

Frequency Mixer

SRA-1W+

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=+1dBm (dB)		
		@LO (dBm)					@LO (dBm)					@LO (dBm)		
+4	+7	+10	+4	+7	+10	+4	+7	+10	+4	+7	+10			
10.1	40.1	6.31	6.02	6.01	10.1	40.1	15.01	15.26	15.72	10.1	40.1	1.34	0.76	0.50
30.7	60.7	6.42	6.15	5.99	30.7	60.7	14.19	14.13	15.21	30.7	60.7	0.91	0.68	0.54
51.2	81.2	6.48	6.14	5.94	51.2	81.2	14.63	14.67	17.55	51.2	81.2	1.10	0.72	0.45
71.8	101.8	6.58	6.17	6.02	71.8	101.8	13.29	14.99	18.79	71.8	101.8	0.96	0.68	0.50
92.4	122.4	6.45	6.17	6.08	92.4	122.4	12.91	16.23	20.96	92.4	122.4	0.87	0.59	0.36
112.9	142.9	6.46	6.14	5.99	112.9	142.9	12.80	17.33	21.00	112.9	142.9	0.87	0.63	0.39
133.5	163.5	6.42	6.13	5.99	133.5	163.5	14.96	20.94	21.01	133.5	163.5	0.89	0.59	0.45
154.1	184.1	6.45	6.17	6.04	154.1	184.1	15.81	20.91	20.98	154.1	184.1	0.90	0.59	0.42
174.6	204.6	6.42	6.17	6.07	174.6	204.6	16.71	20.92	20.96	174.6	204.6	0.89	0.58	0.42
195.2	225.2	6.33	6.11	5.98	195.2	225.2	19.21	18.80	18.33	195.2	225.2	0.84	0.54	0.40
215.8	245.8	6.37	6.11	5.97	215.8	245.8	20.24	17.67	18.45	215.8	245.8	0.83	0.54	0.37
236.3	266.3	6.39	6.15	6.03	236.3	266.3	20.80	20.25	20.98	236.3	266.3	0.79	0.52	0.36
277.5	307.5	6.33	6.13	6.03	277.5	307.5	13.95	15.06	16.75	277.5	307.5	0.82	0.56	0.40
298.0	328.0	6.37	6.13	6.03	298.0	328.0	11.94	12.47	14.17	298.0	328.0	0.75	0.52	0.38
339.2	369.2	6.48	6.25	6.12	339.2	369.2	12.71	13.09	14.94	339.2	369.2	0.76	0.53	0.40
359.7	389.7	6.53	6.30	6.16	359.7	389.7	14.56	15.55	20.50	359.7	389.7	0.77	0.55	0.43
400.9	430.9	6.59	6.35	6.20	400.9	430.9	16.02	17.40	20.90	400.9	430.9	0.77	0.53	0.39
421.4	451.4	6.66	6.45	6.32	421.4	451.4	15.74	15.95	18.89	421.4	451.4	0.87	0.60	0.45
462.6	492.6	6.71	6.49	6.37	462.6	492.6	15.64	16.80	18.37	462.6	492.6	0.93	0.66	0.47
483.1	513.1	6.74	6.52	6.41	483.1	513.1	12.46	15.38	17.67	483.1	513.1	1.03	0.74	0.50
524.3	554.3	6.93	6.75	6.64	524.3	554.3	8.32	10.60	13.95	524.3	554.3	1.27	0.93	0.64
544.8	574.8	7.00	6.81	6.70	544.8	574.8	7.45	9.02	11.72	544.8	574.8	1.30	0.96	0.69
585.9	615.9	7.11	6.91	6.77	585.9	615.9	5.20	6.29	8.33	585.9	615.9	1.51	1.15	0.89
606.5	636.5	7.20	6.96	6.81	606.5	636.5	4.72	5.90	7.61	606.5	636.5	1.65	1.24	0.99
647.6	677.6	7.32	7.02	6.84	647.6	677.6	5.13	6.84	9.11	647.6	677.6	1.74	1.33	1.03
668.2	698.2	7.37	7.04	6.83	668.2	698.2	5.54	8.09	10.99	668.2	698.2	1.84	1.37	1.06
709.3	739.3	7.50	7.05	6.79	709.3	739.3	6.26	10.40	14.79	709.3	739.3	1.96	1.51	1.18
729.9	759.9	7.50	6.98	6.70	729.9	759.9	6.76	12.00	17.87	729.9	759.9	2.02	1.60	1.24
771.0	801.0	7.79	7.15	6.78	771.0	801.0	6.01	12.23	16.16	771.0	801.0	1.97	1.62	1.25
791.6	821.6	7.84	7.14	6.74	791.6	821.6	5.61	12.09	15.32	791.6	821.6	2.03	1.73	1.36
832.7	862.7	8.22	7.43	6.93	832.7	862.7	5.52	10.95	15.55	832.7	862.7	1.83	1.61	1.32
853.3	883.3	8.40	7.60	7.04	853.3	883.3	5.51	9.94	14.07	853.3	883.3	1.73	1.57	1.32
894.4	924.4	8.75	7.91	7.29	894.4	924.4	6.29	10.08	14.20	894.4	924.4	1.62	1.59	1.45
915.0	945.0	9.04	8.19	7.52	915.0	945.0	6.33	9.60	13.30	915.0	945.0	1.47	1.49	1.41
956.1	986.1	9.48	8.63	7.90	956.1	986.1	5.96	8.33	11.61	956.1	986.1	1.24	1.41	1.51
976.7	1006.7	9.80	8.97	8.21	976.7	1006.7	6.22	8.34	11.46	976.7	1006.7	1.03	1.24	1.43
1017.8	1047.8	10.57	9.86	9.16	1017.8	1047.8	6.51	8.15	11.34	1017.8	1047.8	0.43	0.61	0.86
1038.4	1068.4	10.87	10.30	9.70	1038.4	1068.4	7.28	8.60	11.22	1038.4	1068.4	0.20	0.29	0.50
1079.5	1109.5	11.05	10.68	10.31	1079.5	1109.5	8.57	8.66	9.60	1079.5	1109.5	0.17	0.07	0.09
1100.1	1130.1	10.96	10.61	10.28	1100.1	1130.1	9.51	9.63	10.23	1100.1	1130.1	0.29	0.16	0.12

Frequency Mixer

SRA-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)=760.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+7			+7			+7
375.0	10.1	6.54	10.0	20.1	6.36	750.0	10.1	8.15
365.6	19.5	6.42	50.0	60.1	6.08	731.0	29.1	7.95
356.3	28.8	6.37	90.0	100.1	6.29	712.1	48.0	7.96
346.9	38.2	6.28	130.0	140.1	6.27	693.1	67.0	7.94
337.6	47.5	6.27	170.0	180.1	6.15	674.1	86.0	7.85
328.2	56.9	6.26	210.0	220.1	6.52	655.1	105.0	7.81
318.8	66.3	6.18	250.0	260.1	6.08	636.2	123.9	7.70
309.5	75.6	6.17	290.0	300.1	6.37	617.2	142.9	7.74
300.1	85.0	6.17	330.0	340.1	6.66	598.2	161.9	7.70
290.8	94.3	6.10	370.0	380.1	6.09	579.2	180.9	7.67
281.4	103.7	6.11	410.0	420.1	6.88	560.3	199.8	7.67
272.1	113.0	6.07	450.0	460.1	6.81	541.3	218.8	7.65
262.7	122.4	6.02	490.0	500.1	7.07	522.3	237.8	7.62
253.3	131.8	6.06	530.0	540.1	6.68	503.3	256.8	7.67
244.0	141.1	6.09	570.0	580.1	6.66	484.4	275.7	7.68
234.6	150.5	6.04	610.0	620.1	6.60	465.4	294.7	7.60
225.3	159.8	6.08	650.0	660.1	6.21	446.4	313.7	7.63
215.9	169.2	6.09	690.0	700.1	6.45	427.4	332.7	7.56
206.5	178.6	6.05	730.0	740.1	6.20	408.5	351.6	7.56
197.2	187.9	6.10	770.0	780.1	6.33	389.5	370.6	7.64
187.8	197.3	6.14	810.0	820.1	6.27	370.5	389.6	7.60
178.5	206.6	6.10	850.0	860.1	6.20	351.5	408.6	7.56
169.1	216.0	6.12	890.0	900.1	6.27	332.6	427.5	7.62
159.7	225.4	6.14	930.0	940.1	6.33	313.6	446.5	7.51
150.4	234.7	6.16	970.0	980.1	6.29	294.6	465.5	7.51
141.0	244.1	6.19	1010.0	1020.1	6.14	275.6	484.5	7.49
131.7	253.4	6.18	1050.0	1060.1	6.11	256.7	503.4	7.39
122.3	262.8	6.15	1090.0	1100.1	6.06	237.7	522.4	7.39
112.9	272.2	6.19	1130.0	1140.1	6.39	218.7	541.4	7.40
103.6	281.5	6.21	1170.0	1180.1	6.51	199.7	560.4	7.37
94.2	290.9	6.20	1210.0	1220.1	6.88	180.8	579.3	7.30
84.9	300.2	6.22	1230.0	1240.1	6.76	161.8	598.3	7.39
75.5	309.6	6.23	1270.0	1280.1	7.54	142.8	617.3	7.41
66.2	318.9	6.24	1290.0	1300.1	7.86	123.8	636.3	7.40
56.8	328.3	6.28	1330.0	1340.1	8.30	104.9	655.2	7.43
47.4	337.7	6.27	1350.0	1360.1	8.55	85.9	674.2	7.22
38.1	347.0	6.23	1390.0	1400.1	9.14	66.9	693.2	7.16
28.7	356.4	6.26	1410.0	1420.1	9.60	47.9	712.2	7.11
19.4	365.7	6.28	1450.0	1460.1	10.06	29.0	731.1	6.98
10.0	375.1	6.51	1470.0	1480.1	10.54	10.0	750.1	7.29

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)		
	+4	+7	+10	+4	+7	+10
40.1	70.48	75.03	74.03	74.58	70.97	68.73
60.7	66.48	69.84	72.90	76.47	70.90	67.37
81.2	63.56	66.29	69.38	80.06	70.70	67.16
101.8	60.50	64.47	66.22	77.95	70.61	66.95
122.4	58.89	61.53	64.40	72.01	70.43	66.07
142.9	58.10	61.16	64.20	68.20	68.20	65.54
163.5	56.53	59.50	62.17	62.32	64.18	64.44
184.1	55.39	58.43	61.35	59.41	61.64	63.12
204.6	54.82	57.72	60.48	56.49	59.03	61.05
225.2	54.11	56.67	59.08	54.52	57.09	59.37
245.8	53.59	56.33	58.82	52.69	54.92	57.33
266.3	52.09	54.44	56.40	50.98	53.57	56.16
307.5	50.66	52.68	54.65	48.74	51.33	53.51
328.0	50.07	52.11	53.98	47.67	50.63	53.45
369.2	49.23	51.37	53.53	45.38	47.30	49.55
389.7	49.77	52.13	54.45	45.13	46.75	48.13
430.9	49.13	50.88	52.36	44.03	46.95	49.80
451.4	49.27	51.31	52.73	42.97	45.63	48.57
492.6	48.16	50.91	53.37	42.39	44.64	46.77
513.1	46.88	49.18	51.32	42.24	44.36	46.40
554.3	45.49	47.24	48.84	41.81	44.62	46.74
574.8	44.84	46.59	48.29	41.01	43.79	45.95
615.9	43.81	45.82	47.97	39.07	41.56	43.87
636.5	43.94	46.55	49.44	38.28	40.28	42.10
677.6	42.82	45.61	48.47	36.44	37.62	38.58
698.2	42.21	44.75	47.22	35.61	36.55	37.39
739.3	40.87	43.29	45.78	34.02	34.53	35.12
759.9	40.77	43.48	46.45	33.41	33.89	34.52
801.0	40.76	43.54	46.62	32.73	33.51	34.38
821.6	40.67	43.28	46.02	33.39	34.22	35.24
862.7	41.42	44.13	47.00	34.19	35.14	36.08
883.3	41.84	44.81	48.03	34.69	35.73	36.49
924.4	41.97	44.50	47.05	35.15	36.33	36.93
945.0	41.39	43.80	46.27	34.88	36.09	36.48
986.1	41.06	43.78	47.04	34.03	34.97	35.23
1006.7	40.96	43.60	46.77	33.42	34.13	34.21
1047.8	39.96	42.14	44.37	32.41	32.65	32.32
1068.4	40.75	42.97	45.10	31.63	31.54	31.01
1109.5	42.50	44.98	46.26	30.43	29.82	29.06
1130.1	44.11	46.86	47.01	30.08	29.19	28.16

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+4	+7	+10
10.1	40.1	48.32	47.95	47.65
30.7	60.7	42.92	42.82	43.23
51.2	81.2	38.92	38.71	40.72
71.8	101.8	36.74	36.88	36.53
92.4	122.4	35.22	35.45	35.75
112.9	142.9	33.70	33.75	34.29
133.5	163.5	32.50	32.67	32.70
154.1	184.1	32.09	32.36	32.19
174.6	204.6	30.96	31.13	31.58
195.2	225.2	30.71	31.31	31.64
215.8	245.8	30.37	30.55	31.00
236.3	266.3	30.46	31.13	30.98
277.5	307.5	30.05	30.92	31.51
298.0	328.0	29.90	30.74	31.42
339.2	369.2	29.35	29.84	30.32
359.7	389.7	28.91	29.34	29.47
400.9	430.9	29.33	29.74	29.97
421.4	451.4	30.16	30.45	31.13
462.6	492.6	29.52	30.31	31.34
483.1	513.1	28.31	29.13	29.57
524.3	554.3	26.44	26.80	27.11
544.8	574.8	25.67	25.94	25.98
585.9	615.9	23.89	23.93	23.94
606.5	636.5	23.34	23.15	23.28
647.6	677.6	22.47	22.38	22.24
668.2	698.2	22.16	22.02	21.72
709.3	739.3	21.76	21.49	21.38
729.9	759.9	21.81	21.67	21.46
771.0	801.0	22.04	21.69	21.34
791.6	821.6	21.96	21.53	21.18
832.7	862.7	21.96	21.46	21.10
853.3	883.3	22.01	21.65	21.10
894.4	924.4	22.12	21.83	21.33
915.0	945.0	22.24	21.84	21.43
956.1	986.1	21.80	21.48	21.08
976.7	1006.7	21.28	21.03	20.62
1017.8	1047.8	20.02	19.69	19.41
1038.4	1068.4	19.43	19.17	18.81
1079.5	1109.5	18.14	17.71	17.30
1100.1	1130.1	17.48	17.03	16.52

Frequency Mixer

SRA-1W+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)			IF (OUT) (MHz)	IF VSWR @LO=750MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+4	+7	+10		+4	+7	+10		+4	+7	+10
10.1	40.1	1.24	1.29	1.26	40.1	1.88	2.74	3.83	10.0	2.13	1.84	1.67
30.7	60.7	1.06	1.08	1.11	60.7	1.78	2.54	3.51	28.7	2.18	1.89	1.72
51.2	81.2	1.02	1.07	1.15	81.2	1.71	2.41	3.30	47.4	2.12	1.82	1.66
71.8	101.8	1.00	1.08	1.14	101.8	1.75	2.47	3.40	66.2	2.14	1.85	1.69
92.4	122.4	1.03	1.12	1.18	122.4	1.80	2.58	3.58	84.9	2.22	1.93	1.78
112.9	142.9	1.03	1.12	1.19	142.9	1.80	2.57	3.54	103.6	2.15	1.87	1.72
133.5	163.5	1.05	1.14	1.21	163.5	1.74	2.46	3.36	122.3	2.19	1.91	1.76
154.1	184.1	1.07	1.17	1.23	184.1	1.73	2.44	3.33	141.0	2.26	1.98	1.83
174.6	204.6	1.10	1.18	1.26	204.6	1.78	2.52	3.45	159.7	2.20	1.93	1.78
195.2	225.2	1.12	1.21	1.27	225.2	1.81	2.58	3.54	178.5	2.26	1.99	1.86
215.8	245.8	1.13	1.22	1.29	245.8	1.80	2.53	3.45	197.2	2.32	2.05	1.92
236.3	266.3	1.16	1.26	1.32	266.3	1.77	2.48	3.37	215.9	2.27	2.00	1.87
277.5	307.5	1.22	1.32	1.39	307.5	1.84	2.59	3.52	234.6	2.32	2.07	1.95
298.0	328.0	1.23	1.33	1.39	328.0	1.86	2.60	3.52	253.3	2.35	2.10	1.98
339.2	369.2	1.26	1.34	1.40	369.2	1.85	2.57	3.46	272.1	2.32	2.07	1.96
359.7	389.7	1.27	1.36	1.42	389.7	1.90	2.63	3.54	290.8	2.40	2.16	2.05
400.9	430.9	1.34	1.43	1.49	430.9	1.92	2.66	3.56	309.5	2.44	2.19	2.08
421.4	451.4	1.39	1.47	1.54	451.4	1.94	2.66	3.54	328.2	2.36	2.13	2.03
462.6	492.6	1.45	1.55	1.63	492.6	2.01	2.76	3.67	346.9	2.44	2.20	2.10
483.1	513.1	1.46	1.57	1.65	513.1	2.02	2.75	3.65	365.6	2.48	2.24	2.14
524.3	554.3	1.47	1.58	1.65	554.3	2.05	2.78	3.67	384.4	2.45	2.21	2.11
544.8	574.8	1.47	1.55	1.61	574.8	2.09	2.84	3.74	403.1	2.48	2.25	2.15
585.9	615.9	1.40	1.46	1.51	615.9	2.13	2.86	3.75	421.8	2.45	2.21	2.11
606.5	636.5	1.37	1.43	1.47	636.5	2.14	2.86	3.73	440.5	2.43	2.20	2.10
647.6	677.6	1.30	1.34	1.38	677.6	2.22	2.95	3.83	459.2	2.50	2.26	2.17
668.2	698.2	1.26	1.30	1.34	698.2	2.24	2.95	3.81	477.9	2.47	2.22	2.13
709.3	739.3	1.24	1.29	1.33	739.3	2.28	2.96	3.82	496.7	2.41	2.18	2.08
729.9	759.9	1.28	1.33	1.37	759.9	2.33	3.03	3.88	515.4	2.46	2.21	2.12
771.0	801.0	1.45	1.48	1.51	801.0	2.40	3.10	3.93	534.1	2.42	2.17	2.07
791.6	821.6	1.56	1.58	1.61	821.6	2.42	3.11	3.93	552.8	2.37	2.12	2.02
832.7	862.7	1.85	1.84	1.85	862.7	2.51	3.21	4.04	571.5	2.45	2.19	2.08
853.3	883.3	2.03	2.00	2.00	883.3	2.53	3.23	4.05	590.3	2.38	2.10	1.99
894.4	924.4	2.36	2.30	2.26	924.4	2.57	3.25	4.06	609.0	2.32	2.04	1.92
915.0	945.0	2.54	2.46	2.40	945.0	2.60	3.28	4.09	627.7	2.37	2.08	1.95
956.1	986.1	3.01	2.89	2.77	986.1	2.65	3.31	4.10	646.4	2.33	2.01	1.86
976.7	1006.7	3.24	3.10	2.96	1006.7	2.67	3.31	4.10	665.1	2.30	1.99	1.83
1017.8	1047.8	3.71	3.58	3.42	1047.8	2.69	3.31	4.07	683.8	2.34	2.01	1.83
1038.4	1068.4	3.95	3.83	3.69	1068.4	2.71	3.30	4.05	702.6	2.26	1.91	1.72
1079.5	1109.5	4.22	4.15	4.07	1109.5	2.71	3.27	3.98	721.3	2.23	1.87	1.67
1100.1	1130.1	4.28	4.23	4.15	1130.1	2.68	3.23	3.92	740.0	2.36	1.99	1.76

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	20	36	20	38	20	44	19	36	37	63
1	-	24	+0	31	11	38	19	45	37	48	45	51
2	>90	69	>69	68	67	>69	>69	>69	63	>69	55	>69
3	>90	>69	64	>69	69	>69	63	>69	>69	>69	>69	>69
4	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
5	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
6	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
7	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
8	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
9	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
10	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

Test conditions:

RF IN: 375 MHz; -14.00 dBm.

LO IN: 405 MHz; +7.00 dBm

IF OUT: 30 MHz; -20.6 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	29	48	30	53	32	55	32	50	51	77
1	-	24	+0	33	11	38	21	48	39	58	71	60
2	72	65	61	72	67	69	60	65	57	>79	50	65
3	>90	55	40	51	44	56	39	59	44	63	54	60
4	>90	73	72	70	71	70	68	74	69	>79	69	>79
5	>90	>79	65	71	54	77	54	78	56	70	66	>79
6	>90	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
7	>90	>79	>79	>79	77	78	71	79	69	>79	66	>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: 375 MHz; -4.00 dBm.

LO IN: 405 MHz; +7.00 dBm

IF OUT: 30 MHz; -10.59 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.