

Frequency Mixer

ZLW-1H

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB)		
		@LO (dBm)		
		+14	+17	+20
10.1	40.1	5.41	5.19	5.09
40.1	70.1	5.59	5.36	5.18
70.1	100.1	5.55	5.30	5.23
100.1	130.1	5.65	5.45	5.39
130.1	160.1	5.60	5.40	5.35
160.1	190.1	5.54	5.40	5.36
190.1	220.1	5.56	5.46	5.42
220.1	250.1	5.55	5.42	5.38
250.1	280.1	5.55	5.44	5.41
280.1	310.1	5.58	5.50	5.48
310.1	340.1	5.64	5.50	5.45
340.1	370.1	5.76	5.59	5.50
370.1	400.1	5.77	5.65	5.58
400.1	430.1	5.77	5.66	5.62
430.1	460.1	5.81	5.69	5.65
460.1	490.1	5.99	5.88	5.85
490.1	520.1	6.18	6.04	5.96
520.1	550.1	6.44	6.27	6.13
550.1	580.1	6.52	6.29	6.07
580.1	610.1	6.78	6.42	6.13
610.1	640.1	6.94	6.43	6.14
640.1	670.1	6.86	6.30	6.01
670.1	700.1	7.09	6.43	6.10
700.1	730.1	7.38	6.47	6.07
730.1	760.1	7.51	6.44	5.99
760.1	790.1	8.11	6.80	6.17
800.1	830.1	8.63	7.44	6.52
830.1	860.1	8.53	7.62	6.80
870.1	900.1	8.76	8.15	7.50
900.1	930.1	8.66	8.18	7.74
940.1	970.1	8.56	8.12	7.76
970.1	1000.1	8.39	7.96	7.63
1010.1	1040.1	8.44	8.00	7.70
1040.1	1070.1	8.62	8.19	7.87
1080.1	1110.1	9.07	8.61	8.31
1110.1	1140.1	9.21	8.75	8.45
1150.1	1180.1	9.72	9.25	8.95
1180.1	1210.1	10.19	9.74	9.43
1220.1	1250.1	10.68	10.31	9.99
1250.1	1280.1	10.98	10.69	10.42

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)		
		@LO (dBm)		
		+14	+17	+20
10.1	40.1	22.56	23.22	23.52
40.1	70.1	21.95	22.69	25.77
70.1	100.1	21.80	23.12	22.29
100.1	130.1	29.14	20.21	23.25
130.1	160.1	20.18	19.86	22.53
160.1	190.1	18.34	20.44	22.19
190.1	220.1	19.23	21.19	22.43
220.1	250.1	18.62	20.74	22.03
250.1	280.1	17.78	19.40	20.88
280.1	310.1	16.96	17.77	19.27
310.1	340.1	17.24	18.70	21.35
340.1	370.1	17.90	19.78	23.08
370.1	400.1	19.66	20.45	22.16
400.1	430.1	18.19	19.20	21.21
430.1	460.1	17.45	18.62	20.24
460.1	490.1	14.46	16.79	19.41
490.1	520.1	12.59	14.27	16.99
520.1	550.1	11.92	12.85	14.84
550.1	580.1	11.41	12.56	14.60
580.1	610.1	11.64	13.46	16.04
610.1	640.1	12.62	15.34	18.27
640.1	670.1	14.65	18.55	22.44
670.1	700.1	17.33	22.28	22.49
700.1	730.1	16.54	21.20	20.24
730.1	760.1	15.45	20.55	19.46
760.1	790.1	13.01	19.08	19.07
800.1	830.1	12.10	15.71	20.31
830.1	860.1	13.49	16.22	21.53
870.1	900.1	14.68	16.46	20.24
900.1	930.1	15.71	17.24	19.66
940.1	970.1	17.59	19.64	21.80
970.1	1000.1	21.63	24.58	29.01
1010.1	1040.1	20.76	22.50	24.74
1040.1	1070.1	19.53	22.14	24.36
1080.1	1110.1	19.02	22.33	24.59
1110.1	1140.1	18.73	21.35	24.27
1150.1	1180.1	19.69	21.62	24.48
1180.1	1210.1	20.41	22.62	25.15
1220.1	1250.1	21.35	24.79	26.65
1250.1	1280.1	21.66	26.26	28.50

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+10dBm (dB)		
		@LO (dBm)		
		+14	+17	+20
10.1	40.1	0.74	0.37	0.19
40.1	70.1	0.50	0.29	0.14
70.1	100.1	0.58	0.33	0.16
100.1	130.1	0.55	0.30	0.16
130.1	160.1	0.51	0.28	0.15
160.1	190.1	0.50	0.25	0.15
190.1	220.1	0.49	0.26	0.16
220.1	250.1	0.45	0.24	0.16
250.1	280.1	0.42	0.26	0.17
280.1	310.1	0.48	0.32	0.23
310.1	340.1	0.43	0.28	0.20
340.1	370.1	0.41	0.29	0.21
370.1	400.1	0.61	0.44	0.32
400.1	430.1	0.71	0.45	0.29
430.1	460.1	0.90	0.60	0.38
460.1	490.1	1.10	0.74	0.45
490.1	520.1	1.18	0.78	0.47
520.1	550.1	1.22	0.87	0.58
550.1	580.1	1.36	1.02	0.74
580.1	610.1	1.34	0.98	0.76
610.1	640.1	1.37	1.03	0.80
640.1	670.1	1.54	1.17	0.89
670.1	700.1	1.54	1.15	0.82
700.1	730.1	1.45	1.20	0.90
730.1	760.1	1.42	1.38	1.01
760.1	790.1	0.91	1.17	0.92
800.1	830.1	0.55	0.78	0.87
830.1	860.1	0.66	0.72	0.76
870.1	900.1	0.55	0.47	0.47
900.1	930.1	0.50	0.39	0.32
940.1	970.1	0.51	0.41	0.35
970.1	1000.1	0.64	0.53	0.43
1010.1	1040.1	0.80	0.67	0.55
1040.1	1070.1	0.86	0.70	0.56
1080.1	1110.1	0.86	0.68	0.52
1110.1	1140.1	0.86	0.66	0.49
1150.1	1180.1	0.76	0.55	0.39
1180.1	1210.1	0.65	0.40	0.28
1220.1	1250.1	0.62	0.32	0.22
1250.1	1280.1	0.67	0.30	0.20

Frequency Mixer

ZLW-1H

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=250.1MHz (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)=500.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+17			+17			+17
240.0	10.1	5.69	10.0	20.1	5.34	490.0	10.1	6.29
235.0	15.1	5.74	50.0	60.1	5.17	480.0	20.1	6.19
230.0	20.1	5.74	90.0	100.1	5.02	470.0	30.1	6.15
225.0	25.1	5.63	130.0	140.1	5.17	460.0	40.1	6.05
220.0	30.1	5.62	170.0	180.1	5.16	450.0	50.1	6.15
215.0	35.1	5.59	210.0	220.1	5.12	440.0	60.1	6.01
210.0	40.1	5.58	250.0	260.1	5.27	430.0	70.1	5.93
205.0	45.1	5.58	290.0	300.1	5.49	420.0	80.1	5.89
200.0	50.1	5.51	330.0	340.1	5.32	410.0	90.1	5.80
195.0	55.1	5.47	370.0	380.1	5.42	400.0	100.1	5.84
190.0	60.1	5.49	410.0	420.1	5.70	390.0	110.1	5.77
185.0	65.1	5.53	450.0	460.1	5.98	380.0	120.1	5.86
180.0	70.1	5.48	490.0	500.1	5.99	370.0	130.1	5.80
175.0	75.1	5.41	510.0	520.1	5.95	360.0	140.1	5.86
170.0	80.1	5.42	550.0	560.1	5.89	350.0	150.1	5.87
165.0	85.1	5.41	570.0	580.1	5.85	340.0	160.1	5.84
160.0	90.1	5.41	610.0	620.1	5.77	330.0	170.1	5.87
155.0	95.1	5.36	630.0	640.1	5.61	320.0	180.1	5.84
150.0	100.1	5.32	670.0	680.1	5.64	310.0	190.1	5.90
145.0	105.1	5.34	690.0	700.1	5.63	300.0	200.1	5.84
140.0	110.1	5.39	730.0	740.1	5.73	290.0	210.1	5.86
135.0	115.1	5.40	750.0	760.1	5.68	280.0	220.1	5.86
130.0	120.1	5.34	790.0	800.1	5.87	260.0	240.1	5.92
125.0	125.1	5.23	810.0	820.1	5.96	250.0	250.1	5.88
120.0	130.1	5.36	850.0	860.1	5.84	230.0	270.1	5.72
115.0	135.1	5.37	870.0	880.1	5.91	220.0	280.1	5.77
105.0	145.1	5.32	910.0	920.1	6.02	200.0	300.1	5.89
100.0	150.1	5.33	930.0	940.1	6.07	190.0	310.1	5.90
90.0	160.1	5.37	970.0	980.1	6.34	170.0	330.1	5.90
85.0	165.1	5.34	990.0	1000.1	6.50	160.0	340.1	5.80
75.0	175.1	5.33	1030.0	1040.1	6.79	140.0	360.1	5.91
70.0	180.1	5.35	1050.0	1060.1	7.15	130.0	370.1	5.89
60.0	190.1	5.34	1090.0	1100.1	7.51	110.0	390.1	5.87
55.0	195.1	5.34	1110.0	1120.1	7.96	100.0	400.1	5.92
45.0	205.1	5.38	1150.0	1160.1	8.51	80.0	420.1	5.90
40.0	210.1	5.38	1170.0	1180.1	8.80	70.0	430.1	5.90
30.0	220.1	5.35	1210.0	1220.1	9.57	50.0	450.1	5.96
25.0	225.1	5.31	1230.0	1240.1	9.95	40.0	460.1	5.95
15.0	235.1	5.33	1270.0	1280.1	10.76	20.0	480.1	5.91
10.0	240.1	5.39	1290.0	1300.1	11.17	10.0	490.1	6.06

Frequency Mixer

ZLW-1H

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)			RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)					@LO (dBm)		
	+14	+17	+20	+14	+17	+20			+14	+17	+20
40.1	81.15	80.39	75.34	63.78	65.11	66.67	10.1	40.1	47.85	47.73	47.42
70.1	82.00	78.57	74.01	58.86	60.13	61.11	40.1	70.1	37.48	37.66	37.61
100.1	79.51	77.34	70.64	55.47	56.92	60.13	70.1	100.1	33.58	33.60	33.72
130.1	77.54	76.25	68.55	52.46	55.82	58.12	100.1	130.1	31.41	31.60	31.73
160.1	74.56	75.87	67.77	50.74	53.91	55.57	130.1	160.1	30.14	30.26	30.31
190.1	73.44	71.63	64.90	50.39	52.89	53.80	160.1	190.1	28.98	29.19	29.35
220.1	70.73	73.86	65.32	49.38	51.15	51.87	190.1	220.1	28.68	28.77	28.88
250.1	66.78	76.19	65.72	49.13	50.22	50.27	220.1	250.1	28.93	29.08	29.06
280.1	69.37	68.63	61.89	48.53	49.01	48.61	250.1	280.1	29.12	29.61	30.06
310.1	69.30	71.01	63.58	47.15	47.44	47.20	280.1	310.1	29.01	29.36	29.66
340.1	62.25	84.47	65.85	46.86	46.83	46.08	310.1	340.1	29.07	29.13	29.16
370.1	58.32	68.02	66.76	46.16	46.08	45.24	340.1	370.1	28.49	28.59	28.79
400.1	57.49	64.61	68.23	44.58	44.35	43.63	370.1	400.1	27.66	28.09	28.72
430.1	58.39	69.13	59.86	42.34	41.88	41.25	400.1	430.1	27.19	28.11	28.98
460.1	58.78	70.64	58.94	40.76	39.99	39.51	430.1	460.1	25.67	26.22	26.62
490.1	58.47	70.11	65.85	40.50	39.24	38.43	460.1	490.1	23.69	23.77	23.82
520.1	62.17	65.22	57.82	40.29	39.08	38.12	490.1	520.1	22.26	22.09	21.94
550.1	67.96	61.91	56.03	39.57	38.63	37.39	520.1	550.1	21.23	21.01	20.76
580.1	63.02	72.78	68.07	38.71	37.55	36.10	550.1	580.1	20.16	19.94	19.72
610.1	61.89	64.29	60.93	38.05	36.30	34.64	580.1	610.1	19.53	19.10	18.77
640.1	57.80	62.69	75.34	37.41	35.07	33.70	610.1	640.1	19.06	18.60	18.30
670.1	51.73	54.13	57.03	36.76	34.52	33.07	640.1	670.1	18.71	18.31	18.10
700.1	52.85	63.53	59.14	35.12	33.88	32.40	670.1	700.1	18.71	18.35	18.16
730.1	49.85	54.73	62.88	33.13	32.47	31.29	700.1	730.1	18.90	18.56	18.46
760.1	48.48	53.73	64.07	31.43	31.16	30.38	730.1	760.1	18.78	18.39	18.25
790.1	51.43	60.49	52.21	31.17	30.39	29.48	760.1	790.1	18.41	18.07	17.86
830.1	53.20	59.13	49.37	30.57	29.61	28.49	800.1	830.1	17.37	17.09	16.84
860.1	50.77	60.25	56.69	30.08	29.01	27.90	830.1	860.1	16.71	16.37	16.10
900.1	53.21	60.05	49.12	29.48	28.41	27.12	870.1	900.1	15.90	15.65	15.41
930.1	76.14	48.43	41.97	29.09	27.96	26.47	900.1	930.1	15.42	15.20	15.00
970.1	67.50	48.54	42.98	28.16	26.75	25.03	940.1	970.1	14.68	14.48	14.26
1000.1	63.48	47.70	42.19	27.54	26.06	24.00	970.1	1000.1	14.02	13.83	13.68
1040.1	53.81	42.97	38.87	26.49	24.64	22.90	1010.1	1040.1	13.09	12.97	12.84
1070.1	48.43	40.40	37.13	25.65	23.77	22.26	1040.1	1070.1	12.46	12.40	12.23
1110.1	44.41	38.66	36.40	24.46	22.65	21.52	1080.1	1110.1	11.67	11.62	11.49
1140.1	42.83	38.27	36.48	23.47	22.07	21.17	1110.1	1140.1	11.08	11.03	10.92
1180.1	38.72	35.87	34.45	22.66	21.61	21.00	1150.1	1180.1	10.38	10.23	10.13
1210.1	36.64	34.56	33.41	22.11	21.20	20.65	1180.1	1210.1	9.83	9.71	9.62
1250.1	35.42	33.90	33.05	21.58	20.87	20.37	1220.1	1250.1	9.31	9.13	9.02
1280.1	34.23	33.10	32.36	21.21	20.73	20.29	1250.1	1280.1	9.00	8.81	8.71



Frequency Mixer

ZLW-1H

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)		
		@LO (dBm)		
		+14	+17	+20
10.1	40.1	1.10	1.04	1.13
40.1	70.1	1.21	1.12	1.07
70.1	100.1	1.21	1.07	1.06
100.1	130.1	1.12	1.05	1.09
130.1	160.1	1.12	1.10	1.13
160.1	190.1	1.10	1.10	1.13
190.1	220.1	1.06	1.09	1.12
220.1	250.1	1.08	1.14	1.18
250.1	280.1	1.07	1.13	1.17
280.1	310.1	1.05	1.11	1.14
310.1	340.1	1.04	1.10	1.15
340.1	370.1	1.04	1.10	1.15
370.1	400.1	1.07	1.13	1.18
400.1	430.1	1.12	1.20	1.25
430.1	460.1	1.13	1.20	1.24
460.1	490.1	1.16	1.21	1.24
490.1	520.1	1.18	1.20	1.21
520.1	550.1	1.21	1.20	1.19
550.1	580.1	1.28	1.26	1.23
580.1	610.1	1.31	1.27	1.23
610.1	640.1	1.37	1.31	1.26
640.1	670.1	1.43	1.35	1.30
670.1	700.1	1.49	1.41	1.35
700.1	730.1	1.62	1.50	1.44
730.1	760.1	1.71	1.57	1.49
760.1	790.1	1.80	1.64	1.54
800.1	830.1	2.02	1.85	1.71
830.1	860.1	2.03	1.91	1.80
870.1	900.1	2.14	2.08	2.01
900.1	930.1	2.15	2.12	2.08
940.1	970.1	2.18	2.16	2.14
970.1	1000.1	2.24	2.22	2.20
1010.1	1040.1	2.38	2.35	2.33
1040.1	1070.1	2.50	2.46	2.42
1080.1	1110.1	2.78	2.71	2.66
1110.1	1140.1	2.92	2.85	2.80
1150.1	1180.1	3.24	3.16	3.10
1180.1	1210.1	3.50	3.41	3.35
1220.1	1250.1	3.65	3.60	3.55
1250.1	1280.1	3.93	3.87	3.82

LO (MHz)	LO VSWR (:1)		
	@LO (dBm)		
	+14	+17	+20
40.1	1.10	1.40	1.94
70.1	1.18	1.33	1.77
100.1	1.23	1.40	1.87
130.1	1.25	1.42	1.86
160.1	1.29	1.41	1.83
190.1	1.31	1.47	1.92
220.1	1.31	1.47	1.88
250.1	1.35	1.51	1.94
280.1	1.37	1.58	2.03
310.1	1.39	1.60	2.01
340.1	1.42	1.68	2.14
370.1	1.45	1.71	2.15
400.1	1.49	1.77	2.22
430.1	1.54	1.91	2.43
460.1	1.56	1.90	2.36
490.1	1.61	1.98	2.49
520.1	1.70	2.13	2.69
550.1	1.78	2.24	2.82
580.1	1.88	2.39	3.00
610.1	1.94	2.48	3.11
640.1	2.00	2.57	3.22
670.1	2.08	2.69	3.38
700.1	2.14	2.78	3.50
730.1	2.24	2.89	3.62
760.1	2.38	3.06	3.82
790.1	2.51	3.20	3.99
830.1	2.69	3.42	4.23
860.1	2.86	3.63	4.45
900.1	3.03	3.84	4.72
930.1	3.20	4.05	4.93
970.1	3.38	4.27	5.19
1000.1	3.50	4.42	5.38
1040.1	3.72	4.64	5.59
1070.1	3.80	4.74	5.72
1110.1	3.98	4.93	5.97
1140.1	4.15	5.10	6.11
1180.1	4.29	5.23	6.30
1210.1	4.53	5.49	6.56
1250.1	4.87	5.77	6.76
1280.1	5.12	5.97	7.00

IF (OUT) (MHz)	IF VSWR @LO=500.1MHz (:1)		
	@LO (dBm)		
	+14	+17	+20
10.1	1.71	1.45	1.27
20.1	1.68	1.43	1.24
30.1	1.70	1.43	1.25
40.1	1.73	1.46	1.28
50.1	1.75	1.48	1.30
60.1	1.72	1.46	1.28
70.1	1.70	1.44	1.26
80.1	1.74	1.47	1.30
90.1	1.78	1.51	1.34
100.1	1.79	1.53	1.36
110.1	1.77	1.51	1.34
120.1	1.77	1.50	1.32
130.1	1.80	1.53	1.35
140.1	1.82	1.56	1.38
150.1	1.84	1.57	1.40
160.1	1.83	1.57	1.39
170.1	1.84	1.57	1.40
180.1	1.89	1.63	1.45
190.1	1.95	1.68	1.51
200.1	1.95	1.68	1.51
210.1	1.93	1.66	1.48
220.1	1.93	1.66	1.49
240.1	2.05	1.77	1.59
250.1	2.05	1.77	1.59
270.1	2.08	1.80	1.62
280.1	2.15	1.87	1.69
300.1	2.18	1.89	1.71
310.1	2.17	1.88	1.70
330.1	2.29	1.99	1.80
340.1	2.32	2.02	1.83
360.1	2.34	2.04	1.86
370.1	2.40	2.10	1.91
390.1	2.45	2.14	1.94
400.1	2.44	2.12	1.93
420.1	2.56	2.24	2.04
430.1	2.61	2.29	2.08
450.1	2.58	2.26	2.06
460.1	2.62	2.30	2.10
480.1	2.75	2.41	2.19
490.1	2.73	2.39	2.17

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(dBc)										
0	-	-	22	34	29	32	19	38	20	43	29	64
1	-	24	+0	30	12	39	16	34	39	42	50	45
2	64	77	57	73	59	75	60	73	59	74	58	74
3	>90	77	58	>79	58	>79	57	>79	58	74	75	73
4	>90	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
5	>90	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
6	>90	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
7	>90	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
8	>90	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
9	>90	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
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: 250.1 MHz; -5.00 dBm.
 LO IN: 280.1 MHz; +17.00 dBm
 IF OUT: 30 MHz; -10.41 dBm

RF HARMONICS ORDER

	(-dBm)	(dBc)										
0	-	-	30	44	41	42	30	50	31	54	43	68
1	-	24	+0	30	12	41	17	37	39	48	45	52
2	44	66	50	69	53	72	55	66	51	69	50	71
3	70	56	44	62	44	63	43	62	43	55	66	59
4	>90	82	72	81	69	81	69	87	69	86	73	81
5	>90	78	58	84	58	78	57	78	57	76	58	77
6	>90	>88	86	86	86	>88	83	85	84	>88	80	>88
7	>90	>88	86	>88	73	>88	74	86	72	86	72	>88
8	>90	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88
9	>90	>88	>88	>88	>88	>88	>88	>88	82	>88	81	>88
10	>90	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 250.1 MHz; 5.00 dBm.
 LO IN: 280.1 MHz; +17.00 dBm
 IF OUT: 30 MHz; -0.6 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.