	5.36	180.0	820.1	6.87
190.0	310.1	6.67	200.0	210.1	5.30	200.0	800.1	6.87
210.0	290.1	6.59	220.0	230.1	5.22	220.0	780.1	6.89
230.0	270.1	6.78	240.0	250.1	5.27	240.0	760.1	6.97
250.0	250.1	7.04	260.0	270.1	5.21	260.0	740.1	6.90
270.0	230.1	6.90	280.0	290.1	5.13	280.0	720.1	6.85
290.0	210.1	6.96	300.0	310.1	5.19	300.0	700.1	6.93
310.0	190.1	7.14	320.0	330.1	5.12	320.0	680.1	7.09
330.0	170.1	6.95	340.0	350.1	5.17	340.0	660.1	7.28
350.0	150.1	7.09	360.0	370.1	5.24	360.0	640.1	7.16
370.0	130.1	7.13	380.0	390.1	5.17	380.0	620.1	7.27
390.0	110.1	6.87	400.0	410.1	5.20	400.0	600.1	7.24
410.0	90.1	6.94	420.0	430.1	5.17	420.0	580.1	7.35
430.0	70.1	6.76	440.0	450.1	5.25	440.0	560.1	7.47
450.0	50.1	6.68	460.0	470.1	5.33	460.0	540.1	7.31
470.0	30.1	6.64	480.0	490.1	5.30	480.0	520.1	7.26
490.0	10.1	6.47	500.0	510.1	5.33	500.0	500.1	7.33

REV. X2

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Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)		
	+20	+23	+26	+20	+23	+26
0.1	22.68	24.85	27.10	22.66	23.85	24.69
0.5	33.97	36.68	39.29	33.35	35.77	37.61
5.0	39.61	41.65	44.65	39.03	42.30	45.57
10.1	58.28	60.49	65.55	45.44	49.07	50.88
20.1	60.03	62.70	67.35	45.64	48.55	50.34
30.1	60.90	64.43	68.90	45.10	47.90	49.61
40.1	62.91	65.76	67.59	45.02	47.58	49.15
50.1	64.27	68.47	68.34	45.32	47.81	48.99
90.1	67.38	73.04	64.42	45.76	47.17	46.47
110.1	71.69	69.04	63.26	46.50	47.05	45.86
130.1	72.29	67.30	62.51	46.30	46.67	45.68
150.1	67.89	65.49	61.84	47.94	47.18	45.19
170.1	67.97	64.45	60.08	48.81	46.74	43.79
190.1	65.33	64.83	59.38	49.09	46.12	42.75
220.1	62.90	63.14	61.17	50.67	46.03	42.70
250.1	62.37	62.33	60.95	54.14	45.83	41.84
280.1	64.31	60.63	57.99	66.82	45.31	40.16
310.1	74.75	60.72	59.64	56.92	44.37	40.18
340.1	56.36	58.46	66.02	50.61	44.93	40.31
400.1	52.22	56.12	71.55	44.62	42.97	38.81
450.1	44.76	47.61	54.40	41.68	43.68	38.80
500.1	40.90	43.80	48.71	40.64	42.67	38.85
550.1	38.78	41.48	45.67	36.45	42.23	40.28
600.1	37.07	40.17	43.81	35.03	39.59	40.12
650.1	35.00	38.48	42.37	31.90	36.34	38.93
700.1	32.70	36.93	41.38	30.97	34.82	37.98
800.1	31.35	35.86	39.60	30.07	33.15	35.94
900.1	31.52	36.31	40.23	29.35	32.34	34.84
1000.1	37.84	39.75	39.15	34.06	38.54	43.41
1100.1	33.71	36.99	39.54	26.80	28.65	30.89
1200.1	32.58	36.88	40.72	25.56	27.13	29.24
1300.1	32.26	36.41	39.98	26.28	27.65	29.64
1400.1	30.93	34.54	37.31	27.79	28.91	30.86
1500.1	29.99	33.04	35.11	29.21	30.31	32.24
1600.1	29.03	31.43	32.93	30.06	31.18	33.18
1800.1	28.59	30.89	32.61	34.56	36.29	39.12
1900.1	29.88	33.63	37.28	38.94	41.34	36.60
2000.1	31.80	38.40	43.92	49.83	38.21	32.19
2100.1	28.07	31.60	33.74	39.12	32.54	28.70
2200.1	23.27	26.48	29.41	35.49	30.59	27.57

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+20	+23	+26
10.1	40.1	43.60	44.48	48.65
20.1	50.1	43.03	44.52	49.16
30.1	60.1	42.12	43.60	45.67
40.1	70.1	42.52	43.44	43.94
50.1	80.1	42.74	43.70	43.47
70.1	100.1	43.22	44.01	43.79
90.1	120.1	42.67	44.15	45.54
110.1	140.1	44.48	46.12	53.44
130.1	160.1	44.78	45.96	47.66
150.1	180.1	43.12	44.90	46.32
170.1	200.1	44.35	46.27	48.65
190.1	220.1	45.08	46.42	53.16
220.1	250.1	47.11	47.92	49.11
250.1	280.1	48.24	52.05	50.63
280.1	310.1	49.96	55.45	52.40
310.1	340.1	48.88	54.14	51.73
340.1	370.1	50.15	53.57	52.31
370.1	400.1	51.13	53.31	52.61
400.1	430.1	52.50	56.75	54.63
450.1	480.1	51.50	57.31	55.76
500.1	530.1	47.37	50.37	47.80
550.1	580.1	43.74	46.33	45.17
600.1	630.1	37.94	40.99	41.38
650.1	680.1	37.18	41.40	41.65
700.1	730.1	37.53	39.95	39.80
800.1	830.1	33.84	38.66	40.09
900.1	930.1	32.22	37.72	40.76
1000.1	1030.1	40.91	41.17	39.87
1100.1	1130.1	33.17	36.30	35.21
1200.1	1230.1	33.32	35.28	33.81
1300.1	1330.1	35.80	36.20	34.72
1400.1	1430.1	41.91	38.87	36.13
1500.1	1530.1	49.37	40.31	37.36
1600.1	1630.1	59.38	40.17	37.15
1700.1	1730.1	42.86	38.58	36.95
1800.1	1830.1	38.27	36.92	36.38
1900.1	1930.1	37.58	36.71	36.67
2000.1	2030.1	35.47	34.77	34.74
2100.1	2130.1	31.98	32.44	32.62
2200.1	2230.1	33.58	33.58	33.50

Frequency Mixer

ZFY-2+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)			IF (OUT) (MHz)	IF VSWR @LO=1000.1MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+20	+23	+26		+20	+23	+26		+20	+23	+26
5.0	35.0	1.57	1.20	1.17	5.0	1.43	1.25	2.31	0.5	1.32	1.19	1.18
10.0	40.0	1.58	1.21	1.17	10.0	1.41	1.28	2.24	0.8	1.37	1.17	1.05
20.1	50.1	1.66	1.47	1.35	20.1	1.27	1.25	2.07	1.0	1.47	1.24	1.10
30.1	60.1	1.78	1.54	1.38	50.1	1.23	1.20	1.76	2.0	1.59	1.34	1.19
40.1	70.1	1.74	1.51	1.37	100.1	1.34	1.25	2.01	3.0	1.58	1.33	1.18
50.1	80.1	1.73	1.51	1.38	140.1	1.33	1.21	1.89	4.0	1.56	1.32	1.17
90.1	120.1	1.83	1.59	1.43	180.1	1.42	1.26	2.34	5.0	1.55	1.30	1.16
110.1	140.1	1.78	1.57	1.42	220.1	1.34	1.21	1.71	6.0	1.53	1.29	1.15
130.1	160.1	1.95	1.67	1.49	260.1	1.46	1.24	1.85	8.0	1.52	1.28	1.14
150.1	180.1	2.01	1.67	1.48	300.1	1.51	1.21	1.91	10.0	1.52	1.28	1.14
170.1	200.1	1.95	1.65	1.49	350.1	1.52	1.20	2.12	15.0	1.52	1.28	1.14
190.1	220.1	2.05	1.76	1.56	400.1	1.47	1.18	1.66	20.0	1.52	1.28	1.14
220.1	250.1	2.12	1.79	1.60	500.1	1.49	1.12	1.57	25.0	1.52	1.28	1.14
250.1	280.1	2.18	1.81	1.63	600.1	1.57	1.10	1.62	30.0	1.53	1.29	1.14
280.1	310.1	2.11	1.82	1.67	700.1	1.58	1.12	1.41	35.0	1.53	1.29	1.15
310.1	340.1	2.20	1.90	1.74	800.1	1.79	1.19	1.44	40.0	1.53	1.29	1.15
340.1	370.1	2.37	1.97	1.80	900.1	1.99	1.25	1.44	50.0	1.54	1.30	1.15
370.1	400.1	2.29	1.98	1.84	1000.1	2.18	1.33	1.32	65.0	1.55	1.30	1.15
400.1	430.1	2.39	2.08	1.93	1100.1	2.74	1.47	1.31	80.0	1.55	1.31	1.16
450.1	480.1	2.78	2.29	2.08	1200.1	2.94	1.57	1.16	100.0	1.56	1.31	1.16
500.1	530.1	2.99	2.52	2.27	1300.1	3.65	1.77	1.07	120.0	1.58	1.32	1.17
550.1	580.1	3.34	2.69	2.42	1400.1	3.77	1.90	1.19	140.0	1.58	1.33	1.17
600.1	630.1	3.54	2.88	2.58	1500.1	3.61	1.96	1.37	160.0	1.60	1.34	1.18
650.1	680.1	4.03	3.16	2.77	1600.1	3.62	2.06	1.57	180.0	1.61	1.35	1.19
700.1	730.1	3.90	3.10	2.75	1700.1	3.29	2.04	1.74	200.0	1.62	1.35	1.19
800.1	830.1	3.94	3.14	2.79	1800.1	3.11	2.15	2.14	220.0	1.64	1.37	1.20
900.1	930.1	3.30	2.82	2.61	1900.1	2.66	2.12	2.39	240.0	1.65	1.37	1.20
1000.1	1030.1	2.63	2.35	2.25	2000.1	2.59	2.27	2.65	260.0	1.65	1.37	1.20
1100.1	1130.1	1.96	1.89	1.89	2100.1	2.25	2.22	2.69	280.0	1.67	1.38	1.21
1200.1	1230.1	1.44	1.50	1.57	2250.1	1.76	2.00	2.70	300.0	1.68	1.39	1.21
1300.1	1330.1	1.13	1.25	1.34	2400.1	1.49	1.99	3.18	320.0	1.67	1.38	1.21
1400.1	1430.1	1.10	1.07	1.15	2550.1	1.26	1.78	2.83	340.0	1.68	1.39	1.21
1500.1	1530.1	1.18	1.08	1.10	2700.1	1.09	1.43	1.90	360.0	1.67	1.38	1.21
1600.1	1630.1	1.07	1.07	1.14	2850.1	1.15	1.29	1.71	380.0	1.66	1.38	1.20
1700.1	1730.1	1.25	1.24	1.27	3000.1	1.36	1.15	1.59	400.0	1.66	1.38	1.20
1800.1	1830.1	1.79	1.69	1.65	3200.1	1.70	1.12	1.27	420.0	1.65	1.37	1.20
1900.1	1930.1	2.67	2.44	2.33	3400.1	1.84	1.38	1.31	440.0	1.63	1.36	1.19
2000.1	2030.1	3.88	3.45	3.19	3600.1	2.00	1.72	1.89	460.0	1.62	1.35	1.19
2100.1	2130.1	4.01	3.67	3.48	3800.1	2.21	2.13	2.54	480.0	1.61	1.34	1.18
2200.1	2230.1	3.09	3.03	3.00	4000.1	2.17	2.22	2.67	500.0	1.59	1.33	1.17

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Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	29	36	35	41	38	46	50	59	60	58
1	-	32	+0	42	16	39	29	40	35	51	51	55
2	73	48	48	48	65	52	49	50	42	51	45	53
3	86	52	46	53	81	50	42	46	41	46	48	52
4	112	64	64	66	70	71	67	61	63	61	53	73
5	>119	61	58	64	58	64	55	66	54	67	55	60
6	>119	70	62	67	65	63	70	64	76	66	74	65
7	>119	70	63	65	69	68	74	67	73	64	80	64
8	>120	74	73	73	71	73	72	72	74	70	77	74
9	>119	77	81	74	78	71	84	74	85	78	91	78
10	>121	84	85	82	82	79	89	81	87	80	84	77
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions: RF IN: 500.1 MHz; 15.01.00 dBm.
LO IN: 530.01 MHz; +23.00 dBm
IF OUT: 29.91 MHz; 8.8 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	19	25	22	27	27	28	31	29	33	34
1	-	33	+0	39	17	33	32	33	31	35	38	41
2	84	60	53	67	59	53	61	53	48	58	50	67
3	101	92	63	66	59	69	51	68	52	63	59	73
4	>123	87	71	79	71	73	74	73	89	75	80	88
5	>123	81	80	85	81	88	80	82	80	80	79	83
6	>123	91	97	92	102	101	89	105	86	95	89	90
7	>121	110	99	100	93	95	93	95	98	97	98	107
8	>121	>117	110	108	110	106	111	108	105	114	103	105
9	>121	>120	>121	>120	111	114	109	110	110	112	115	115
10	>121	>120	>122	>119	>121	>121	>122	>122	>122	>122	>120	>120
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions: RF IN: 500.1 MHz; 4.94.00 dBm.
LO IN: 530.01 MHz; +23.00 dBm
IF OUT: 29.91 MHz; -1.21 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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