

Frequency Mixer

SRA-1H+

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)		
		+14	+17	+20			+14	+17	+20			+14	+17	+20
10.1	40.1	5.81	6.02	5.46	10.1	40.1	18.35	20.17	19.82	10.1	40.1	-0.15	0.04	0.01
30.5	60.5	6.13	5.77	5.62	30.5	60.5	19.76	19.61	18.46	30.5	60.5	-0.08	-0.07	0.00
50.8	80.8	6.02	5.76	5.59	50.8	80.8	18.72	17.64	19.88	50.8	80.8	-0.07	0.01	0.00
71.2	101.2	6.11	5.76	5.66	71.2	101.2	16.89	18.07	21.17	71.2	101.2	-0.03	0.02	-0.01
111.9	141.9	6.05	5.76	5.67	111.9	141.9	15.74	21.12	21.17	111.9	141.9	0.00	0.02	-0.02
132.2	162.2	5.95	5.77	5.67	132.2	162.2	17.00	21.12	21.16	132.2	162.2	0.01	-0.01	0.00
172.9	202.9	5.95	5.79	5.73	172.9	202.9	21.02	21.10	21.14	172.9	202.9	0.00	0.00	0.00
193.3	223.3	5.92	5.78	5.71	193.3	223.3	21.04	21.11	21.14	193.3	223.3	0.01	0.00	0.01
234.0	264.0	5.94	5.80	5.74	234.0	264.0	20.99	21.10	21.13	234.0	264.0	-0.01	0.01	0.00
254.3	284.3	5.95	5.82	5.80	254.3	284.3	18.86	21.09	21.10	254.3	284.3	0.01	0.02	0.02
295.0	325.0	6.04	5.88	5.81	295.0	325.0	18.81	19.18	21.09	295.0	325.0	0.00	0.00	0.00
315.4	345.4	6.13	5.93	5.84	315.4	345.4	19.72	20.39	21.08	315.4	345.4	-0.02	-0.01	0.00
356.1	386.1	6.22	6.07	6.00	356.1	386.1	20.89	20.97	21.00	356.1	386.1	0.01	0.00	0.00
376.4	406.4	6.23	6.08	5.99	376.4	406.4	20.89	20.96	21.00	376.4	406.4	0.00	0.00	0.00
417.1	447.1	6.29	6.19	6.16	417.1	447.1	19.87	20.91	20.92	417.1	447.1	0.02	0.01	0.01
437.5	467.5	6.42	6.30	6.26	437.5	467.5	16.31	19.24	20.87	437.5	467.5	0.04	0.03	0.01
478.2	508.2	6.44	6.34	6.31	478.2	508.2	16.28	18.50	20.85	478.2	508.2	0.03	0.02	0.01
498.5	528.5	6.57	6.45	6.40	498.5	528.5	13.54	16.41	19.26	498.5	528.5	0.06	0.03	0.01
539.2	569.2	6.79	6.64	6.52	539.2	569.2	12.17	13.65	15.38	539.2	569.2	0.06	0.03	0.01
559.6	589.6	6.86	6.66	6.49	559.6	589.6	11.98	14.10	16.51	559.6	589.6	0.05	0.02	0.00
600.3	630.3	7.12	6.75	6.50	600.3	630.3	12.30	15.55	18.87	600.3	630.3	-0.01	-0.01	-0.01
620.6	650.6	7.19	6.75	6.49	620.6	650.6	12.50	16.21	19.62	620.6	650.6	0.01	0.00	-0.01
661.3	691.3	7.55	6.97	6.67	661.3	691.3	13.84	18.17	20.66	661.3	691.3	-0.06	-0.03	-0.02
681.7	711.7	7.58	6.95	6.65	681.7	711.7	14.67	19.37	20.68	681.7	711.7	-0.06	-0.03	-0.03
722.4	752.4	8.13	7.14	6.68	722.4	752.4	11.39	17.45	20.66	722.4	752.4	-0.20	-0.04	-0.01
742.7	772.7	8.66	7.52	6.88	742.7	772.7	10.28	15.65	20.56	742.7	772.7	-0.33	-0.09	-0.03
783.4	813.4	8.98	8.05	7.33	783.4	813.4	13.63	15.47	19.83	783.4	813.4	-0.29	-0.13	-0.05
803.8	833.8	8.93	8.05	7.44	803.8	833.8	16.74	19.02	20.28	803.8	833.8	-0.19	-0.07	-0.03
844.5	874.5	9.11	8.28	7.65	844.5	874.5	16.88	19.86	20.17	844.5	874.5	-0.17	-0.06	-0.01
864.8	894.8	9.38	8.65	8.04	864.8	894.8	16.84	19.10	19.98	864.8	894.8	-0.17	-0.08	-0.02
905.5	935.5	9.26	8.66	8.29	905.5	935.5	19.24	19.67	19.86	905.5	935.5	-0.11	-0.04	-0.03
925.9	955.9	9.09	8.50	8.19	925.9	955.9	19.46	19.50	19.90	925.9	955.9	-0.07	-0.01	0.00
966.6	996.6	9.04	8.48	8.18	966.6	996.6	19.48	18.58	19.91	966.6	996.6	-0.01	0.02	0.02
986.9	1016.9	9.07	8.52	8.21	986.9	1016.9	19.47	18.88	19.89	986.9	1016.9	0.00	0.02	0.02
1027.6	1057.6	9.39	8.92	8.58	1027.6	1057.6	19.30	19.54	19.71	1027.6	1057.6	0.03	0.01	0.02
1048.0	1078.0	9.67	9.22	8.88	1048.0	1078.0	19.16	19.39	19.56	1048.0	1078.0	0.03	0.01	0.01
1088.7	1118.7	10.00	9.57	9.26	1088.7	1118.7	19.00	19.21	19.37	1088.7	1118.7	0.05	0.02	0.02
1109.0	1139.0	10.22	9.79	9.50	1109.0	1139.0	18.89	19.10	19.25	1109.0	1139.0	0.05	0.03	0.02
1149.7	1179.7	10.68	10.28	9.99	1149.7	1179.7	18.66	18.86	19.01	1149.7	1179.7	0.04	0.03	0.02
1170.1	1200.1	10.82	10.45	10.17	1170.1	1200.1	18.59	18.77	18.92	1170.1	1200.1	0.04	0.03	0.02

Frequency Mixer

SRA-1H+

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=260.1MHz (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)=510.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+17			+17			+17
250.1	10.0	6.23	10.0	20.1	6.05	500.1	10.0	7.13
243.9	16.2	6.13	50.0	60.1	5.60	487.5	22.6	7.03
237.8	22.3	6.15	90.0	100.1	5.65	475.0	35.1	6.87
231.6	28.5	6.08	130.0	140.1	5.76	462.4	47.7	6.76
225.5	34.6	6.06	170.0	180.1	5.73	449.8	60.3	6.71
219.3	40.8	6.08	210.0	220.1	5.75	437.3	72.8	6.54
213.2	46.9	5.97	250.0	260.1	5.65	424.7	85.4	6.43
207.0	53.1	6.00	270.0	280.1	6.05	412.2	97.9	6.46
200.9	59.2	5.86	310.0	320.1	6.09	399.6	110.5	6.48
194.7	65.4	5.90	330.0	340.1	5.81	387.0	123.1	6.48
188.6	71.5	5.86	370.0	380.1	6.29	374.5	135.6	6.47
182.4	77.7	5.90	390.0	400.1	6.16	361.9	148.2	6.49
176.3	83.8	5.86	430.0	440.1	6.40	349.3	160.8	6.50
170.1	90.0	5.79	450.0	460.1	6.57	336.8	173.3	6.49
163.9	96.2	5.82	490.0	500.1	6.34	324.2	185.9	6.48
157.8	102.3	5.75	510.0	520.1	6.19	311.6	198.5	6.47
151.6	108.5	5.82	550.0	560.1	6.36	299.1	211.0	6.46
145.5	114.6	5.77	570.0	580.1	6.51	286.5	223.6	6.47
139.3	120.8	5.83	610.0	620.1	6.28	273.9	236.2	6.51
133.2	126.9	5.77	630.0	640.1	6.27	261.4	248.7	6.51
127.0	133.1	5.80	670.0	680.1	6.04	248.8	261.3	6.54
120.9	139.2	5.82	690.0	700.1	6.08	236.3	273.8	6.51
114.7	145.4	5.79	730.0	740.1	6.26	223.7	286.4	6.55
108.6	151.5	5.84	750.0	760.1	6.17	211.1	299.0	6.56
102.4	157.7	5.80	790.0	800.1	6.28	198.6	311.5	6.54
96.3	163.8	5.83	810.0	820.1	6.23	186.0	324.1	6.53
90.1	170.0	5.80	850.0	860.1	6.27	173.4	336.7	6.53
83.9	176.2	5.84	870.0	880.1	6.47	160.9	349.2	6.54
77.8	182.3	5.85	910.0	920.1	6.37	148.3	361.8	6.54
71.6	188.5	5.83	930.0	940.1	6.51	135.7	374.4	6.52
65.5	194.6	5.86	970.0	980.1	6.73	123.2	386.9	6.48
59.3	200.8	5.83	990.0	1000.1	6.48	110.6	399.5	6.47
53.2	206.9	5.85	1030.0	1040.1	7.19	98.0	412.1	6.45
47.0	213.1	5.81	1050.0	1060.1	7.29	85.5	424.6	6.45
40.9	219.2	5.83	1090.0	1100.1	7.89	72.9	437.2	6.48
34.7	225.4	5.82	1110.0	1120.1	7.79	60.4	449.7	6.49
28.6	231.5	5.80	1150.0	1160.1	8.63	47.8	462.3	6.50
22.4	237.7	5.84	1170.0	1180.1	8.73	35.2	474.9	6.51
16.3	243.8	5.82	1210.0	1220.1	9.88	22.7	487.4	6.53
10.1	250.0	6.04	1230.0	1240.1	10.39	10.1	500.0	6.69

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	80.33	72.55	68.63	59.84	59.53	59.17	10.1	40.1	47.95	48.14	48.01
60.5	85.42	70.77	66.41	57.07	57.25	56.75	30.5	60.5	39.79	39.82	39.44
80.8	82.01	69.18	64.52	54.88	54.59	55.39	50.8	80.8	35.18	35.27	35.13
101.2	79.21	67.73	62.81	52.82	52.75	54.50	71.2	101.2	33.98	33.99	33.79
141.9	72.73	62.54	58.52	49.17	51.66	52.91	111.9	141.9	30.42	31.09	31.51
162.2	71.77	63.10	59.04	49.03	51.45	51.93	132.2	162.2	29.54	29.39	30.08
202.9	66.80	58.97	56.06	48.92	50.64	50.34	172.9	202.9	28.30	28.41	28.80
223.3	66.45	58.63	55.44	48.20	49.12	48.85	193.3	223.3	28.41	28.15	28.34
264.0	65.37	60.19	56.31	49.40	49.74	48.48	234.0	264.0	27.65	28.29	28.55
284.3	62.63	57.64	54.40	47.12	47.03	45.71	254.3	284.3	27.77	28.54	29.04
325.0	61.38	56.59	54.45	47.09	46.53	45.10	295.0	325.0	27.21	28.01	28.30
345.4	60.13	55.85	53.14	45.86	45.81	44.58	315.4	345.4	27.18	27.41	27.67
386.1	61.67	56.54	53.00	43.29	43.32	42.75	356.1	386.1	27.35	27.72	28.01
406.4	57.60	57.87	54.06	42.19	41.55	40.85	376.4	406.4	28.08	28.43	28.98
447.1	55.46	55.59	51.56	42.08	39.41	37.98	417.1	447.1	27.30	28.25	29.13
467.5	52.89	56.93	55.06	43.57	39.77	37.61	437.5	467.5	26.25	27.41	28.37
508.2	53.15	53.24	50.90	40.33	36.92	35.33	478.2	508.2	24.59	25.32	25.94
528.5	52.48	51.57	49.27	41.65	38.27	35.99	498.5	528.5	23.69	24.03	24.37
569.2	52.82	51.80	49.07	41.38	38.08	35.45	539.2	569.2	22.12	22.09	22.06
589.6	51.70	53.59	54.15	41.21	37.30	34.42	559.6	589.6	21.67	21.60	21.50
630.3	51.92	53.00	52.03	39.75	34.94	32.41	600.3	630.3	20.65	20.46	20.32
650.6	54.05	57.25	55.05	38.29	34.54	32.17	620.6	650.6	20.37	20.23	20.22
691.3	51.63	57.82	58.33	33.08	31.80	30.22	661.3	691.3	20.40	20.36	20.41
711.7	49.39	52.78	51.10	32.22	30.75	29.11	681.7	711.7	20.55	20.64	20.76
752.4	48.94	48.86	45.77	31.56	30.71	29.02	722.4	752.4	20.78	20.69	20.59
772.7	46.94	49.61	50.91	30.58	30.20	28.75	742.7	772.7	20.89	20.61	20.30
813.4	44.62	45.90	45.78	28.60	28.48	27.67	783.4	813.4	20.93	20.39	19.86
833.8	46.13	45.63	42.07	27.52	26.71	25.49	803.8	833.8	20.54	19.84	19.09
874.5	40.18	38.73	37.05	27.95	26.51	24.84	844.5	874.5	19.47	18.75	18.14
894.8	41.03	39.54	38.13	28.35	26.97	25.04	864.8	894.8	19.04	18.51	17.91
935.5	48.57	44.32	41.09	26.80	25.49	23.62	905.5	935.5	19.21	18.66	18.03
955.9	50.09	44.43	40.48	26.12	24.69	22.65	925.9	955.9	19.08	18.43	17.94
996.6	49.43	42.61	38.65	24.67	22.88	20.90	966.6	996.6	18.11	17.61	17.14
1016.9	45.86	40.20	36.90	24.00	21.91	20.06	986.9	1016.9	17.56	17.08	16.59
1057.6	42.24	37.74	35.26	22.42	20.26	18.74	1027.6	1057.6	16.29	16.00	15.64
1078.0	40.68	36.76	34.46	21.54	19.66	18.28	1048.0	1078.0	15.83	15.56	15.21
1118.7	38.01	35.09	33.34	20.27	18.71	17.71	1088.7	1118.7	14.85	14.52	14.16
1139.0	35.70	33.25	31.58	19.79	18.36	17.44	1109.0	1139.0	14.19	13.90	13.57
1179.7	33.70	32.03	30.73	18.92	17.82	17.08	1149.7	1179.7	13.33	12.94	12.63
1200.1	33.49	32.13	31.15	18.57	17.56	16.90	1170.1	1200.1	12.92	12.53	12.25

Frequency Mixer

SRA-1H+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)			IF (OUT) (MHz)	IF VSWR @LO=500MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+14	+17	+20		+14	+17	+20		+14	+17	+20
10.1	40.1	1.15	1.13	1.17	40.1	1.16	1.34	1.82	10.0	1.86	1.61	1.42
30.5	60.5	1.20	1.06	1.01	60.5	1.17	1.32	1.76	22.3	1.88	1.63	1.43
50.8	80.8	1.18	1.05	1.03	80.8	1.22	1.34	1.74	34.6	1.92	1.67	1.46
71.2	101.2	1.17	1.05	1.05	101.2	1.22	1.38	1.80	46.9	1.95	1.69	1.48
111.9	141.9	1.10	1.05	1.11	141.9	1.30	1.44	1.87	59.2	1.93	1.69	1.49
132.2	162.2	1.05	1.08	1.13	162.2	1.31	1.44	1.85	71.5	1.92	1.68	1.47
172.9	202.9	1.05	1.13	1.19	202.9	1.34	1.54	1.98	83.8	1.87	1.64	1.45
193.3	223.3	1.06	1.15	1.20	223.3	1.37	1.58	2.03	96.2	1.92	1.67	1.47
234.0	264.0	1.12	1.21	1.27	264.0	1.39	1.63	2.07	108.5	1.95	1.70	1.51
254.3	284.3	1.13	1.23	1.30	284.3	1.41	1.69	2.15	120.8	2.02	1.77	1.56
295.0	325.0	1.16	1.25	1.30	325.0	1.45	1.77	2.26	133.1	2.05	1.80	1.60
315.4	345.4	1.18	1.26	1.32	345.4	1.45	1.80	2.29	145.4	2.03	1.79	1.60
356.1	386.1	1.26	1.34	1.40	386.1	1.51	1.91	2.44	157.7	2.06	1.81	1.62
376.4	406.4	1.29	1.38	1.44	406.4	1.55	1.97	2.51	170.0	2.01	1.79	1.61
417.1	447.1	1.37	1.47	1.54	447.1	1.58	2.03	2.59	182.3	2.08	1.83	1.64
437.5	467.5	1.37	1.48	1.55	467.5	1.63	2.10	2.68	194.6	2.08	1.84	1.66
478.2	508.2	1.39	1.47	1.50	508.2	1.69	2.20	2.79	206.9	2.14	1.90	1.70
498.5	528.5	1.35	1.42	1.45	528.5	1.71	2.22	2.83	219.2	2.16	1.92	1.74
539.2	569.2	1.27	1.31	1.32	569.2	1.81	2.38	3.01	231.5	2.22	1.98	1.79
559.6	589.6	1.21	1.23	1.25	589.6	1.84	2.42	3.08	243.8	2.24	2.00	1.81
600.3	630.3	1.08	1.11	1.15	630.3	1.90	2.49	3.15	256.2	2.21	1.98	1.81
620.6	650.6	1.08	1.12	1.15	650.6	1.95	2.56	3.24	268.5	2.25	2.01	1.83
661.3	691.3	1.26	1.28	1.29	691.3	2.02	2.64	3.33	280.8	2.24	2.01	1.84
681.7	711.7	1.38	1.39	1.40	711.7	2.04	2.66	3.36	293.1	2.32	2.08	1.89
722.4	752.4	1.65	1.63	1.63	752.4	2.17	2.82	3.52	305.4	2.33	2.09	1.92
742.7	772.7	1.81	1.78	1.76	772.7	2.23	2.89	3.60	317.7	2.44	2.19	2.00
783.4	813.4	2.09	2.05	2.02	813.4	2.33	2.99	3.69	330.0	2.44	2.20	2.03
803.8	833.8	2.21	2.17	2.14	833.8	2.37	3.04	3.74	342.3	2.43	2.20	2.03
844.5	874.5	2.45	2.40	2.37	874.5	2.42	3.09	3.79	354.6	2.45	2.22	2.04
864.8	894.8	2.48	2.46	2.43	894.8	2.46	3.14	3.83	366.9	2.41	2.18	2.00
905.5	935.5	2.59	2.56	2.56	935.5	2.59	3.27	3.96	379.2	2.50	2.25	2.07
925.9	955.9	2.75	2.71	2.69	955.9	2.63	3.32	4.02	391.5	2.48	2.23	2.05
966.6	996.6	3.06	2.99	2.93	996.6	2.71	3.38	4.05	403.8	2.62	2.35	2.15
986.9	1016.9	3.18	3.09	3.02	1016.9	2.73	3.39	4.05	416.2	2.59	2.34	2.16
1027.6	1057.6	3.48	3.38	3.29	1057.6	2.79	3.44	4.10	428.5	2.63	2.37	2.17
1048.0	1078.0	3.65	3.54	3.43	1078.0	2.82	3.46	4.12	440.8	2.62	2.36	2.17
1088.7	1118.7	3.87	3.76	3.65	1118.7	2.89	3.50	4.13	453.1	2.60	2.34	2.14
1109.0	1139.0	4.00	3.88	3.78	1139.0	2.93	3.53	4.19	465.4	2.69	2.40	2.19
1149.7	1179.7	4.30	4.18	4.08	1179.7	3.06	3.65	4.30	477.7	2.65	2.36	2.16
1170.1	1200.1	4.41	4.30	4.20	1200.1	3.12	3.69	4.30	490.0	2.84	2.53	2.31

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	4	20	15	16	8	23	7	36	22	29
1	-	23	+0	30	11	47	17	36	36	42	44	52
2	>90	>70	65	>70	65	>70	67	>70	65	>70	64	>70
3	>90	>70	>70	>70	>70	>70	>70	>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

Test conditions: RF IN: 250 MHz; -14.00 dBm.
 LO IN: 280 MHz; +17.00 dBm
 IF OUT: 30 MHz; -20.18 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	14	30	25	26	18	33	18	47	32	39
1	-	23	+0	30	11	48	17	36	36	42	45	52
2	73	77	56	67	56	67	58	65	57	68	54	72
3	>90	74	56	76	57	>80	56	77	57	78	72	>80
4	>90	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80
5	>90	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80
6	>90	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80
7	>90	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80
8	>90	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80
9	>90	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80
10	>90	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80	80
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 250 MHz; -4.00 dBm.
 LO IN: 280 MHz; +17.00 dBm
 IF OUT: 30 MHz; -10.04 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.