

Frequency Mixer

SRA-1WH+

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=+10dBm (dB)		
		@LO (dBm)					@LO (dBm)					@LO (dBm)		
		+14	+17	+20			+14	+17	+20			+14	+17	+20
10.1	40.1	5.66	5.45	5.40	10.1	40.1	23.40	23.75	23.18	10.1	40.1	0.91	0.56	0.28
30.7	60.7	6.40	6.07	5.88	30.7	60.7	21.60	22.04	21.93	30.7	60.7	0.43	0.27	0.14
51.2	81.2	6.27	5.99	5.87	51.2	81.2	20.98	20.40	23.22	51.2	81.2	0.50	0.33	0.19
71.8	101.8	6.29	6.02	5.92	71.8	101.8	19.78	20.78	34.54	71.8	101.8	0.58	0.38	0.21
92.4	122.4	6.23	6.01	5.93	92.4	122.4	18.68	23.66	24.02	92.4	122.4	0.56	0.31	0.18
112.9	142.9	6.33	6.05	5.92	112.9	142.9	19.36	30.35	22.68	112.9	142.9	0.47	0.28	0.15
133.5	163.5	6.26	6.00	5.90	133.5	163.5	20.29	24.50	22.78	133.5	163.5	0.49	0.27	0.16
154.1	184.1	6.19	6.01	5.94	154.1	184.1	24.80	21.87	23.10	154.1	184.1	0.53	0.31	0.19
174.6	204.6	6.28	6.08	6.00	174.6	204.6	27.88	20.99	22.93	174.6	204.6	0.48	0.28	0.18
195.2	225.2	6.18	6.01	5.96	195.2	225.2	22.53	20.54	23.22	195.2	225.2	0.53	0.31	0.19
215.8	245.8	6.25	6.04	5.96	215.8	245.8	21.87	20.74	23.20	215.8	245.8	0.43	0.25	0.15
236.3	266.3	6.23	6.08	6.00	236.3	266.3	19.97	20.78	23.62	236.3	266.3	0.47	0.29	0.18
277.5	307.5	6.24	6.10	6.05	277.5	307.5	17.71	19.65	22.29	277.5	307.5	0.49	0.33	0.23
298.0	328.0	6.24	6.10	6.05	298.0	328.0	17.44	19.96	22.63	298.0	328.0	0.46	0.29	0.20
339.2	369.2	6.39	6.22	6.15	339.2	369.2	17.89	19.73	22.54	339.2	369.2	0.47	0.35	0.27
359.7	389.7	6.49	6.33	6.24	359.7	389.7	19.23	21.44	24.26	359.7	389.7	0.44	0.33	0.24
400.9	430.9	6.53	6.34	6.26	400.9	430.9	18.85	21.81	25.14	400.9	430.9	0.51	0.36	0.25
421.4	451.4	6.60	6.44	6.36	421.4	451.4	18.00	20.68	23.71	421.4	451.4	0.59	0.40	0.29
462.6	492.6	6.71	6.58	6.52	462.6	492.6	17.88	19.67	21.90	462.6	492.6	0.71	0.45	0.29
483.1	513.1	6.74	6.62	6.57	483.1	513.1	18.05	19.79	22.48	483.1	513.1	0.73	0.46	0.28
524.3	554.3	6.90	6.79	6.73	524.3	554.3	18.08	20.41	23.13	524.3	554.3	0.86	0.55	0.34
544.8	574.8	7.00	6.84	6.76	544.8	574.8	16.38	19.37	22.88	544.8	574.8	0.96	0.64	0.40
585.9	615.9	7.20	6.97	6.80	585.9	615.9	12.99	15.84	19.48	585.9	615.9	1.14	0.82	0.58
606.5	636.5	7.31	7.05	6.87	606.5	636.5	12.76	15.42	18.42	606.5	636.5	1.16	0.84	0.63
647.6	677.6	7.54	7.24	7.01	647.6	677.6	12.76	15.19	18.17	647.6	677.6	1.15	0.76	0.55
668.2	698.2	7.54	7.20	6.96	668.2	698.2	13.35	15.94	18.68	668.2	698.2	1.19	0.80	0.57
709.3	739.3	7.50	7.07	6.84	709.3	739.3	15.27	19.34	24.29	709.3	739.3	1.24	0.88	0.65
729.9	759.9	7.57	7.12	6.90	729.9	759.9	16.32	21.03	26.24	729.9	759.9	1.21	0.86	0.61
771.0	801.0	7.48	7.05	6.82	771.0	801.0	18.37	23.10	26.93	771.0	801.0	1.28	0.89	0.64
791.6	821.6	7.45	7.02	6.82	791.6	821.6	20.61	25.86	29.24	791.6	821.6	1.36	0.95	0.68
832.7	862.7	7.71	7.25	7.02	832.7	862.7	21.52	26.34	29.64	832.7	862.7	1.34	0.94	0.64
853.3	883.3	7.73	7.24	7.01	853.3	883.3	21.66	26.58	28.17	853.3	883.3	1.50	1.09	0.78
894.4	924.4	8.03	7.50	7.23	894.4	924.4	22.55	25.59	24.99	894.4	924.4	1.46	1.19	0.86
915.0	945.0	8.33	7.70	7.40	915.0	945.0	20.84	24.61	24.52	915.0	945.0	1.39	1.24	0.93
956.1	986.1	8.94	8.10	7.66	956.1	986.1	18.44	23.59	23.60	956.1	986.1	1.16	1.31	1.12
976.7	1006.7	9.40	8.43	7.95	976.7	1006.7	17.75	22.84	23.95	976.7	1006.7	0.87	1.14	1.07
1017.8	1047.8	10.43	9.40	8.75	1017.8	1047.8	16.56	20.16	24.67	1017.8	1047.8	0.23	0.65	0.80
1038.4	1068.4	10.78	9.78	9.14	1038.4	1068.4	16.21	19.64	22.54	1038.4	1068.4	-0.02	0.41	0.58
1079.5	1109.5	11.34	10.55	9.91	1079.5	1109.5	15.83	18.59	22.27	1079.5	1109.5	-0.29	-0.03	0.18
1100.1	1130.1	11.38	10.73	10.10	1100.1	1130.1	16.26	18.95	22.70	1100.1	1130.1	-0.25	-0.08	0.11

Frequency Mixer

SRA-1WH+

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)
		+17			+17			+17
375.0	10.1	6.17	10.0	20.1	6.02	750.0	10.1	8.00
365.6	19.5	6.14	50.0	60.1	5.27	731.0	29.1	7.98
356.3	28.8	6.05	90.0	100.1	5.28	712.1	48.0	7.92
346.9	38.2	6.03	130.0	140.1	5.16	693.1	67.0	7.79
337.6	47.5	5.97	170.0	180.1	5.21	674.1	86.0	7.77
328.2	56.9	6.02	210.0	220.1	5.21	655.1	105.0	7.72
318.8	66.3	5.87	250.0	260.1	5.28	636.2	123.9	7.72
309.5	75.6	5.93	290.0	300.1	5.33	617.2	142.9	7.73
300.1	85.0	5.85	330.0	340.1	5.39	598.2	161.9	7.72
290.8	94.3	5.81	370.0	380.1	5.47	579.2	180.9	7.76
281.4	103.7	5.73	410.0	420.1	5.58	560.3	199.8	7.70
272.1	113.0	5.75	450.0	460.1	5.74	541.3	218.8	7.75
262.7	122.4	5.73	490.0	500.1	5.74	522.3	237.8	7.84
253.3	131.8	5.80	530.0	540.1	5.78	503.3	256.8	7.72
244.0	141.1	5.79	570.0	580.1	5.64	484.4	275.7	7.67
234.6	150.5	5.76	610.0	620.1	5.60	465.4	294.7	7.64
225.3	159.8	5.71	650.0	660.1	5.41	446.4	313.7	7.64
215.9	169.2	5.78	690.0	700.1	5.27	427.4	332.7	7.57
206.5	178.6	5.83	730.0	740.1	5.18	408.5	351.6	7.57
197.2	187.9	5.81	770.0	780.1	5.27	389.5	370.6	7.52
187.8	197.3	5.85	810.0	820.1	5.26	370.5	389.6	7.52
178.5	206.6	5.80	850.0	860.1	5.25	351.5	408.6	7.45
169.1	216.0	5.85	890.0	900.1	5.20	332.6	427.5	7.46
159.7	225.4	5.79	910.0	920.1	5.22	313.6	446.5	7.40
150.4	234.7	5.92	950.0	960.1	5.24	294.6	465.5	7.39
141.0	244.1	5.84	970.0	980.1	5.31	275.6	484.5	7.23
131.7	253.4	5.89	1010.0	1020.1	5.49	256.7	503.4	7.11
122.3	262.8	5.91	1030.0	1040.1	5.66	237.7	522.4	6.94
112.9	272.2	5.93	1070.0	1080.1	5.93	218.7	541.4	6.81
103.6	281.5	5.94	1090.0	1100.1	5.99	199.7	560.4	6.83
94.2	290.9	5.99	1130.0	1140.1	6.57	180.8	579.3	6.83
84.9	300.2	5.94	1150.0	1160.1	6.67	161.8	598.3	6.93
75.5	309.6	6.00	1190.0	1200.1	7.09	142.8	617.3	7.10
66.2	318.9	5.96	1210.0	1220.1	7.28	123.8	636.3	7.23
56.8	328.3	6.02	1250.0	1260.1	7.74	104.9	655.2	7.21
47.4	337.7	6.07	1270.0	1280.1	8.02	85.9	674.2	7.26
38.1	347.0	6.02	1310.0	1320.1	8.76	66.9	693.2	7.15
28.7	356.4	6.07	1330.0	1340.1	9.15	47.9	712.2	7.07
19.4	365.7	6.29	1370.0	1380.1	9.80	29.0	731.1	6.94
10.0	375.1	6.85	1390.0	1400.1	10.02	10.0	750.1	7.68

Frequency Mixer

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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	66.28	68.47	69.48	61.97	56.92	54.43	10.1	40.1	50.10	49.44	50.20
60.7	63.09	65.22	66.96	59.08	54.11	51.76	30.7	60.7	41.53	41.27	40.30
81.2	60.09	61.69	63.36	57.19	52.13	49.78	51.2	81.2	37.18	37.53	37.67
101.8	57.85	59.61	61.93	55.64	50.31	48.43	71.8	101.8	34.94	35.00	34.77
122.4	56.07	57.95	59.96	53.46	48.77	47.17	92.4	122.4	33.31	33.56	33.98
142.9	53.95	56.14	58.12	52.35	48.16	46.28	112.9	142.9	32.21	32.29	32.50
163.5	53.03	55.20	56.80	51.64	47.96	45.62	133.5	163.5	31.20	31.48	31.58
184.1	51.95	54.03	55.60	52.88	48.36	45.59	154.1	184.1	30.64	30.86	31.11
204.6	51.20	53.14	54.55	52.01	47.45	44.45	174.6	204.6	29.81	30.27	30.84
225.2	50.27	51.82	53.08	52.20	47.57	44.03	195.2	225.2	29.62	29.99	30.34
245.8	49.84	51.67	52.79	49.79	46.33	43.31	215.8	245.8	29.38	29.67	29.75
266.3	49.49	51.19	52.22	48.77	46.09	42.94	236.3	266.3	29.83	30.15	30.21
307.5	47.41	48.99	50.28	44.69	43.67	41.46	277.5	307.5	29.96	30.72	31.32
328.0	46.24	47.83	49.44	42.73	42.16	40.02	298.0	328.0	29.99	30.77	31.20
369.2	46.08	47.68	48.99	39.90	40.41	39.67	339.2	369.2	29.01	29.24	29.32
389.7	46.48	47.97	48.92	38.70	39.03	38.40	359.7	389.7	28.97	28.95	28.93
430.9	46.93	47.41	47.50	37.45	37.86	36.87	400.9	430.9	29.68	30.15	30.47
451.4	47.93	48.17	48.32	36.93	37.42	36.76	421.4	451.4	29.64	30.69	31.72
492.6	47.74	48.78	48.93	36.03	36.78	36.34	462.6	492.6	27.35	28.45	29.30
513.1	45.60	46.42	46.38	35.64	36.48	35.57	483.1	513.1	26.00	26.45	26.76
554.3	42.82	43.98	44.81	34.50	34.82	34.07	524.3	554.3	23.89	23.81	23.69
574.8	41.98	43.67	45.19	33.78	33.90	33.10	544.8	574.8	22.79	22.68	22.51
615.9	41.29	43.56	45.85	33.26	33.35	32.17	585.9	615.9	21.08	20.64	20.39
636.5	41.81	44.54	47.20	32.90	33.44	32.18	606.5	636.5	20.40	19.83	19.50
677.6	40.76	43.53	46.00	31.78	33.42	33.15	647.6	677.6	19.66	19.26	19.00
698.2	39.96	42.56	45.01	31.08	33.04	33.06	668.2	698.2	19.53	19.23	19.02
739.3	39.28	42.06	44.74	29.93	32.24	32.61	709.3	739.3	19.57	19.28	19.10
759.9	38.84	41.64	44.38	29.55	31.97	32.46	729.9	759.9	19.59	19.24	19.06
801.0	38.98	41.53	44.03	28.31	30.60	31.80	771.0	801.0	19.69	19.38	19.08
821.6	39.39	41.95	44.26	27.99	30.02	31.24	791.6	821.6	19.39	19.03	18.77
862.7	39.40	42.32	44.74	27.41	29.28	30.57	832.7	862.7	18.92	18.37	18.04
883.3	39.60	42.41	45.22	27.07	28.82	30.04	853.3	883.3	18.81	18.24	17.89
924.4	40.21	42.52	45.30	26.75	28.40	29.46	894.4	924.4	18.71	18.18	17.72
945.0	40.28	42.83	45.37	26.88	28.52	29.24	915.0	945.0	18.78	18.25	17.84
986.1	39.91	42.76	45.42	27.06	28.70	29.24	956.1	986.1	18.87	18.27	17.82
1006.7	39.51	41.89	44.58	27.50	29.02	29.49	976.7	1006.7	18.76	18.25	17.76
1047.8	38.34	39.84	42.17	27.93	30.31	30.48	1017.8	1047.8	18.32	18.14	17.67
1068.4	37.87	38.87	41.05	28.15	30.96	31.23	1038.4	1068.4	17.82	17.76	17.44
1109.5	38.52	38.79	39.79	27.21	31.27	33.10	1079.5	1109.5	16.61	16.46	16.36
1130.1	38.97	39.19	39.65	27.04	31.45	34.08	1100.1	1130.1	15.84	15.55	15.43

Frequency Mixer

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Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)		
		@LO (dBm)		
		+14	+17	+20
10.1	40.1	1.24	1.15	1.10
30.7	60.7	1.21	1.11	1.05
51.2	81.2	1.12	1.03	1.04
71.8	101.8	1.12	1.03	1.07
92.4	122.4	1.11	1.04	1.08
112.9	142.9	1.10	1.02	1.09
133.5	163.5	1.05	1.06	1.14
154.1	184.1	1.02	1.11	1.17
174.6	204.6	1.04	1.12	1.18
195.2	225.2	1.04	1.14	1.20
215.8	245.8	1.06	1.17	1.23
236.3	266.3	1.11	1.21	1.27
277.5	307.5	1.16	1.26	1.32
298.0	328.0	1.20	1.28	1.34
339.2	369.2	1.23	1.31	1.37
359.7	389.7	1.26	1.34	1.40
400.9	430.9	1.33	1.43	1.49
421.4	451.4	1.36	1.45	1.52
462.6	492.6	1.42	1.51	1.56
483.1	513.1	1.45	1.53	1.57
524.3	554.3	1.44	1.49	1.53
544.8	574.8	1.41	1.45	1.48
585.9	615.9	1.31	1.35	1.39
606.5	636.5	1.26	1.30	1.33
647.6	677.6	1.15	1.19	1.22
668.2	698.2	1.13	1.18	1.21
709.3	739.3	1.23	1.28	1.32
729.9	759.9	1.33	1.37	1.41
771.0	801.0	1.55	1.58	1.61
791.6	821.6	1.68	1.70	1.72
832.7	862.7	1.92	1.91	1.91
853.3	883.3	2.05	2.03	2.03
894.4	924.4	2.37	2.32	2.29
915.0	945.0	2.51	2.43	2.39
956.1	986.1	2.89	2.74	2.65
976.7	1006.7	3.15	2.95	2.83
1017.8	1047.8	3.54	3.33	3.17
1038.4	1068.4	3.75	3.54	3.38
1079.5	1109.5	4.17	4.01	3.86
1100.1	1130.1	4.23	4.09	3.95

LO (MHz)	LO VSWR (:1)		
	@LO (dBm)		
	+14	+17	+20
40.1	1.05	1.47	2.02
60.7	1.09	1.46	1.97
81.2	1.07	1.43	1.92
101.8	1.09	1.45	1.94
122.4	1.14	1.49	2.01
142.9	1.12	1.49	2.01
163.5	1.15	1.48	1.97
184.1	1.15	1.49	1.98
204.6	1.17	1.53	2.03
225.2	1.18	1.55	2.07
245.8	1.18	1.55	2.06
266.3	1.21	1.56	2.06
307.5	1.22	1.62	2.14
328.0	1.22	1.63	2.16
369.2	1.23	1.65	2.17
389.7	1.24	1.68	2.22
430.9	1.27	1.71	2.25
451.4	1.27	1.72	2.26
492.6	1.30	1.78	2.34
513.1	1.31	1.79	2.35
554.3	1.31	1.80	2.36
574.8	1.32	1.83	2.40
615.9	1.35	1.86	2.42
636.5	1.36	1.86	2.42
677.6	1.39	1.91	2.48
698.2	1.40	1.91	2.48
739.3	1.40	1.91	2.47
759.9	1.41	1.92	2.49
801.0	1.42	1.94	2.50
821.6	1.42	1.92	2.48
862.7	1.44	1.95	2.50
883.3	1.46	1.96	2.52
924.4	1.47	1.96	2.49
945.0	1.48	1.97	2.50
986.1	1.51	1.99	2.52
1006.7	1.51	1.99	2.51
1047.8	1.52	1.99	2.48
1068.4	1.52	1.99	2.49
1109.5	1.52	1.98	2.47
1130.1	1.51	1.96	2.44

IF (OUT) (MHz)	IF VSWR @LO=750MHz (:1)		
	@LO (dBm)		
	+14	+17	+20
10.0	1.88	1.65	1.54
28.7	1.88	1.65	1.53
47.4	1.88	1.65	1.54
66.2	1.92	1.69	1.57
84.9	1.93	1.71	1.60
103.6	1.96	1.74	1.63
122.3	1.95	1.74	1.64
141.0	2.00	1.78	1.67
159.7	2.01	1.80	1.71
178.5	2.06	1.85	1.75
197.2	2.06	1.85	1.77
215.9	2.14	1.92	1.82
234.6	2.08	1.88	1.80
253.3	2.16	1.95	1.87
272.1	2.13	1.93	1.86
290.8	2.24	2.03	1.94
309.5	2.20	2.00	1.92
328.2	2.26	2.05	1.97
346.9	2.18	1.98	1.91
365.6	2.33	2.11	2.03
384.4	2.29	2.07	1.99
403.1	2.34	2.11	2.03
421.8	2.25	2.03	1.95
440.5	2.34	2.11	2.01
459.2	2.29	2.06	1.96
477.9	2.39	2.14	2.03
496.7	2.28	2.03	1.92
515.4	2.36	2.10	1.98
534.1	2.24	1.98	1.86
552.8	2.37	2.09	1.95
571.5	2.27	1.98	1.84
590.3	2.36	2.06	1.91
609.0	2.23	1.93	1.77
627.7	2.32	2.00	1.82
646.4	2.24	1.91	1.73
665.1	2.36	2.01	1.82
683.8	2.25	1.90	1.70
702.6	2.31	1.95	1.73
721.3	2.25	1.89	1.66
740.0	2.35	1.96	1.73

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	10	25	11	40	28	35	18	40	26	50
1	-	23	+0	30	10	33	21	45	41	37	39	55
2	75	63	48	68	49	>79	47	68	62	78	58	72
3	>90	72	64	74	64	74	61	71	72	>79	>79	71
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

Test conditions:

RF IN: 375 MHz; -5.00 dBm.
 LO IN: 405 MHz; +17.00 dBm
 IF OUT: 30 MHz; -11.38 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	19	36	24	47	41	47	30	51	39	60
1	-	24	+0	30	11	34	22	45	41	44	45	58
2	55	54	39	57	40	64	41	61	56	62	47	76
3	83	59	44	61	46	59	40	57	51	70	62	52
4	>90	74	67	67	60	69	60	67	55	70	71	77
5	>90	76	68	66	61	66	59	65	56	66	67	80
6	>90	>89	>89	84	79	76	74	73	72	73	72	81
7	>90	87	>89	>89	76	>89	77	>89	81	84	85	88
8	>90	>89	>89	>89	>89	>89	>89	86	>89	84	86	82
9	>90	>89	>89	>89	>89	>89	>89	>89	>89	>89	>89	>89
10	>90	>89	>89	>89	>89	>89	>89	>89	>89	>89	>89	88
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:

RF IN: 375 MHz; 5.00 dBm.
 LO IN: 405 MHz; +17.00 dBm
 IF OUT: 30 MHz; -1.41 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.