

Frequency Mixer

ZFM-1W+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB)		
		@LO (dBm)		
		+4	+7	+10
10.1	40.1	6.15	5.72	5.11
50.1	80.1	6.44	6.04	5.84
90.1	120.1	6.40	6.09	5.94
130.1	160.1	6.52	6.15	5.96
170.1	200.1	6.47	6.17	6.03
210.1	240.1	6.57	6.25	6.08
250.1	280.1	6.57	6.27	6.10
290.1	320.1	6.65	6.35	6.16
330.1	360.1	6.77	6.44	6.24
370.1	400.1	6.76	6.43	6.25
410.1	440.1	6.97	6.60	6.38
450.1	480.1	6.92	6.56	6.34
490.1	520.1	7.15	6.73	6.48
530.1	560.1	7.28	6.87	6.60
570.1	600.1	7.45	6.99	6.70
610.1	640.1	7.62	7.10	6.77
650.1	680.1	7.60	7.04	6.69
690.1	720.1	7.72	7.06	6.69
730.1	760.1	7.78	7.06	6.68
770.1	800.1	7.91	7.16	6.72
810.1	840.1	8.01	7.29	6.81
850.1	880.1	8.08	7.42	6.93
890.1	920.1	8.13	7.51	7.04
930.1	960.1	8.28	7.68	7.23
970.1	1000.1	8.33	7.78	7.35
1010.1	1040.1	8.46	7.95	7.53
1050.1	1080.1	8.50	8.04	7.66
1070.1	1100.1	8.59	8.13	7.77
1110.1	1140.1	8.60	8.19	7.88
1130.1	1160.1	8.69	8.28	7.99
1170.1	1200.1	8.79	8.45	8.22
1190.1	1220.1	8.86	8.53	8.31
1230.1	1260.1	9.02	8.73	8.56
1250.1	1280.1	9.11	8.85	8.69
1290.1	1320.1	9.29	8.98	8.82
1310.1	1340.1	9.42	9.09	8.93
1350.1	1380.1	9.82	9.42	9.25
1370.1	1400.1	9.96	9.50	9.32
1410.1	1440.1	10.43	9.86	9.65
1430.1	1460.1	10.70	10.10	9.87

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)		
		@LO (dBm)		
		+4	+7	+10
10.1	40.1	18.30	20.01	21.45
50.1	80.1	20.23	20.45	18.18
90.1	120.1	19.46	16.08	18.47
130.1	160.1	14.10	15.31	19.06
170.1	200.1	13.86	16.78	20.99
210.1	240.1	13.56	17.73	20.96
250.1	280.1	13.44	17.69	20.95
290.1	320.1	13.91	18.22	20.92
330.1	360.1	13.55	18.42	20.88
370.1	400.1	15.37	20.78	19.75
410.1	440.1	15.24	19.69	19.76
450.1	480.1	15.43	20.72	20.83
490.1	520.1	12.73	18.05	20.76
530.1	560.1	11.82	14.97	20.62
570.1	600.1	12.15	15.27	19.68
610.1	640.1	13.46	15.72	16.28
650.1	680.1	14.16	14.01	14.32
690.1	720.1	11.70	11.84	12.39
730.1	760.1	10.63	11.27	11.86
770.1	800.1	9.48	10.79	11.40
810.1	840.1	8.37	9.67	10.68
850.1	880.1	8.30	9.52	10.63
890.1	920.1	7.70	8.97	9.99
930.1	960.1	7.83	8.93	10.09
970.1	1000.1	8.05	9.26	10.55
1010.1	1040.1	7.98	9.06	10.51
1050.1	1080.1	9.05	10.16	11.50
1070.1	1100.1	9.61	10.65	12.02
1110.1	1140.1	10.86	11.99	13.27
1130.1	1160.1	10.95	12.27	13.64
1170.1	1200.1	12.11	13.37	14.69
1190.1	1220.1	12.73	14.08	15.21
1230.1	1260.1	13.09	14.76	15.56
1250.1	1280.1	13.35	15.16	15.81
1290.1	1320.1	13.24	15.30	16.34
1310.1	1340.1	13.35	15.90	17.01
1350.1	1380.1	13.48	16.01	17.34
1370.1	1400.1	13.56	16.03	17.20
1410.1	1440.1	13.51	16.24	17.74
1430.1	1460.1	13.61	15.94	17.81

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+1dBm (dB)		
		@LO (dBm)		
		+4	+7	+10
10.1	40.1	0.63	0.77	0.27
50.1	80.1	0.71	0.48	0.29
90.1	120.1	0.70	0.42	0.25
130.1	160.1	0.60	0.34	0.20
170.1	200.1	0.68	0.39	0.27
210.1	240.1	0.53	0.32	0.20
250.1	280.1	0.58	0.40	0.27
290.1	320.1	0.54	0.35	0.25
330.1	360.1	0.54	0.36	0.25
370.1	400.1	0.61	0.42	0.31
410.1	440.1	0.59	0.40	0.30
450.1	480.1	0.75	0.58	0.42
490.1	520.1	0.76	0.57	0.44
530.1	560.1	0.87	0.67	0.54
570.1	600.1	0.92	0.72	0.59
610.1	640.1	0.95	0.75	0.62
650.1	680.1	1.07	0.89	0.74
690.1	720.1	1.12	0.95	0.78
730.1	760.1	1.09	1.00	0.80
770.1	800.1	1.03	0.97	0.81
810.1	840.1	0.97	0.90	0.76
850.1	880.1	0.92	0.81	0.70
890.1	920.1	0.95	0.81	0.70
930.1	960.1	0.86	0.71	0.60
970.1	1000.1	0.88	0.71	0.59
1010.1	1040.1	0.85	0.66	0.55
1050.1	1080.1	0.88	0.66	0.54
1070.1	1100.1	0.83	0.63	0.51
1110.1	1140.1	0.88	0.64	0.51
1130.1	1160.1	0.89	0.62	0.49
1170.1	1200.1	0.81	0.55	0.42
1190.1	1220.1	0.77	0.51	0.39
1230.1	1260.1	0.68	0.43	0.33
1250.1	1280.1	0.65	0.40	0.30
1290.1	1320.1	0.64	0.37	0.27
1310.1	1340.1	0.63	0.34	0.25
1350.1	1380.1	0.57	0.31	0.21
1370.1	1400.1	0.58	0.31	0.21
1410.1	1440.1	0.56	0.31	0.20
1430.1	1460.1	0.52	0.30	0.19

Frequency Mixer

ZFM-1W+

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=385.1MHz (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)=762.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+7			+7			+7
370.1	15.0	6.49	10.0	20.1	5.95	752.1	10.0	7.13
360.1	25.0	6.42	47.0	57.1	5.55	732.1	30.0	7.05
350.1	35.0	6.35	84.0	94.1	5.52	712.1	50.0	7.04
340.1	45.0	6.37	121.0	131.1	5.75	692.1	70.0	7.07
330.1	55.0	6.40	158.0	168.1	5.75	672.1	90.0	7.14
320.1	65.0	6.37	195.0	205.1	5.78	652.1	110.0	7.06
310.1	75.0	6.37	232.0	242.1	5.54	632.1	130.0	7.10
300.1	85.0	6.39	269.0	279.1	5.83	612.1	150.0	7.08
290.1	95.0	6.34	306.0	316.1	5.69	592.1	170.0	7.09
280.1	105.0	6.33	343.0	353.1	5.89	572.1	190.0	7.15
270.1	115.0	6.33	380.0	390.1	5.69	552.1	210.0	7.07
260.1	125.0	6.30	417.0	427.1	5.90	532.1	230.0	7.15
250.1	135.0	6.29	454.0	464.1	6.21	512.1	250.0	7.07
240.1	145.0	6.34	491.0	501.1	5.87	492.1	270.0	7.13
230.1	155.0	6.35	528.0	538.1	5.88	472.1	290.0	7.14
220.1	165.0	6.33	565.0	575.1	6.10	452.1	310.0	7.08
210.1	175.0	6.34	602.0	612.1	5.93	432.1	330.0	7.13
200.1	185.0	6.38	639.0	649.1	6.00	412.1	350.0	7.14
190.1	195.0	6.35	676.0	686.1	6.08	392.1	370.0	7.19
180.1	205.0	6.33	713.0	723.1	6.04	372.1	390.0	7.23
170.1	215.0	6.35	750.0	760.1	6.02	352.1	410.0	7.16
160.1	225.0	6.35	787.0	797.1	6.14	332.1	430.0	7.27
150.1	235.0	6.37	824.0	834.1	5.82	312.1	450.0	7.19
140.1	245.0	6.40	861.0	871.1	6.10	292.1	470.0	7.21
130.1	255.0	6.41	898.0	908.1	6.02	272.1	490.0	7.21
120.1	265.0	6.37	935.0	945.1	6.12	252.1	510.0	7.16
110.1	275.0	6.38	972.0	982.1	6.17	232.1	530.0	7.26
100.1	285.0	6.45	1009.0	1019.1	6.09	212.1	550.0	7.18
90.1	295.0	6.42	1046.0	1056.1	6.32	192.1	570.0	7.24
85.1	300.0	6.43	1083.0	1093.1	6.43	172.1	590.0	7.18
75.1	310.0	6.43	1120.0	1130.1	6.74	152.1	610.0	7.16
70.1	315.0	6.44	1157.0	1167.1	7.02	132.1	630.0	7.16
60.1	325.0	6.46	1194.0	1204.1	7.26	112.1	650.0	7.06
55.1	330.0	6.47	1231.0	1241.1	7.39	102.1	660.0	7.08
45.1	340.0	6.46	1268.0	1278.1	7.88	82.1	680.0	6.93
40.1	345.0	6.45	1305.0	1315.1	8.25	72.1	690.0	6.99
30.1	355.0	6.47	1342.0	1352.1	8.63	52.1	710.0	6.95
25.1	360.0	6.45	1397.5	1407.6	9.21	42.1	720.0	6.97
15.1	370.0	6.56	1434.5	1444.6	9.62	22.1	740.0	6.98
10.1	375.0	6.83	1490.0	1500.1	10.34	12.1	750.0	7.23

Frequency Mixer

ZFM-1W+

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)		
	+4	+7	+10	+4	+7	+10			+4	+7	+10
40.1	60.58	60.50	61.53	58.33	59.99	61.49	10.1	40.1	48.46	48.36	48.14
80.1	56.14	56.03	56.26	56.48	58.01	59.44	50.1	80.1	35.34	37.19	37.44
120.1	53.57	53.43	53.55	53.89	55.76	58.07	90.1	120.1	32.54	32.13	32.20
160.1	50.84	51.06	51.05	51.00	53.21	55.47	130.1	160.1	29.31	29.86	29.98
200.1	49.14	49.18	49.16	49.16	51.33	53.45	170.1	200.1	28.25	28.18	28.31
240.1	47.87	47.82	47.81	47.55	49.51	51.33	210.1	240.1	27.02	27.59	27.61
280.1	46.73	46.74	46.78	46.20	47.89	49.34	250.1	280.1	26.42	26.94	26.94
320.1	45.65	45.74	45.70	44.58	45.96	47.27	290.1	320.1	26.23	26.91	27.25
360.1	44.78	44.87	44.84	43.39	44.67	45.73	330.1	360.1	26.20	26.97	27.22
400.1	44.36	44.37	44.31	42.68	43.72	44.59	370.1	400.1	26.13	26.98	27.34
440.1	44.09	44.05	43.92	42.07	42.54	42.79	410.1	440.1	25.82	26.57	27.49
480.1	43.25	43.27	43.22	41.27	41.58	41.61	450.1	480.1	25.52	26.51	27.41
520.1	42.37	42.57	42.63	39.70	40.02	40.17	490.1	520.1	25.27	26.30	27.03
560.1	41.41	41.66	41.77	37.97	38.27	38.54	530.1	560.1	24.83	25.24	25.50
600.1	41.07	41.25	41.43	36.68	36.62	36.85	570.1	600.1	23.59	23.73	23.52
640.1	40.59	40.88	41.02	35.96	35.60	35.33	610.1	640.1	22.35	22.24	22.14
680.1	40.26	40.58	40.76	35.32	34.88	34.49	650.1	680.1	21.28	21.06	20.97
720.1	40.21	40.59	40.64	34.34	33.98	33.35	690.1	720.1	20.71	20.36	20.18
760.1	39.53	40.04	40.25	33.14	32.83	32.20	730.1	760.1	20.39	20.06	19.70
800.1	38.94	39.51	39.87	31.93	31.88	31.30	770.1	800.1	20.56	20.10	19.66
840.1	38.10	38.59	38.98	30.44	30.65	30.20	810.1	840.1	20.55	20.17	19.71
880.1	37.50	37.91	38.24	28.94	29.30	29.21	850.1	880.1	20.80	20.41	19.96
920.1	36.99	37.26	37.53	27.24	27.52	27.73	890.1	920.1	20.76	20.45	20.19
960.1	36.23	36.52	36.83	25.92	25.92	26.11	930.1	960.1	20.49	20.06	19.82
1000.1	35.34	35.62	35.81	24.92	24.75	24.63	970.1	1000.1	19.94	19.53	19.07
1040.1	34.50	34.78	34.97	24.02	23.75	23.44	1010.1	1040.1	19.02	18.54	18.06
1080.1	33.82	34.05	34.17	23.47	23.18	22.75	1050.1	1080.1	18.06	17.46	16.94
1100.1	33.43	33.55	33.59	23.19	22.81	22.44	1070.1	1100.1	17.54	16.89	16.34
1140.1	32.96	33.09	33.14	22.50	22.19	21.78	1110.1	1140.1	16.38	15.68	15.21
1160.1	32.84	32.99	33.03	22.13	21.83	21.49	1130.1	1160.1	15.85	15.08	14.59
1200.1	32.35	32.50	32.49	21.47	21.28	20.99	1170.1	1200.1	14.75	14.05	13.59
1220.1	32.13	32.29	32.14	21.12	21.01	20.66	1190.1	1220.1	14.19	13.54	13.06
1260.1	31.74	32.04	31.88	20.54	20.60	20.32	1230.1	1260.1	13.28	12.66	12.23
1280.1	31.46	31.83	31.71	20.26	20.39	20.15	1250.1	1280.1	12.85	12.21	11.84
1320.1	30.68	31.14	31.17	19.70	19.95	19.76	1290.1	1320.1	12.18	11.55	11.23
1340.1	30.33	30.81	30.97	19.47	19.70	19.62	1310.1	1340.1	11.85	11.28	10.92
1380.1	29.77	30.33	30.59	19.13	19.46	19.44	1350.1	1380.1	11.14	10.62	10.30
1400.1	29.32	29.93	30.23	18.81	19.18	19.22	1370.1	1400.1	11.02	10.40	10.08
1440.1	28.63	29.44	29.78	18.43	18.95	18.98	1410.1	1440.1	10.49	9.91	9.59
1460.1	28.38	29.27	29.56	18.27	18.88	18.84	1430.1	1460.1	10.20	9.71	9.42

Frequency Mixer

ZFM-1W+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)		
		@LO (dBm)		
		+4	+7	+10
10.1	40.1	1.10	1.15	1.11
50.1	80.1	1.07	1.04	1.10
90.1	120.1	1.10	1.10	1.14
130.1	160.1	1.07	1.08	1.12
170.1	200.1	1.11	1.13	1.16
210.1	240.1	1.09	1.11	1.14
250.1	280.1	1.10	1.12	1.16
290.1	320.1	1.11	1.11	1.14
330.1	360.1	1.11	1.11	1.14
370.1	400.1	1.14	1.13	1.15
410.1	440.1	1.15	1.13	1.13
450.1	480.1	1.17	1.14	1.15
490.1	520.1	1.19	1.15	1.14
530.1	560.1	1.22	1.18	1.16
570.1	600.1	1.29	1.24	1.21
610.1	640.1	1.38	1.33	1.30
650.1	680.1	1.47	1.42	1.38
690.1	720.1	1.57	1.51	1.48
730.1	760.1	1.68	1.61	1.57
770.1	800.1	1.78	1.70	1.65
810.1	840.1	1.89	1.81	1.76
850.1	880.1	1.94	1.87	1.81
890.1	920.1	2.03	1.97	1.91
930.1	960.1	2.06	2.00	1.94
970.1	1000.1	2.09	2.04	2.00
1010.1	1040.1	2.12	2.08	2.04
1050.1	1080.1	2.09	2.07	2.03
1070.1	1100.1	2.12	2.10	2.07
1110.1	1140.1	2.11	2.10	2.08
1130.1	1160.1	2.08	2.08	2.07
1170.1	1200.1	2.13	2.14	2.14
1190.1	1220.1	2.13	2.14	2.15
1230.1	1260.1	2.10	2.12	2.13
1250.1	1280.1	2.13	2.16	2.18
1290.1	1320.1	2.17	2.20	2.22
1310.1	1340.1	2.16	2.18	2.20
1350.1	1380.1	2.25	2.27	2.29
1370.1	1400.1	2.29	2.31	2.33
1410.1	1440.1	2.33	2.34	2.36
1430.1	1460.1	2.39	2.39	2.41

LO (MHz)	LO VSWR (:1)		
	@LO (dBm)		
	+4	+7	+10
40.1	1.62	2.42	3.44
80.1	1.52	2.17	3.00
120.1	1.56	2.28	3.19
160.1	1.54	2.21	3.05
200.1	1.54	2.21	3.05
240.1	1.58	2.25	3.09
280.1	1.57	2.20	2.99
320.1	1.62	2.27	3.08
360.1	1.63	2.24	2.99
400.1	1.67	2.29	3.05
440.1	1.68	2.26	2.97
480.1	1.72	2.30	3.00
520.1	1.75	2.30	2.97
560.1	1.77	2.31	2.96
600.1	1.81	2.32	2.95
640.1	1.82	2.29	2.89
680.1	1.86	2.33	2.90
720.1	1.88	2.31	2.85
760.1	1.92	2.36	2.89
800.1	1.94	2.36	2.86
840.1	1.94	2.36	2.86
880.1	1.96	2.37	2.86
920.1	1.96	2.35	2.82
960.1	1.98	2.37	2.84
1000.1	1.98	2.36	2.81
1040.1	1.99	2.36	2.81
1080.1	2.02	2.39	2.83
1100.1	2.03	2.38	2.82
1140.1	2.06	2.41	2.86
1160.1	2.10	2.45	2.90
1200.1	2.16	2.50	2.94
1220.1	2.20	2.54	2.97
1260.1	2.34	2.67	3.11
1280.1	2.41	2.73	3.16
1320.1	2.55	2.84	3.25
1340.1	2.65	2.93	3.34
1380.1	2.84	3.10	3.49
1400.1	2.93	3.16	3.54
1440.1	3.15	3.37	3.74
1460.1	3.26	3.48	3.84

IF (OUT) (MHz)	IF VSWR @LO=750.1MHz (:1)		
	@LO (dBm)		
	+4	+7	+10
10.1	1.69	1.43	1.27
30.1	1.66	1.40	1.25
50.1	1.66	1.40	1.25
70.1	1.70	1.43	1.28
90.1	1.74	1.46	1.31
110.1	1.70	1.44	1.28
130.1	1.70	1.44	1.28
150.1	1.70	1.43	1.28
170.1	1.73	1.46	1.31
190.1	1.78	1.51	1.35
210.1	1.74	1.47	1.32
230.1	1.72	1.45	1.30
250.1	1.75	1.49	1.34
270.1	1.79	1.52	1.37
290.1	1.78	1.52	1.37
310.1	1.78	1.52	1.37
330.1	1.76	1.50	1.36
350.1	1.79	1.53	1.38
370.1	1.84	1.58	1.43
390.1	1.80	1.55	1.41
410.1	1.79	1.54	1.40
430.1	1.81	1.56	1.41
450.1	1.83	1.58	1.44
470.1	1.83	1.58	1.45
490.1	1.82	1.57	1.44
510.1	1.82	1.57	1.44
530.1	1.81	1.57	1.43
550.1	1.82	1.58	1.44
570.1	1.83	1.59	1.46
580.1	1.80	1.56	1.43
600.1	1.81	1.57	1.44
610.1	1.77	1.53	1.40
630.1	1.80	1.56	1.43
640.1	1.76	1.53	1.39
660.1	1.78	1.55	1.42
670.1	1.74	1.51	1.38
690.1	1.74	1.51	1.38
700.1	1.70	1.47	1.34
720.1	1.69	1.47	1.34
730.1	1.70	1.47	1.33

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	16	24	21	34	16	53	19	43	40	62
1	-	20	+0	32	13	33	24	44	42	55	45	56
2	>90	>70	66	68	>70	68	61	>70	57	>70	55	>70
3	>90	>70	>70	>70	>70	>70	62	>70	>70	>70	>70	>70
4	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
5	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
6	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
7	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
8	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
9	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
10	>90	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70	>70
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 380 MHz; -14.00 dBm.
 LO IN: 410 MHz; +7.00 dBm
 IF OUT: 30 MHz; -20.45 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	25	34	32	46	27	60	32	58	54	78
1	-	21	+0	31	12	35	25	48	42	59	48	62
2	72	75	55	64	60	62	52	63	49	64	47	69
3	>90	49	53	53	57	66	47	60	55	64	63	66
4	>90	>79	78	79	>79	79	>79	76	77	>79	71	79
5	>90	76	72	70	59	71	57	69	56	68	64	>79
6	>90	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
7	>90	>79	>79	>79	77	>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: 380 MHz; -4.00 dBm.
 LO IN: 410 MHz; +7.00 dBm
 IF OUT: 30 MHz; -10.57 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.