

Frequency Mixer

SRA-11+

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
10.1	40.1	6.56	6.33	6.11	10.1	40.1	12.15	12.70	12.13	10.1	40.1	1.05	0.97	0.84
70.5	100.5	6.96	6.68	6.52	70.5	100.5	8.80	8.20	8.03	70.5	100.5	1.26	0.98	0.78
131.0	161.0	7.10	6.80	6.56	131.0	161.0	5.87	7.05	9.10	131.0	161.0	1.27	1.00	0.80
191.4	221.4	7.21	6.79	6.51	191.4	221.4	5.54	7.91	11.18	191.4	221.4	1.46	1.23	1.00
272.0	302.0	7.41	6.90	6.56	272.0	302.0	6.74	10.01	13.48	272.0	302.0	1.63	1.43	1.25
332.5	362.5	7.67	7.01	6.59	332.5	362.5	7.06	10.94	15.12	332.5	362.5	1.74	1.60	1.42
413.1	443.1	7.96	7.29	6.88	413.1	443.1	9.04	11.65	12.69	413.1	443.1	1.76	1.59	1.37
473.5	503.5	7.87	7.22	6.85	473.5	503.5	10.22	11.80	11.99	473.5	503.5	1.85	1.62	1.40
554.1	584.1	7.86	7.20	6.83	554.1	584.1	9.88	11.27	12.22	554.1	584.1	1.93	1.69	1.46
614.5	644.5	7.87	7.28	6.91	614.5	644.5	9.83	11.36	12.75	614.5	644.5	1.89	1.68	1.48
695.1	725.1	8.38	7.86	7.47	695.1	725.1	8.15	9.48	10.87	695.1	725.1	1.43	1.29	1.18
755.6	785.6	8.51	8.13	7.86	755.6	785.6	8.16	9.13	10.21	755.6	785.6	1.14	0.93	0.80
836.2	866.2	8.37	8.10	7.93	836.2	866.2	8.95	9.78	10.54	836.2	866.2	0.97	0.75	0.60
896.6	926.6	8.18	7.90	7.75	896.6	926.6	9.70	10.44	11.10	896.6	926.6	0.85	0.65	0.51
977.2	1007.2	8.16	7.87	7.70	977.2	1007.2	10.67	11.42	12.36	977.2	1007.2	0.62	0.45	0.35
1037.7	1067.7	8.09	7.81	7.65	1037.7	1067.7	11.85	12.80	13.72	1037.7	1067.7	0.51	0.35	0.27
1118.2	1148.2	8.04	7.70	7.57	1118.2	1148.2	14.10	13.73	14.13	1118.2	1148.2	0.46	0.28	0.20
1178.7	1208.7	8.11	7.70	7.55	1178.7	1208.7	15.19	17.08	16.75	1178.7	1208.7	0.45	0.27	0.18
1259.3	1289.3	8.27	7.78	7.57	1259.3	1289.3	19.86	18.72	16.70	1259.3	1289.3	0.47	0.30	0.20
1319.7	1349.7	8.40	7.82	7.59	1319.7	1349.7	18.60	20.09	20.20	1319.7	1349.7	0.49	0.36	0.25
1400.3	1430.3	8.71	8.00	7.69	1400.3	1430.3	16.30	18.76	18.64	1400.3	1430.3	0.44	0.38	0.29
1460.8	1490.8	8.95	8.19	7.82	1460.8	1490.8	15.42	15.40	15.03	1460.8	1490.8	0.40	0.37	0.30
1541.4	1571.4	8.99	8.23	7.81	1541.4	1571.4	11.87	12.76	13.99	1541.4	1571.4	0.38	0.36	0.31
1601.8	1631.8	8.83	8.12	7.70	1601.8	1631.8	10.82	11.02	12.30	1601.8	1631.8	0.47	0.43	0.39
1682.4	1712.4	8.58	7.97	7.58	1682.4	1712.4	10.73	11.38	11.82	1682.4	1712.4	0.67	0.55	0.48
1742.8	1772.8	8.34	7.78	7.43	1742.8	1772.8	9.46	10.61	11.75	1742.8	1772.8	0.83	0.71	0.60
1823.4	1853.4	8.18	7.71	7.42	1823.4	1853.4	8.63	8.73	9.24	1823.4	1853.4	0.95	0.80	0.70
1883.9	1913.9	8.05	7.62	7.35	1883.9	1913.9	8.61	8.51	9.06	1883.9	1913.9	1.09	0.89	0.76
1964.5	1994.5	7.78	7.39	7.18	1964.5	1994.5	8.47	8.54	8.59	1964.5	1994.5	1.23	1.02	0.88
2024.9	2054.9	7.58	7.18	6.99	2024.9	2054.9	7.70	8.37	8.86	2024.9	2054.9	1.42	1.18	1.02
2105.5	2135.5	7.57	7.19	7.01	2105.5	2135.5	7.62	8.71	9.65	2105.5	2135.5	1.45	1.16	0.98
2166.0	2196.0	7.72	7.29	7.05	2166.0	2196.0	7.55	8.96	10.01	2166.0	2196.0	1.33	1.06	0.93
2246.5	2276.5	7.83	7.41	7.17	2246.5	2276.5	7.19	9.03	11.50	2246.5	2276.5	1.46	1.11	0.95
2307.0	2337.0	8.03	7.60	7.35	2307.0	2337.0	6.91	8.71	11.35	2307.0	2337.0	1.63	1.17	0.93
2387.6	2417.6	8.36	7.92	7.63	2387.6	2417.6	7.34	8.93	10.25	2387.6	2417.6	1.81	1.22	0.93
2448.0	2478.0	8.55	8.07	7.76	2448.0	2478.0	8.11	10.29	12.11	2448.0	2478.0	1.84	1.23	0.93
2528.6	2558.6	9.10	8.53	8.19	2528.6	2558.6	8.35	10.89	12.69	2528.6	2558.6	1.87	1.18	0.82
2589.1	2619.1	9.80	9.14	8.74	2589.1	2619.1	7.81	10.10	12.82	2589.1	2619.1	2.02	1.25	0.78
2669.7	2699.7	10.64	9.84	9.39	2669.7	2699.7	8.40	9.15	10.91	2669.7	2699.7	2.02	1.22	0.71
2730.1	2760.1	11.08	10.21	9.79	2730.1	2760.1	10.00	10.13	10.85	2730.1	2760.1	1.88	1.12	0.63

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Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1010.1MHz (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)=2010.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+7			+7			+7
770.1	240.0	9.89	10.0	20.1	7.00	1010.1	1000.0	10.99
750.6	259.5	9.79	50.0	60.1	6.14	989.7	1020.4	10.82
731.1	279.0	9.70	90.0	100.1	6.07	969.3	1040.8	10.50
711.6	298.5	9.51	110.0	120.1	5.91	948.9	1061.2	10.28
692.2	317.9	9.41	150.0	160.1	5.86	928.5	1081.6	10.11
672.7	337.4	9.36	170.0	180.1	5.93	908.1	1102.0	9.91
653.2	356.9	9.18	210.0	220.1	5.95	887.7	1122.4	9.76
633.7	376.4	9.24	230.0	240.1	5.90	867.2	1142.9	9.53
614.2	395.9	9.01	270.0	280.1	5.95	846.8	1163.3	9.46
594.7	415.4	9.19	290.0	300.1	5.85	826.4	1183.7	9.37
575.2	434.9	9.00	330.0	340.1	5.90	806.0	1204.1	9.28
555.7	454.4	9.07	350.0	360.1	5.85	785.6	1224.5	9.13
536.3	473.8	9.07	390.0	400.1	6.02	765.2	1244.9	9.06
516.8	493.3	8.93	410.0	420.1	6.20	744.8	1265.3	8.97
497.3	512.8	8.73	450.0	460.1	5.97	724.4	1285.7	8.97
477.8	532.3	8.73	470.0	480.1	5.96	704.0	1306.1	8.82
458.3	551.8	8.73	510.0	520.1	6.20	683.6	1326.5	8.77
438.8	571.3	8.77	530.0	540.1	6.21	663.2	1346.9	8.68
419.3	590.8	8.60	570.0	580.1	6.21	642.8	1367.3	8.65
399.8	610.3	8.69	590.0	600.1	6.54	622.3	1387.8	8.61
380.4	629.7	8.58	630.0	640.1	6.84	581.5	1428.6	8.48
360.9	649.2	8.44	650.0	660.1	6.87	561.1	1449.0	8.33
341.4	668.7	8.42	690.0	700.1	7.01	520.3	1489.8	8.20
321.9	688.2	8.20	710.0	720.1	7.17	499.9	1510.2	8.14
302.4	707.7	8.10	750.0	760.1	7.72	459.1	1551.0	7.90
282.9	727.2	7.95	770.0	780.1	7.83	438.7	1571.4	7.72
263.4	746.7	7.73	810.0	820.1	8.21	397.9	1612.2	7.50
243.9	766.2	7.64	830.0	840.1	8.21	377.4	1632.7	7.42
224.5	785.6	7.50	870.0	880.1	8.61	336.6	1673.5	7.23
205.0	805.1	7.41	890.0	900.1	8.79	316.2	1693.9	7.17
185.5	824.6	7.40	930.0	940.1	8.88	275.4	1734.7	7.10
166.0	844.1	7.36	950.0	960.1	9.27	255.0	1755.1	7.00
146.5	863.6	7.44	990.0	1000.1	9.58	214.2	1795.9	6.92
127.0	883.1	7.48	1010.0	1020.1	9.79	193.8	1816.3	7.00
107.5	902.6	7.58	1050.0	1060.1	10.17	153.0	1857.1	6.83
88.0	922.1	7.65	1070.0	1080.1	10.32	132.5	1877.6	6.80
68.6	941.5	7.69	1110.0	1120.1	10.75	91.7	1918.4	6.83
49.1	961.0	7.76	1130.0	1140.1	10.83	71.3	1938.8	6.87
29.6	980.5	7.96	1170.0	1180.1	11.64	30.5	1979.6	7.11
10.1	1000.0	8.64	1190.0	1200.1	11.98	10.1	2000.0	7.75

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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	58.93	57.35	57.07	47.78	48.24	48.78
100.5	55.87	55.03	54.21	45.31	45.76	46.23
161.0	54.64	54.17	53.47	43.61	44.29	45.12
221.4	52.94	52.87	52.32	42.45	43.53	44.69
302.0	50.40	51.08	51.31	41.07	42.48	43.85
362.5	47.65	48.63	49.48	40.46	42.03	43.27
443.1	46.33	46.65	47.05	39.05	40.58	41.88
503.5	46.54	47.27	47.57	39.38	40.23	40.93
584.1	45.49	47.10	48.31	42.72	42.78	41.91
644.5	43.26	44.54	45.64	44.60	43.70	41.76
725.1	41.31	42.60	43.92	47.35	44.22	41.07
785.6	41.87	43.42	44.98	48.70	44.75	40.67
866.2	41.80	44.25	46.67	50.54	47.35	40.72
926.6	40.89	43.07	45.03	48.20	48.04	40.88
1007.2	41.83	43.34	44.20	42.25	50.89	42.27
1067.7	41.00	42.18	42.73	38.30	48.71	44.91
1148.2	38.78	39.66	39.93	34.58	42.57	55.45
1208.7	37.70	38.20	38.30	32.23	38.55	45.47
1289.3	36.96	36.98	37.00	29.17	33.12	34.17
1349.7	36.26	36.16	36.37	27.04	29.18	28.79
1430.3	33.50	34.16	34.90	26.54	26.47	24.83
1490.8	32.45	32.40	32.10	30.33	28.68	26.48
1571.4	31.82	31.54	31.10	35.30	33.28	31.54
1631.8	31.04	30.75	30.69	32.26	31.11	30.16
1712.4	30.39	29.82	29.98	28.07	26.45	25.31
1772.8	30.43	29.89	29.88	25.58	23.83	22.65
1853.4	29.67	29.43	29.53	22.92	21.38	20.35
1913.9	28.70	28.40	28.08	21.25	19.69	18.67
1994.5	27.58	27.22	26.72	19.54	18.15	17.16
2054.9	27.47	26.75	26.11	18.72	17.25	16.36
2135.5	26.47	25.78	25.17	17.46	16.45	15.74
2196.0	25.52	24.91	24.21	16.75	15.96	15.26
2276.5	24.68	24.17	23.77	15.99	15.60	15.13
2337.0	24.69	24.19	23.95	15.51	15.39	15.19
2417.6	24.50	24.20	23.75	15.09	15.36	15.39
2478.0	23.83	23.72	23.46	15.05	15.51	15.66
2558.6	23.16	23.26	23.24	14.90	15.73	16.23
2619.1	22.48	22.77	22.70	14.45	15.56	16.25
2699.7	20.90	21.28	21.37	14.16	15.35	16.12
2760.1	19.38	19.76	20.15	14.02	15.00	15.69

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+4	+7	+10
10.1	40.1	14.28	14.75	16.03
70.5	100.5	20.54	20.89	20.84
131.0	161.0	21.27	21.47	21.19
191.4	221.4	21.98	22.20	22.70
272.0	302.0	23.25	23.46	23.85
332.5	362.5	24.81	25.22	25.71
413.1	443.1	27.83	28.10	28.10
473.5	503.5	29.85	29.65	29.62
554.1	584.1	32.13	31.01	30.36
614.5	644.5	32.40	31.30	30.67
695.1	725.1	33.04	32.67	32.51
755.6	785.6	32.83	32.55	32.42
836.2	866.2	33.57	33.31	33.15
896.6	926.6	37.22	36.22	35.70
977.2	1007.2	36.02	35.76	35.34
1037.7	1067.7	34.55	33.99	33.66
1118.2	1148.2	34.00	33.09	32.54
1178.7	1208.7	36.27	35.18	34.10
1259.3	1289.3	50.95	48.55	44.05
1319.7	1349.7	49.13	53.73	54.35
1400.3	1430.3	32.95	32.57	32.28
1460.8	1490.8	24.65	24.82	24.86
1541.4	1571.4	21.91	22.22	22.43
1601.8	1631.8	21.65	21.94	22.23
1682.4	1712.4	21.79	22.18	22.54
1742.8	1772.8	22.25	22.61	22.98
1823.4	1853.4	23.16	23.63	23.94
1883.9	1913.9	24.39	24.85	25.21
1964.5	1994.5	25.05	25.19	25.01
2024.9	2054.9	24.38	23.95	23.36
2105.5	2135.5	22.40	21.55	20.80
2166.0	2196.0	20.56	19.73	19.03
2246.5	2276.5	18.95	18.15	17.48
2307.0	2337.0	17.97	17.35	17.03
2387.6	2417.6	16.88	16.31	15.94
2448.0	2478.0	16.55	16.24	16.04
2528.6	2558.6	16.38	16.25	16.19
2589.1	2619.1	16.66	16.78	16.79
2669.7	2699.7	16.82	17.11	17.35
2730.1	2760.1	17.06	17.25	17.35



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Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)			IF (OUT) (MHz)	IF VSWR @LO=2000MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+4	+7	+10		+4	+7	+10		+4	+7	+10
10.1	40.1	1.21	1.28	1.15	40.1	1.87	2.74	3.86	10.0	2.03	2.12	2.19
70.5	100.5	1.11	1.05	1.05	100.5	1.70	2.44	3.37	50.0	1.53	1.67	1.79
131.0	161.0	1.21	1.14	1.11	161.0	1.73	2.46	3.40	90.0	1.56	1.70	1.82
191.4	221.4	1.36	1.28	1.24	221.4	1.78	2.54	3.50	110.0	1.56	1.70	1.81
272.0	302.0	1.58	1.49	1.44	302.0	1.76	2.47	3.38	150.0	1.57	1.70	1.80
332.5	362.5	1.83	1.71	1.64	362.5	1.78	2.45	3.30	170.0	1.63	1.77	1.89
413.1	443.1	2.23	2.10	2.01	443.1	1.79	2.44	3.29	210.0	1.65	1.77	1.86
473.5	503.5	2.52	2.37	2.27	503.5	1.81	2.46	3.31	230.0	1.69	1.81	1.91
554.1	584.1	2.90	2.71	2.57	584.1	1.78	2.39	3.22	270.0	1.72	1.84	1.94
614.5	644.5	3.26	3.06	2.92	644.5	1.79	2.33	3.10	290.0	1.77	1.89	1.99
695.1	725.1	3.86	3.70	3.56	725.1	1.87	2.32	3.02	330.0	1.76	1.88	1.98
755.6	785.6	4.02	3.95	3.87	785.6	1.94	2.32	2.98	350.0	1.79	1.91	2.01
836.2	866.2	3.94	3.94	3.93	866.2	2.00	2.25	2.82	390.0	1.85	1.98	2.08
896.6	926.6	3.93	3.91	3.90	926.6	2.03	2.18	2.66	410.0	1.79	1.91	2.01
977.2	1007.2	3.82	3.77	3.73	1007.2	2.02	2.06	2.47	450.0	1.89	2.02	2.13
1037.7	1067.7	3.67	3.59	3.54	1067.7	2.00	1.95	2.30	470.0	1.86	1.99	2.11
1118.2	1148.2	3.52	3.35	3.26	1148.2	1.95	1.78	2.05	510.0	1.85	1.99	2.11
1178.7	1208.7	3.51	3.27	3.14	1208.7	1.91	1.66	1.90	530.0	1.86	2.01	2.15
1259.3	1289.3	3.43	3.14	2.95	1289.3	1.83	1.51	1.71	570.0	1.82	1.97	2.11
1319.7	1349.7	3.52	3.20	3.02	1349.7	1.75	1.38	1.58	590.0	1.82	1.98	2.14
1400.3	1430.3	3.83	3.48	3.29	1430.3	1.61	1.23	1.44	630.0	1.82	1.99	2.15
1460.8	1490.8	4.09	3.72	3.48	1490.8	1.51	1.12	1.40	650.0	1.84	2.02	2.20
1541.4	1571.4	4.00	3.67	3.42	1571.4	1.41	1.05	1.44	690.0	1.86	2.05	2.24
1601.8	1631.8	3.82	3.50	3.26	1631.8	1.35	1.16	1.54	710.0	1.90	2.09	2.28
1682.4	1712.4	3.55	3.29	3.06	1712.4	1.33	1.34	1.72	750.0	1.97	2.17	2.36
1742.8	1772.8	3.34	3.11	2.92	1772.8	1.38	1.49	1.87	770.0	2.00	2.20	2.40
1823.4	1853.4	2.97	2.78	2.63	1853.4	1.50	1.69	2.06	810.0	2.16	2.37	2.57
1883.9	1913.9	2.64	2.43	2.28	1913.9	1.62	1.94	2.41	830.0	2.18	2.38	2.57
1964.5	1994.5	2.25	2.06	1.92	1994.5	1.80	2.22	2.75	870.0	2.34	2.54	2.73
2024.9	2054.9	2.04	1.85	1.70	2054.9	1.92	2.39	2.94	890.0	2.39	2.58	2.76
2105.5	2135.5	1.74	1.56	1.42	2135.5	2.11	2.63	3.22	930.0	2.47	2.66	2.83
2166.0	2196.0	1.53	1.37	1.24	2196.0	2.32	2.91	3.53	950.0	2.56	2.74	2.91
2246.5	2276.5	1.28	1.13	1.01	2276.5	2.57	3.19	3.83	990.0	2.65	2.82	2.99
2307.0	2337.0	1.17	1.04	1.08	2337.0	2.70	3.31	3.95	1010.0	2.72	2.89	3.04
2387.6	2417.6	1.03	1.12	1.24	2417.6	2.93	3.54	4.16	1050.0	2.84	2.99	3.13
2448.0	2478.0	1.18	1.31	1.44	2478.0	3.20	3.82	4.45	1070.0	2.92	3.06	3.19
2528.6	2558.6	1.39	1.56	1.71	2558.6	3.46	4.03	4.64	1110.0	2.99	3.11	3.20
2589.1	2619.1	1.53	1.71	1.87	2619.1	3.52	4.02	4.56	1130.0	3.06	3.17	3.26
2669.7	2699.7	1.76	1.97	2.15	2699.7	3.65	4.06	4.53	1170.0	3.12	3.20	3.27
2730.1	2760.1	2.01	2.24	2.44	2760.1	3.64	4.01	4.44	1190.0	3.12	3.19	3.25

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	23	24	7	37	27	49	39	50	46	40
1	-	27	+0	30	19	34	32	38	42	48	46	44
2	87	67	56	66	55	>68	52	>68	65	>68	>68	>68
3	>90	>68	65	>68	60	>68	64	>68	>68	>68	>68	>68
4	>90	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68
5	>90	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68
6	>90	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68
7	>90	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68
8	>90	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68
9	>90	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68
10	>90	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68	>68
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

Test conditions: RF IN: 1002.5 MHz; -14.00 dBm.
 LO IN: 1032.5 MHz; +7.00 dBm
 IF OUT: 30 MHz; -22.12 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	31	34	18	48	39	63	52	65	61	56
1	-	26	+0	30	19	35	34	41	46	54	54	52
2	67	59	47	55	47	63	45	72	59	71	67	>78
3	>90	56	48	54	43	53	49	57	56	56	62	66
4	>90	>78	72	>78	74	74	69	73	66	>78	76	>78
5	>90	>78	>78	72	71	70	60	69	62	74	71	70
6	>90	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78
7	>90	>78	>78	>78	>78	>78	>78	>78	76	>78	77	>78
8	>90	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78
9	>90	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78
10	>90	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78	>78
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 1002.5 MHz; -4.00 dBm.
 LO IN: 1032.5 MHz; +7.00 dBm
 IF OUT: 30 MHz; -12 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.