Frequency Mixer SRA-149

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB) @LO (dBm)		
		+4	+7	+10
5.0	35.0	5.73	5.49	5.37
10.0	40.0	5.72	5.44	5.30
30.3	60.3	5.88	5.61	5.47
50.5	80.5	5.86	5.61	5.49
70.7	100.7	5.84	5.62	5.50
90.9	120.9	5.87	5.65	5.54
111.1	141.1	5.89	5.69	5.58
131.3	161.3	5.88	5.68	5.58
151.5	181.5	5.88	5.69	5.58
171.7	201.7	5.85	5.66	5.56
191.9	221.9	5.94	5.75	5.64
212.1	242.1	5.94	5.75	5.63
232.3	262.3	5.92	5.75	5.64
252.5	282.5	5.93	5.75	5.65
272.8	302.8	5.98	5.77	5.66
293.0	323.0	6.12	5.92	5.78
313.2	343.2	6.16	5.96	5.82
333.4	363.4	6.17	5.97	5.83
353.6	383.6	6.20	5.97	5.83
373.8	403.8	6.28	6.05	5.93
394.0	424.0	6.42	6.20	6.05
434.4	464.4	6.52	6.35	6.23
454.6	484.6	6.62	6.47	6.36
495.0	525.0	6.78	6.60	6.47
515.2	545.2	6.79	6.59	6.46
555.6	585.6	6.98	6.71	6.54
575.8	605.8	7.14	6.79	6.57
616.2	646.2	7.56	7.04	6.70
636.4	666.4	7.74	7.18	6.78
676.8	706.8	8.11	7.48	6.98
697.0	727.0	8.31	7.65	7.14
757.7	787.7	9.08	8.30	7.67
798.1	828.1	9.74	8.94	8.17
818.3	848.3	9.91	9.06	8.27
858.7	888.7	9.92	8.93	8.32
878.9	908.9	9.97	8.97	8.39
919.3	949.3	9.96	9.13	8.69
939.5	969.5	9.99	9.29	8.91
979.9	1009.9	10.59	10.05	9.69
1000.1	1030.1	10.84	10.37	10.06

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm) @LO (dBm)		
		+4	+7	+10
10.1	40.1	20.53	19.13	22.04
30.3	60.3	16.55	19.44	21.26
50.5	80.5	17.88	20.74	21.62
70.7	100.7	19.10	21.54	20.59
90.9	120.9	19.58	20.42	24.47
111.1	141.1	19.18	21.00	26.21
131.3	161.3	18.48	22.16	23.04
151.5	181.5	19.70	23.32	20.31
171.7	201.7	21.35	26.17	24.87
191.9	221.9	17.94	21.57	18.32
212.1	242.1	16.30	16.82	20.60
232.3	262.3	17.48	15.26	16.18
252.5	282.5	17.02	13.95	14.32
272.8	302.8	17.47	21.30	23.14
293.0	323.0	11.62	12.80	19.29
313.2	343.2	13.94	12.57	13.38
333.4	363.4	16.27	21.93	22.75
353.6	383.6	12.24	18.59	22.16
373.8	403.8	11.04	13.34	16.52
394.0	424.0	18.89	13.81	14.15
434.4	464.4	9.46	9.93	12.31
454.6	484.6	9.19	9.08	10.11
495.0	525.0	9.67	9.99	11.17
515.2	545.2	11.34	12.97	16.20
555.6	585.6	14.94	17.44	15.82
575.8	605.8	11.60	18.85	15.46
616.2	646.2	5.51	11.18	17.93
636.4	666.4	4.49	9.95	21.93
676.8	706.8	3.38	7.27	15.54
697.0	727.0	3.54	7.42	14.62
737.4	767.4	5.14	8.93	5.64
757.7	787.7	5.02	7.29	4.66
798.1	828.1	4.23	7.05	12.44
818.3	848.3	4.40	9.06	9.65
858.7	888.7	7.32	10.78	10.73
878.9	908.9	11.21	11.51	11.92
919.3	949.3	10.78	12.00	13.38
939.5	969.5	10.52	12.49	14.09
979.9	1009.9	12.27	13.62	15.11
1000.1	1030.1	13.59	14.22	15.71

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+1dBm (dB) @LO (dBm)		
		+4	+7	+10
10.1	40.1	1.12	0.87	0.68
30.3	60.3	1.11	0.85	0.65
50.5	80.5	1.10	0.83	0.63
70.7	100.7	1.05	0.78	0.59
90.9	120.9	1.04	0.76	0.57
111.1	141.1	1.07	0.79	0.60
131.3	161.3	1.00	0.73	0.55
151.5	181.5	0.97	0.70	0.53
171.7	201.7	0.94	0.69	0.53
191.9	221.9	0.95	0.68	0.53
212.1	242.1	0.95	0.71	0.56
232.3	262.3	0.87	0.64	0.50
252.5	282.5	0.87	0.66	0.51
272.8	302.8	0.87	0.66	0.51
293.0	323.0	0.83	0.63	0.51
313.2	343.2	0.79	0.58	0.47
333.4	363.4	0.80	0.58	0.47
353.6	383.6	0.90	0.64	0.50
373.8	403.8	0.97	0.72	0.54
394.0	424.0	1.06	0.80	0.61
434.4	464.4	1.18	0.91	0.74
454.6	484.6	1.27	0.99	0.82
495.0	525.0	1.63	1.26	1.07
515.2	545.2	1.77	1.36	1.15
555.6	585.6	2.02	1.56	1.36
575.8	605.8	2.21	1.78	1.52
616.2	646.2	2.34	2.01	1.71
636.4	666.4	2.34	2.02	1.77
676.8	706.8	2.31	2.06	1.85
697.0	727.0	2.23	2.05	1.83
737.4	767.4	1.88	1.82	1.64
757.7	787.7	1.71	1.71	1.62
798.1	828.1	1.32	1.32	1.41
818.3	848.3	1.22	1.24	1.32
858.7	888.7	1.30	1.35	1.20
878.9	908.9	1.38	1.36	1.18
919.3	949.3	1.46	1.25	1.07
939.5	969.5	1.37	1.13	0.98
979.9	1009.9	0.91	0.71	0.66
1000.1	1030.1	0.72	0.52	0.47

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=250.1MHz (dB) @LO (dBm) +7
240.0	10.1	5.85
234.1	16.0	5.83
228.2	21.9	5.80
222.3	27.8	5.78
216.4	33.7	5.76
210.5	39.6	5.73
204.6	45.5	5.71
198.7	51.4	5.70
192.8	57.3	5.69
186.9	63.2	5.67
181.0	69.1	5.65
175.1	75.0	5.63
169.2	80.9	5.62
163.3	86.8	5.62
157.4	92.7	5.62
151.5	98.6	5.61
145.6	104.5	5.61
139.7	110.4	5.62
133.8	116.3	5.62
127.9	122.2	5.62
122.1	128.0	5.63
116.2	133.9	5.65
110.3	139.8	5.66
104.4	145.7	5.67
98.5	151.6	5.68
92.6	157.5	5.67
86.7	163.4	5.66
80.8	169.3	5.66
74.9	175.2	5.67
69.0	181.1	5.68
63.1	187.0	5.68
57.2	192.9	5.68
51.3	198.8	5.68
45.4	204.7	5.68
39.5	210.6	5.68
33.6	216.5	5.68
27.7	222.4	5.69
21.8	228.3	5.70
15.9	234.2	5.70
10.0	240.1	5.70

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=10.1MHz (dB) @LO (dBm) +7
10.0	20.1	5.58
22.3	32.4	5.65
34.6	44.7	5.63
46.9	57.0	5.65
59.2	69.3	5.65
71.5	81.6	5.64
83.8	93.9	5.65
96.2	106.3	5.68
108.5	118.6	5.72
120.8	130.9	5.75
133.1	143.2	5.76
145.4	155.5	5.77
157.7	167.8	5.75
170.0	180.1	5.75
182.3	192.4	5.78
194.6	204.7	5.82
206.9	217.0	5.87
219.2	229.3	5.89
231.5	241.6	5.90
243.8	253.9	5.91
256.2	266.3	5.92
268.5	278.6	5.91
280.8	290.9	5.90
293.1	303.2	5.93
305.4	315.5	5.99
317.7	327.8	6.02
330.0	340.1	6.03
342.3	352.4	6.04
354.6	364.7	6.06
366.9	377.0	6.10
379.2	389.3	6.16
391.5	401.6	6.27
403.8	413.9	6.38
416.2	426.3	6.46
428.5	438.6	6.51
440.8	450.9	6.52
453.1	463.2	6.51
465.4	475.5	6.47
477.7	487.8	6.44
490.0	500.1	6.37

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=500.1MHz (dB) @LO (dBm) +7
490.0	10.1	6.62
477.7	22.4	6.54
465.4	34.7	6.45
453.1	47.0	6.35
440.8	59.3	6.28
428.5	71.6	6.23
416.2	83.9	6.22
403.8	96.3	6.23
391.5	108.6	6.26
379.2	120.9	6.24
366.9	133.2	6.23
354.6	145.5	6.23
342.3	157.8	6.20
330.0	170.1	6.21
317.7	182.4	6.22
305.4	194.7	6.24
293.1	207.0	6.26
280.8	219.3	6.28
268.5	231.6	6.29
256.2	243.9	6.26
243.8	256.3	6.27
231.5	268.6	6.28
219.2	280.9	6.33
206.9	293.2	6.37
194.6	305.5	6.41
182.3	317.8	6.44
170.0	330.1	6.45
157.7	342.4	6.43
145.4	354.7	6.42
133.1	367.0	6.42
120.8	379.3	6.45
108.5	391.6	6.50
96.2	403.9	6.49
83.8	416.3	6.50
71.5	428.6	6.51
59.2	440.9	6.53
46.9	453.2	6.54
34.6	465.5	6.54
22.3	477.8	6.60
10.0	490.1	6.59

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB) @LO (dBm)			LO-IF ISOLATION (dB) @LO (dBm)		
	+4	+7	+10	+4	+7	+10
5.0	84.38	86.28	88.18	59.18	60.08	60.09
10.0	80.85	82.65	83.15	53.94	55.47	56.58
30.3	69.26	71.10	72.56	50.95	53.02	54.92
50.5	64.52	66.35	68.76	46.99	49.35	51.52
70.7	61.39	63.86	66.88	44.80	47.28	49.31
90.9	59.37	62.43	66.07	43.33	45.73	47.71
111.1	57.61	60.73	64.15	41.93	44.20	46.15
131.3	56.01	58.90	62.26	40.63	42.80	44.73
151.5	54.79	57.57	61.03	39.37	41.45	43.43
171.7	54.12	56.94	60.21	38.39	40.56	42.62
191.9	53.42	56.40	59.99	37.43	39.56	41.46
212.1	52.65	55.54	58.88	36.52	38.51	40.46
232.3	52.01	54.66	57.64	35.73	37.81	39.66
252.5	51.49	54.41	57.55	34.85	36.88	38.99
272.8	50.65	53.18	56.01	34.36	36.22	37.82
293.0	49.98	52.71	56.15	33.95	36.12	37.86
313.2	49.53	52.36	55.41	33.07	35.22	37.44
333.4	48.90	51.81	55.13	32.91	34.55	36.33
353.6	48.12	50.27	52.54	32.88	34.35	35.66
373.8	47.87	49.62	51.52	33.14	34.64	35.67
394.0	48.22	49.92	51.76	33.01	34.81	35.80
434.4	46.85	48.83	50.07	31.56	33.33	34.83
454.6	45.61	47.14	48.24	31.41	32.74	34.15
495.0	44.46	45.75	46.77	31.64	32.46	33.17
515.2	43.48	44.68	46.03	32.32	33.25	33.91
555.6	43.17	45.28	47.47	33.16	34.24	34.81
575.8	44.03	46.40	48.78	32.53	33.18	33.39
616.2	42.54	44.42	46.21	31.04	30.67	30.13
636.4	41.63	43.45	45.18	30.88	29.76	28.71
676.8	41.16	42.97	44.47	30.43	28.34	26.16
697.0	40.65	42.29	43.41	30.18	28.28	25.64
757.7	39.63	40.99	41.54	28.88	27.58	24.98
798.1	37.83	38.74	39.35	27.31	26.95	25.24
818.3	36.88	37.55	38.32	26.31	26.32	25.14
858.7	34.94	35.33	36.06	23.99	23.88	22.46
878.9	33.94	34.32	35.03	22.73	22.23	20.64
919.3	32.41	32.79	33.34	20.19	19.32	18.01
939.5	31.73	32.09	32.57	18.89	18.00	16.90
979.9	30.50	30.83	31.27	16.56	15.84	14.98
1000.1	29.97	30.27	30.69	15.78	15.19	14.44

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB) @LO (dBm)		
		+4	+7	+10
10.1	40.1	56.97	49.74	47.28
30.3	60.3	62.27	52.06	48.88
50.5	80.5	64.09	54.67	51.01
70.7	100.7	66.26	57.63	53.00
90.9	120.9	68.87	60.23	54.80
111.1	141.1	64.89	63.54	57.47
131.3	161.3	64.84	62.44	58.46
151.5	181.5	64.43	59.57	55.03
171.7	201.7	61.58	59.03	56.00
191.9	221.9	57.25	56.31	55.85
212.1	242.1	55.09	52.65	50.78
232.3	262.3	55.00	52.51	50.95
252.5	282.5	55.37	52.99	51.38
272.8	302.8	56.14	54.39	53.14
293.0	323.0	55.31	56.08	55.96
313.2	343.2	52.21	52.50	52.97
333.4	363.4	48.50	47.96	47.45
353.6	383.6	45.55	44.26	43.13
373.8	403.8	43.14	41.76	40.83
394.0	424.0	42.04	40.60	39.65
434.4	464.4	40.96	39.33	38.37
454.6	484.6	41.33	39.39	38.08
495.0	525.0	44.00	41.92	40.37
515.2	545.2	44.37	42.44	41.23
555.6	585.6	44.99	43.86	43.36
575.8	605.8	46.52	44.61	43.66
616.2	646.2	51.67	51.99	48.11
636.4	666.4	49.32	59.93	64.36
676.8	706.8	40.24	42.06	41.90
697.0	727.0	36.81	37.89	37.36
737.4	767.4	31.75	32.08	31.30
757.7	787.7	30.04	30.50	30.24
798.1	828.1	27.67	28.21	28.54
818.3	848.3	26.85	27.28	27.29
858.7	888.7	25.37	25.41	24.95
878.9	908.9	24.63	24.32	23.88
919.3	949.3	22.96	22.45	22.12
939.5	969.5	22.13	21.66	21.43
979.9	1009.9	20.93	20.51	20.16
1000.1	1030.1	20.46	19.96	19.57

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1) @LO (dBm)		
		+4	+7	+10
5.0	35.0	1.20	1.20	1.21
10.1	40.1	1.15	1.08	1.06
30.3	60.3	1.04	1.05	1.11
50.5	80.5	1.02	1.06	1.11
70.7	100.7	1.01	1.09	1.14
90.9	120.9	1.03	1.10	1.16
111.1	141.1	1.05	1.12	1.17
131.3	161.3	1.07	1.15	1.20
151.5	181.5	1.08	1.15	1.20
171.7	201.7	1.10	1.17	1.22
191.9	221.9	1.12	1.19	1.24
212.1	242.1	1.15	1.23	1.29
232.3	262.3	1.17	1.25	1.31
252.5	282.5	1.19	1.27	1.32
272.8	302.8	1.23	1.32	1.38
293.0	323.0	1.23	1.31	1.38
313.2	343.2	1.25	1.31	1.37
333.4	363.4	1.31	1.38	1.43
353.6	383.6	1.38	1.48	1.54
373.8	403.8	1.46	1.58	1.66
394.0	424.0	1.46	1.59	1.69
434.4	464.4	1.51	1.61	1.70
454.6	484.6	1.56	1.64	1.71
495.0	525.0	1.57	1.66	1.72
515.2	545.2	1.58	1.66	1.72
555.6	585.6	1.52	1.59	1.63
575.8	605.8	1.44	1.52	1.57
616.2	646.2	1.35	1.43	1.50
636.4	666.4	1.36	1.43	1.51
676.8	706.8	1.52	1.55	1.62
697.0	727.0	1.68	1.69	1.74
737.4	767.4	2.17	2.15	2.18
757.7	787.7	2.46	2.42	2.42
798.1	828.1	3.07	2.98	2.97
818.3	848.3	3.38	3.29	3.28
858.7	888.7	3.75	3.66	3.62
878.9	908.9	3.90	3.81	3.76
919.3	949.3	4.29	4.20	4.12
939.5	969.5	4.38	4.31	4.23
979.9	1009.9	4.68	4.63	4.57
1000.1	1030.1	4.82	4.80	4.77

LO (MHz)	LO VSWR (:1) @LO (dBm)		
	+4	+7	+10
5.0	1.76	2.81	4.41
10.1	1.89	2.77	3.92
30.3	1.86	2.71	3.82
50.5	1.81	2.60	3.62
70.7	1.83	2.63	3.67
90.9	1.90	2.77	3.86
111.1	1.89	2.73	3.81
131.3	1.84	2.62	3.61
151.5	1.85	2.62	3.60
171.7	1.93	2.76	3.79
191.9	1.99	2.85	3.90
212.1	1.97	2.78	3.79
232.3	1.96	2.74	3.70
252.5	2.03	2.84	3.84
272.8	2.14	3.01	4.07
293.0	2.18	3.04	4.08
313.2	2.17	2.99	3.98
333.4	2.19	3.00	3.99
353.6	2.28	3.13	4.14
373.8	2.39	3.26	4.29
394.0	2.44	3.29	4.30
434.4	2.47	3.31	4.29
454.6	2.59	3.47	4.47
495.0	2.71	3.57	4.57
515.2	2.69	3.50	4.45
555.6	2.86	3.67	4.64
575.8	2.99	3.82	4.78
616.2	3.12	3.90	4.79
636.4	3.20	3.99	4.87
676.8	3.45	4.30	5.19
697.0	3.49	4.33	5.22
737.4	3.56	4.38	5.25
757.7	3.67	4.50	5.38
798.1	3.75	4.53	5.39
818.3	3.75	4.50	5.34
858.7	3.84	4.56	5.39
878.9	3.87	4.56	5.34
919.3	3.79	4.38	5.09
939.5	3.80	4.38	5.09
979.9	3.95	4.51	5.17
1000.1	4.01	4.54	5.16

IF (OUT) (MHz)	IF VSWR @LO=500.1MHz (:1) @LO (dBm)		
	+4	+7	+10
5.0	1.50	1.38	1.30
10.0	2.23	2.04	1.88
22.6	2.24	2.06	1.89
35.1	2.25	2.07	1.90
47.7	2.26	2.08	1.91
60.3	2.26	2.08	1.92
72.8	2.26	2.08	1.91
85.4	2.25	2.07	1.90
97.9	2.25	2.07	1.90
110.5	2.26	2.08	1.92
123.1	2.26	2.08	1.92
135.6	2.25	2.08	1.92
148.2	2.25	2.08	1.92
160.8	2.25	2.08	1.93
173.3	2.25	2.08	1.93
185.9	2.26	2.10	1.94
198.5	2.28	2.12	1.97
211.0	2.29	2.13	1.98
223.6	2.28	2.13	1.98
236.2	2.27	2.12	1.98
248.7	2.28	2.13	1.99
261.3	2.29	2.14	2.00
273.8	2.30	2.15	2.02
286.4	2.33	2.18	2.05
299.0	2.33	2.19	2.06
311.5	2.32	2.18	2.05
324.1	2.29	2.16	2.04
336.7	2.28	2.15	2.04
349.2	2.29	2.16	2.04
361.8	2.31	2.18	2.07
374.4	2.33	2.21	2.10
386.9	2.36	2.23	2.12
399.5	2.36	2.23	2.13
412.1	2.35	2.23	2.12
424.6	2.34	2.22	2.11
437.2	2.34	2.22	2.11
449.7	2.36	2.23	2.13
462.3	2.38	2.25	2.15
474.9	2.40	2.27	2.16
487.4	2.41	2.28	2.18
500.0	2.44	2.43	2.41

Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	9	34	14	35	17	59	24	47	25	41
1	-	48	+0	52	12	40	14	35	36	48	45	48
2	>100	70	53	67	53	68	51	78	54	>80	59	73
3	>100	76	60	73	63	75	57	77	60	75	77	>80
4	>100	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80
5	>100	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80
6	>100	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80
7	>100	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80
8	>100	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80	>80
9	>100	>80	>80	>80	>80	>80	>80	>80	>80	67	>80	>80
10	>100	>80	>80	>80	>80	>80	>80	>80	>80	>80	71	>80
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: **RF IN: 250.1 MHz; -14.00 dBm.**
LO IN: 280.01 MHz; +7.00 dBm
IF OUT: 29.91 MHz; -19.88 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	20	46	26	45	29	75	36	59	39	55
1	-	46	+0	53	12	40	16	39	37	56	45	57
2	93	67	45	64	44	66	43	86	46	73	52	72
3	>100	60	42	67	47	68	40	62	38	56	60	64
4	>100	82	83	85	66	82	61	81	58	79	66	88
5	>100	78	63	69	61	71	57	71	56	71	59	79
6	>100	89	72	87	81	86	82	85	75	84	68	>90
7	>100	>90	76	>90	71	82	75	80	73	83	68	80
8	>100	>90	>90	>90	79	>90	80	>90	>90	>90	>90	90
9	>100	>90	>90	>90	84	>90	80	>90	83	70	87	>90
10	>100	>90	>90	>90	>90	>90	>90	>90	>90	>90	75	>90
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: **RF IN: 250.1 MHz; -4.00 dBm.**
LO IN: 280.01 MHz; +7.00 dBm
IF OUT: 29.91 MHz; -9.97 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.