

Frequency Mixer

ZMY-2+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB)		
		@LO (dBm)		
		+20	+23	+26
10.1	40.1	6.20	6.01	5.91
20.1	50.1	6.10	5.96	5.90
30.1	60.1	6.19	6.04	5.97
40.1	70.1	6.22	6.07	6.01
60.1	90.1	6.21	6.11	6.07
80.1	110.1	6.27	6.16	6.11
100.1	130.1	6.28	6.16	6.11
125.1	155.1	6.27	6.19	6.15
150.1	180.1	6.33	6.25	6.21
175.1	205.1	6.37	6.27	6.22
200.1	230.1	6.34	6.25	6.20
225.1	255.1	6.32	6.24	6.20
250.1	280.1	6.41	6.33	6.29
275.1	305.1	6.47	6.35	6.29
300.1	330.1	6.47	6.33	6.27
325.1	355.1	6.48	6.37	6.28
350.1	380.1	6.58	6.47	6.40
400.1	430.1	6.58	6.47	6.43
450.1	480.1	6.87	6.70	6.58
500.1	530.1	7.06	6.84	6.68
550.1	580.1	6.94	6.70	6.54
600.1	630.1	6.93	6.70	6.57
650.1	680.1	7.07	6.69	6.47
700.1	730.1	7.56	6.99	6.70
750.1	780.1	8.61	7.57	6.89
800.1	830.1	9.04	8.25	7.50
850.1	880.1	9.13	8.26	7.72
900.1	930.1	8.81	8.17	7.87
950.1	980.1	8.52	8.14	7.94
1000.1	1030.1	8.83	8.60	8.45
1050.1	1080.1	9.14	8.86	8.69
1100.1	1130.1	9.79	9.55	9.39
1150.1	1180.1	10.17	9.89	9.69
1200.1	1230.1	10.85	10.60	10.41
1250.1	1280.1	11.10	10.88	10.72
1300.1	1330.1	11.87	11.64	11.46
1350.1	1380.1	12.36	12.15	11.99
1400.1	1430.1	13.20	13.03	12.91
1450.1	1480.1	13.46	13.28	13.17
1500.1	1530.1	14.16	14.01	13.92

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)		
		@LO (dBm)		
		+20	+23	+26
10.1	40.1	28.96	30.91	30.54
20.1	50.1	30.43	29.58	37.34
30.1	60.1	27.99	28.37	41.13
40.1	70.1	28.54	30.04	30.62
60.1	90.1	28.98	29.89	29.83
80.1	110.1	33.29	27.66	29.79
100.1	130.1	32.48	26.98	28.99
125.1	155.1	26.44	27.75	29.13
150.1	180.1	25.79	28.17	29.33
175.1	205.1	25.57	27.93	28.96
200.1	230.1	25.44	26.86	28.32
225.1	255.1	25.70	27.20	29.01
250.1	280.1	24.93	26.03	28.33
275.1	305.1	25.42	26.55	29.77
300.1	330.1	24.44	26.85	30.35
325.1	355.1	24.43	25.79	28.42
350.1	380.1	26.13	26.46	29.24
400.1	430.1	26.14	28.60	32.26
450.1	480.1	20.58	22.83	26.77
500.1	530.1	21.57	23.42	25.99
550.1	580.1	24.36	27.28	32.24
600.1	630.1	26.79	31.19	35.10
650.1	680.1	25.08	31.32	31.44
700.1	730.1	24.57	29.44	29.33
750.1	780.1	19.18	23.53	27.59
800.1	830.1	20.78	23.18	26.10
850.1	880.1	18.54	22.46	25.43
900.1	930.1	22.86	26.18	25.92
950.1	980.1	30.71	29.16	28.17
1000.1	1030.1	32.23	31.78	30.47
1050.1	1080.1	30.32	32.85	35.21
1100.1	1130.1	28.39	30.61	33.08
1150.1	1180.1	29.49	29.18	33.03
1200.1	1230.1	32.90	31.05	33.03
1250.1	1280.1	32.78	33.68	33.06
1300.1	1330.1	35.21	36.03	35.62
1350.1	1380.1	32.23	33.13	34.22
1400.1	1430.1	31.59	32.16	33.78
1450.1	1480.1	33.64	33.85	34.51
1500.1	1530.1	36.16	38.17	40.10

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+15dBm (dB)		
		@LO (dBm)		
		+20	+23	+26
10.1	40.1	0.23	0.13	0.05
20.1	50.1	0.27	0.12	0.03
30.1	60.1	0.24	0.14	0.05
40.1	70.1	0.23	0.10	0.02
60.1	90.1	0.16	0.05	0.00
80.1	110.1	0.14	0.01	-0.03
100.1	130.1	0.15	0.04	-0.01
125.1	155.1	0.14	0.04	0.00
150.1	180.1	0.15	0.06	0.03
175.1	205.1	0.13	0.05	0.03
200.1	230.1	0.11	0.05	0.02
225.1	255.1	0.14	0.08	0.04
250.1	280.1	0.16	0.11	0.08
275.1	305.1	0.16	0.12	0.08
300.1	330.1	0.16	0.12	0.09
325.1	355.1	0.15	0.12	0.09
350.1	380.1	0.24	0.19	0.14
400.1	430.1	0.38	0.23	0.14
450.1	480.1	0.59	0.41	0.23
500.1	530.1	0.76	0.55	0.36
550.1	580.1	0.91	0.69	0.48
600.1	630.1	1.08	0.83	0.58
650.1	680.1	1.10	0.85	0.60
700.1	730.1	1.16	0.95	0.71
750.1	780.1	0.10	0.46	0.53
800.1	830.1	0.13	0.23	0.39
850.1	880.1	-0.33	0.01	0.10
900.1	930.1	0.31	0.34	0.21
950.1	980.1	0.26	0.17	0.10
1000.1	1030.1	0.30	0.15	0.05
1050.1	1080.1	0.10	0.06	0.03
1100.1	1130.1	0.04	0.01	0.00
1150.1	1180.1	-0.04	-0.03	-0.01
1200.1	1230.1	-0.02	-0.03	-0.02
1250.1	1280.1	-0.03	-0.04	-0.05
1300.1	1330.1	-0.01	-0.01	-0.02
1350.1	1380.1	-0.07	-0.06	-0.05
1400.1	1430.1	-0.05	-0.05	-0.05
1450.1	1480.1	-0.07	-0.06	-0.06
1500.1	1530.1	-0.04	-0.04	-0.04

REV. X2

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

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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	6.91	0.5	10.6	6.11	0.5	999.6	8.39
0.8	499.4	6.86	1.0	11.1	6.03	1.0	999.1	8.31
1.0	499.1	6.83	2.0	12.1	6.01	2.0	998.1	8.30
2.0	498.1	6.81	5.0	15.1	6.02	5.0	995.1	8.32
3.0	497.1	6.81	10.0	20.1	6.03	10.0	990.1	8.35
4.0	496.1	6.80	20.0	30.1	6.07	20.0	980.1	8.44
5.0	495.1	6.80	30.0	40.1	6.08	30.0	970.1	8.52
6.0	494.1	6.80	40.0	50.1	6.03	40.0	960.1	8.63
8.0	492.1	6.82	50.0	60.1	6.07	50.0	950.1	8.67
10.0	490.1	6.82	70.0	80.1	6.06	70.0	930.1	8.66
15.0	485.1	6.82	90.0	100.1	6.10	90.0	910.1	8.85
20.0	480.1	6.83	110.0	120.1	6.07	110.0	890.1	9.22
25.0	475.1	6.82	130.0	140.1	6.11	130.0	870.1	9.50
30.0	470.1	6.80	150.0	160.1	6.11	150.0	850.1	9.53
35.0	465.1	6.79	175.0	185.1	6.09	175.0	825.1	9.15
40.0	460.1	6.78	200.0	210.1	6.10	200.0	800.1	9.13
45.0	455.1	6.76	225.0	235.1	6.14	225.0	775.1	9.02
50.0	450.1	6.77	250.0	260.1	6.16	250.0	750.1	8.78
70.0	430.1	6.74	275.0	285.1	6.14	275.0	725.1	8.42
90.0	410.1	6.73	300.0	310.1	6.14	300.0	700.1	8.41
110.0	390.1	6.79	330.0	340.1	6.21	330.0	670.1	8.44
130.0	370.1	6.84	360.0	370.1	6.28	360.0	640.1	8.39
150.0	350.1	6.81	390.0	400.1	6.25	390.0	610.1	8.16
170.0	330.1	6.80	420.0	430.1	6.29	420.0	580.1	8.41
190.0	310.1	6.76	450.0	460.1	6.38	450.0	550.1	8.69
210.0	290.1	6.78	480.0	490.1	6.32	480.0	520.1	8.83
230.0	270.1	6.84	510.0	520.1	6.33	510.0	490.1	8.82
250.0	250.1	6.51	540.0	550.1	6.24	540.0	460.1	8.72
270.0	230.1	6.81	570.0	580.1	6.12	570.0	430.1	8.46
290.0	210.1	6.75	600.0	610.1	6.05	600.0	400.1	8.52
310.0	190.1	6.75	630.0	640.1	6.02	630.0	370.1	9.19
330.0	170.1	6.77	660.0	670.1	6.04	660.0	340.1	9.05
350.0	150.1	6.74	690.0	700.1	6.01	690.0	310.1	8.79
370.0	130.1	6.70	720.0	730.1	6.08	720.0	280.1	9.05
390.0	110.1	6.70	750.0	760.1	6.14	750.0	250.1	9.02
410.0	90.1	6.64	790.0	800.1	6.23	790.0	210.1	9.07
430.0	70.1	6.61	840.0	850.1	6.39	840.0	160.1	9.26
450.0	50.1	6.65	890.0	900.1	6.51	890.0	110.1	9.07
470.0	30.1	6.77	940.0	950.1	6.83	940.0	60.1	8.93
490.0	10.1	6.85	990.0	1000.1	7.23	990.0	10.1	8.65

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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
10.1	85.80	85.20	85.49	62.70	61.55	60.85
20.1	79.79	79.60	84.61	57.43	56.52	55.77
30.1	76.70	76.48	82.15	54.40	53.61	53.00
40.1	74.32	74.32	75.26	52.23	51.53	51.19
60.1	71.07	71.06	71.69	48.93	48.17	48.01
80.1	68.95	68.93	77.82	46.17	45.53	44.92
100.1	67.84	67.78	85.64	44.27	43.61	42.87
125.1	65.71	65.68	73.17	43.93	43.23	42.31
150.1	63.17	63.10	63.53	43.66	42.77	42.32
175.1	62.15	62.09	74.92	42.27	41.14	39.91
200.1	62.60	62.56	86.66	40.67	39.36	37.96
225.1	61.19	61.15	69.65	40.73	39.45	38.08
250.1	61.95	61.90	62.29	40.00	39.01	38.38
275.1	61.79	61.76	73.71	39.59	38.44	36.84
300.1	61.80	61.75	70.54	37.46	36.49	35.06
325.1	59.48	59.41	64.08	36.78	35.67	34.85
350.1	57.26	57.19	58.43	37.99	36.99	36.12
400.1	59.83	59.79	63.59	34.91	34.01	32.78
450.1	61.60	61.51	67.47	33.73	33.16	33.13
500.1	58.56	58.50	60.27	35.02	33.51	31.43
550.1	58.31	58.23	61.10	34.90	35.01	33.26
600.1	52.59	52.54	54.00	31.36	31.12	30.23
650.1	49.77	49.69	59.12	29.70	30.81	30.77
700.1	47.85	47.77	49.96	28.19	28.94	29.10
750.1	46.18	46.12	53.48	28.46	28.71	29.28
800.1	46.66	46.64	49.34	30.97	29.97	28.74
850.1	46.49	46.46	48.53	32.62	35.82	34.61
900.1	47.54	47.54	53.00	32.79	37.90	34.45
950.1	46.88	46.87	46.57	33.74	37.96	37.15
1000.1	48.78	48.77	51.92	34.34	37.48	37.60
1050.1	46.36	46.33	44.49	34.05	38.38	41.24
1100.1	48.73	48.71	49.51	35.05	40.46	45.22
1150.1	47.08	47.07	43.61	36.47	43.13	55.33
1200.1	49.23	49.22	48.46	39.10	49.79	49.68
1250.1	46.81	46.78	44.47	44.95	53.40	42.39
1300.1	48.17	48.15	48.22	52.95	42.08	37.30
1350.1	46.27	46.25	44.46	41.39	35.94	33.12
1400.1	47.71	47.69	47.63	38.44	33.88	31.56
1450.1	45.36	45.36	44.11	32.50	29.85	28.13
1500.1	46.48	46.47	46.69	32.25	29.64	27.93

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+20	+23	+26
10.1	40.1	55.59	48.31	38.74
20.1	50.1	49.41	44.46	36.67
30.1	60.1	46.81	44.20	38.22
40.1	70.1	44.58	43.68	42.95
60.1	90.1	41.74	41.66	42.22
80.1	110.1	39.50	39.36	39.69
100.1	130.1	37.73	37.41	36.42
125.1	155.1	35.93	35.65	33.28
150.1	180.1	35.27	35.56	35.82
175.1	205.1	34.33	34.55	34.90
200.1	230.1	34.07	34.05	33.36
225.1	255.1	33.89	34.00	33.43
250.1	280.1	33.66	34.05	34.57
275.1	305.1	33.36	33.88	34.43
300.1	330.1	33.58	33.99	33.95
325.1	355.1	33.52	33.94	34.09
350.1	380.1	33.78	34.22	34.41
400.1	430.1	34.56	35.98	37.66
450.1	480.1	31.82	32.39	32.21
500.1	530.1	29.86	30.47	31.36
550.1	580.1	27.77	27.43	26.85
600.1	630.1	26.56	26.52	26.95
650.1	680.1	25.62	25.18	24.64
700.1	730.1	25.61	25.39	25.67
750.1	780.1	25.75	24.98	24.22
800.1	830.1	26.25	25.92	25.72
850.1	880.1	26.50	26.14	24.99
900.1	930.1	25.16	24.82	24.63
950.1	980.1	24.00	23.75	23.25
1000.1	1030.1	22.44	22.33	22.20
1050.1	1080.1	21.89	21.77	21.68
1100.1	1130.1	20.82	20.66	20.54
1150.1	1180.1	20.40	20.20	20.08
1200.1	1230.1	19.37	19.22	19.11
1250.1	1280.1	18.92	18.82	18.80
1300.1	1330.1	18.02	17.94	17.90
1350.1	1380.1	17.43	17.34	17.32
1400.1	1430.1	16.87	16.81	16.78
1450.1	1480.1	16.27	16.19	16.15
1500.1	1530.1	15.94	15.87	15.84

Frequency Mixer

ZMY-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
10.1	40.1	1.06	1.10	1.15	10.1	1.68	2.58	3.86	0.5	1.32	1.34	1.37
20.1	50.1	1.05	1.11	1.16	20.1	1.59	2.27	2.97	1.0	1.19	1.08	1.05
30.1	60.1	1.03	1.10	1.16	30.1	1.51	2.05	2.38	2.0	1.28	1.15	1.09
40.1	70.1	1.05	1.12	1.18	40.1	1.47	1.96	2.21	5.0	1.23	1.11	1.06
60.1	90.1	1.11	1.17	1.22	60.1	1.55	2.17	2.61	10.0	1.19	1.08	1.03
80.1	110.1	1.13	1.20	1.23	80.1	1.71	2.67	3.95	20.0	1.19	1.08	1.02
100.1	130.1	1.13	1.20	1.24	100.1	1.66	2.54	3.72	30.0	1.20	1.09	1.02
125.1	155.1	1.17	1.22	1.26	125.1	1.48	1.99	2.23	40.0	1.21	1.09	1.03
150.1	180.1	1.19	1.24	1.28	150.1	1.53	2.09	2.52	50.0	1.22	1.10	1.04
175.1	205.1	1.20	1.26	1.30	175.1	1.71	2.66	4.03	70.0	1.23	1.11	1.06
200.1	230.1	1.22	1.27	1.31	200.1	1.59	2.29	2.84	90.0	1.24	1.12	1.07
225.1	255.1	1.25	1.30	1.33	225.1	1.49	1.97	2.25	110.0	1.25	1.14	1.09
250.1	280.1	1.25	1.30	1.33	250.1	1.64	2.33	3.10	130.0	1.25	1.14	1.10
275.1	305.1	1.26	1.31	1.35	275.1	1.78	2.71	3.93	150.0	1.26	1.15	1.12
300.1	330.1	1.28	1.33	1.36	300.1	1.60	2.16	2.42	175.0	1.28	1.17	1.13
325.1	355.1	1.29	1.33	1.37	325.1	1.56	2.06	2.43	200.0	1.29	1.18	1.15
350.1	380.1	1.32	1.37	1.40	350.1	1.80	2.67	3.94	225.0	1.30	1.20	1.16
400.1	430.1	1.37	1.41	1.43	400.1	1.62	2.13	2.46	250.0	1.30	1.20	1.17
450.1	480.1	1.31	1.35	1.38	450.1	1.91	2.79	3.85	275.0	1.31	1.21	1.18
500.1	530.1	1.28	1.31	1.33	500.1	1.67	2.17	2.55	300.0	1.32	1.22	1.19
550.1	580.1	1.34	1.37	1.40	550.1	1.94	2.71	3.33	330.0	1.31	1.22	1.20
600.1	630.1	1.55	1.57	1.59	600.1	1.77	2.31	2.70	360.0	1.31	1.22	1.20
650.1	680.1	1.84	1.86	1.88	650.1	2.01	2.70	3.21	390.0	1.30	1.21	1.20
700.1	730.1	2.28	2.28	2.27	700.1	1.98	2.56	3.01	420.0	1.28	1.20	1.19
750.1	780.1	2.95	2.87	2.83	750.1	2.17	2.82	3.33	450.0	1.26	1.18	1.18
800.1	830.1	3.70	3.60	3.50	800.1	2.20	2.84	3.42	480.0	1.25	1.16	1.16
850.1	880.1	4.63	4.41	4.29	850.1	2.29	3.00	3.60	510.0	1.22	1.13	1.15
900.1	930.1	5.36	5.10	4.98	900.1	2.21	2.83	3.35	540.0	1.19	1.10	1.13
950.1	980.1	5.79	5.59	5.47	950.1	2.37	3.20	4.08	570.0	1.16	1.07	1.12
1000.1	1030.1	6.35	6.17	6.03	1000.1	2.23	2.89	3.41	600.0	1.14	1.03	1.12
1050.1	1080.1	6.89	6.66	6.51	1050.1	2.43	3.30	4.12	630.0	1.12	1.02	1.13
1100.1	1130.1	7.20	7.00	6.83	1100.1	2.41	3.09	3.51	660.0	1.12	1.06	1.16
1150.1	1180.1	7.53	7.28	7.11	1150.1	2.46	3.11	3.61	690.0	1.13	1.11	1.20
1200.1	1230.1	7.60	7.38	7.20	1200.1	2.74	3.48	4.09	720.0	1.16	1.17	1.26
1250.1	1280.1	8.08	7.87	7.73	1250.1	2.44	2.88	3.19	750.0	1.21	1.24	1.32
1300.1	1330.1	8.43	8.20	7.97	1300.1	3.16	4.09	5.47	790.0	1.28	1.34	1.43
1350.1	1380.1	9.04	8.81	8.64	1350.1	2.48	2.78	3.00	840.0	1.41	1.49	1.59
1400.1	1430.1	8.95	8.72	8.55	1400.1	3.69	4.77	6.91	890.0	1.56	1.67	1.78
1450.1	1480.1	8.77	8.51	8.39	1450.1	2.69	2.89	3.02	940.0	1.74	1.87	2.00
1500.1	1530.1	8.35	8.16	8.01	1500.1	4.16	5.03	6.21	990.0	1.92	2.07	2.22

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Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	7	21	12	45	7	37	25	43	41	46
1	-	24	+0	41	12	39	35	54	33	59	38	64
2	94	60	49	60	48	62	64	87	56	76	62	83
3	105	74	55	71	54	71	56	81	70	88	67	85
4	>123	107	94	100	83	94	80	91	94	102	99	99
5	>122	111	114	105	94	98	91	97	91	111	101	118
6	>122	>122	110	>125	106	110	99	109	98	110	114	121
7	>120	>124	>125	>124	>127	>126	>120	>122	116	>121	120	>127
8	>122	124	>124	>126	>126	125	>124	>122	>119	>120	>118	>125
9	>121	>122	>125	>125	>126	>125	>125	>127	>122	>121	>123	>122
10	>120	>125	>123	>125	>125	>124	>124	>125	>126	>122	>122	>122
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 500.1 MHz; .05.00 dBm.
LO IN: 530.01 MHz; +23.00 dBm
IF OUT: 29.91 MHz; -6.76 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	16	32	22	58	18	46	37	50	51	56
1	-	24	+0	38	12	39	38	52	39	57	42	70
2	87	50	38	51	37	54	63	72	44	67	56	71
3	97	55	35	55	35	55	37	64	52	71	50	70
4	110	84	78	71	59	65	52	65	69	82	66	80
5	>119	83	81	85	64	77	56	71	55	76	67	97
6	>122	88	85	95	89	75	70	72	64	73	79	86
7	>121	94	87	91	93	99	78	79	70	74	70	87
8	>120	105	107	101	105	108	90	86	79	84	73	82
9	>121	109	98	112	95	108	117	96	90	105	86	92
10	>122	112	108	106	113	103	104	107	97	96	97	92
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 500.1 MHz; 10.05.00 dBm.
LO IN: 530.01 MHz; +23.00 dBm
IF OUT: 29.91 MHz; 3.25 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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