

# Frequency Mixers **Models**

T-74-09-01

LEVEL 7 (+7dBm LO, up to +1dBm RF)

**SBL-1**

SCIENTIFIC/ MINI-CIRCUITS



**computer-automated performance data**  
typical production unit / for data of other models consult factory

## mixer conversion loss and isolation

RF MHz	LO MHz	Conversion Loss (dB)			Isolation L-R (dB)			Isolation L-I (dB)		
		LO +4dBm	LO +7dBm	LO +10dBm	LO +4dBm	LO +7dBm	LO +10dBm	LO +4dBm	LO +7dBm	LO +10dBm
1.000	31.00	6.99	6.67	6.45	62.73	>67.00	68.01	61.88	65.61	>70.00
2.000	32.00	6.50	6.24	6.05	61.86	>67.00	67.46	61.93	>67.00	>70.00
5.000	35.00	5.96	5.74	5.60	61.73	64.84	66.12	62.43	>67.00	>70.00
10.000	40.00	5.85	5.58	5.46	61.35	64.19	65.15	61.72	64.81	66.04
20.000	50.00	5.96	5.67	5.51	60.14	62.22	62.01	60.33	61.69	61.30
32.188	62.19	5.86	5.60	5.51	58.85	59.04	58.99	58.27	57.74	57.09
50.000	80.00	5.84	5.60	5.49	56.98	56.71	55.75	54.84	54.39	53.61
78.970	48.97	5.83	5.56	5.44	54.05	52.21	50.75	51.16	49.67	48.53
100.000	70.00	5.74	5.52	5.43	51.39	49.41	48.33	48.54	46.90	46.10
156.940	126.94	5.69	5.53	5.47	45.18	44.20	43.99	42.22	41.66	41.56
200.000	170.00	5.85	5.68	5.60	41.88	41.56	41.75	39.00	38.98	39.65
203.720	173.72	5.83	5.67	5.56	41.46	41.05	41.34	38.60	38.52	39.23
250.500	220.50	5.80	5.63	5.47	40.14	40.04	40.21	37.21	37.29	37.77
297.290	267.29	5.77	5.61	5.48	36.89	36.90	37.90	33.86	33.97	34.98
344.070	314.07	5.93	5.81	5.72	36.80	37.11	37.44	33.43	33.88	34.36
375.260	345.26	6.28	6.13	5.97	34.83	36.02	37.25	31.69	32.79	34.20
406.440	376.44	6.27	6.15	6.07	33.09	34.80	36.66	29.68	31.05	32.79
437.630	407.63	6.38	6.08	5.88	32.48	33.79	35.38	29.38	30.39	31.81
468.820	438.82	6.48	6.00	5.73	32.24	32.80	34.05	29.76	30.12	30.96
500.000	470.00	6.90	6.31	5.99	32.48	32.36	33.04	30.19	30.37	30.65

## mixer VSWR

## ϕ detection

freq. MHz	VSWR, RF port			VSWR, LO port			VSWR, IF port			Freq. (MHz)	max. DC output mV	DC offset mV
	LO +4dBm	LO +7dBm	LO +10dBm	LO +4dBm	LO +7dBm	LO +10dBm	LO +4dBm	LO +7dBm	LO +10dBm			
1.001	1.83	1.80	1.86	2.45	3.75	5.47	1.67	1.44	1.30	10.000	-233.19	+0.00
16.121	1.07	1.14	1.20	1.92	2.81	3.95	1.68	1.45	1.31	20.000	-230.80	-0.01
20.000	1.06	1.14	1.20	1.94	2.89	3.95	1.68	1.44	1.31	38.000	-225.55	+0.00
31.242	1.06	1.14	1.20	1.93	2.83	3.88	1.68	1.44	1.32	50.000	-225.92	+0.00
50.000	1.07	1.15	1.20	1.83	2.69	3.54	1.69	1.46	1.33	66.000	-226.43	+0.00
76.605	1.08	1.16	1.21	1.84	2.72	3.70	1.71	1.48	1.36	80.000	-230.22	+0.01
100.000	1.09	1.17	1.22	1.82	2.62	3.38	1.74	1.52	1.39	100.000	-231.28	+0.03
121.970	1.11	1.18	1.24	1.82	2.62	3.53	1.79	1.55	1.42	136.000	-229.89	+0.08
152.210	1.13	1.20	1.25	1.88	2.66	3.42	1.85	1.62	1.50	178.000	-223.93	+0.17
182.450	1.15	1.22	1.27	1.83	2.62	3.21	1.93	1.69	1.57	200.000	-223.43	+0.15
200.000	1.12	1.26	1.27	1.87	2.58	3.22	1.98	1.77	1.62	234.000	-223.86	+0.23
242.940	1.19	1.26	1.32	1.89	2.56	3.19	2.11	1.88	1.74	262.000	-229.61	+0.25
273.180	1.21	1.28	1.34	1.90	2.59	3.17	2.21	1.99	1.86	304.000	-218.66	+0.32
318.540	1.23	1.30	1.35	1.99	2.64	3.25	2.35	2.11	1.95	360.000	-194.91	+0.72
348.780	1.24	1.31	1.36	2.01	2.59	3.18	2.38	2.15	2.03	402.000	-179.58	+0.97
379.030	1.24	1.30	1.34	2.03	2.60	3.15	2.45	2.24	2.09	444.000	-163.75	+0.88
409.270	1.23	1.28	1.32	2.12	2.72	3.19	2.46	2.24	2.11	458.000	-160.12	+0.78
424.390	1.21	1.27	1.31	2.20	2.77	3.27	2.50	2.30	2.16	472.000	-155.46	+0.60
454.630	1.19	1.24	1.28	2.30	2.82	3.34	2.46	2.32	2.14	486.000	-150.45	+0.39
500.000	1.16	1.21	1.25	2.40	3.01	3.54	2.43	2.23	2.12	500.000	-142.53	+0.23

Measurements at RF & LO Power +7 dBm

1 to 500 MHz

# Mini-Circuits

## ULTRA-REL™ MIXERS

5-YR. GUARANTEE\*

00-08

### mixer harmonic intermodulation

(relative to desired IF output)

T-74-09-01

RF ORDER HARMONIC	RF CAL	0	1	2	3	4	5	6	7	8	9	10
0	>93	-	45	50	36	56	49	65	47	66	52	68
1	>93	25	-	39	12	47	22	46	29	49	55	62
2	74	62	55	71	60	69	53	72	61	71	54	75
3	81	44	33	49	35	59	36	60	36	64	37	51
4	>93	80	70	66	58	75	62	79	59	78	69	76
5	>93	61	46	62	50	59	60	63	67	66	53	65
6	>93	88	78	78	74	75	69	75	70	78	66	76
7	>93	81	64	67	63	73	56	71	55	78	55	69
8	>93	>88	84	88	84	>86	83	>86	76	81	78	81
9	93	82	83	83	75	79	67	75	64	84	60	77
10	93	>87	87	>87	86	>88	86	>86	>86	>86	81	>86

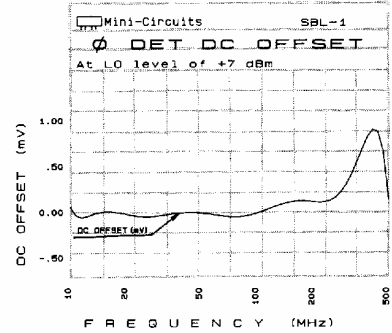
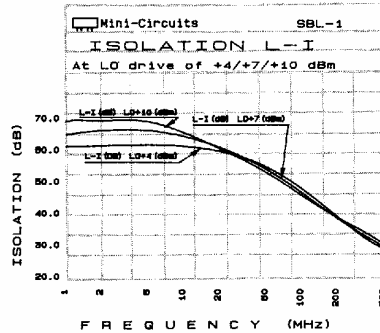
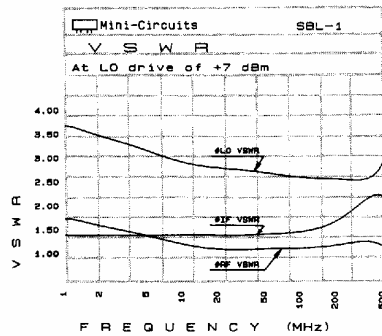
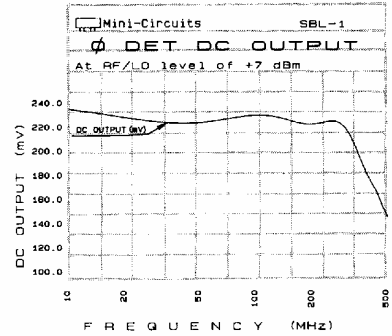
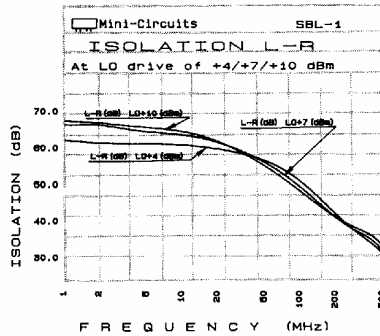
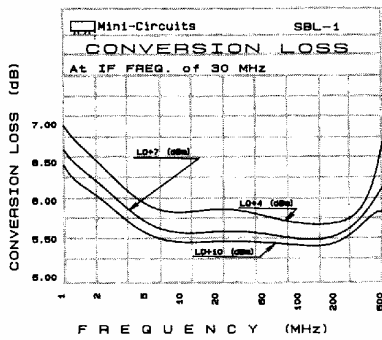
RF ORDER HARMONIC	RF CAL	0	1	2	3	4	5	6	7	8	9	10	
0	>84	-	36	38	24	41	35	45	30	52	31	52	
1	>84	25	-	88	12	50	19	41	21	37	40	47	
2	82	63	55	68	54	66	52	64	52	66	54	74	
3	>84	66	53	66	58	71	55	75	52	65	54	73	
4	>84	>76	75	>76	75	>77	76	>77	75	>76	74	>76	
5	>84	>76	>76	>76	>76	>76	>77	>77	73	>76	71	>76	
6	>84	>78	>76	>76	>76	>76	>76	>76	>77	>77	>77	>76	>76
7	>84	>78	>78	>76	>76	>76	>76	>76	>76	>77	>77	>77	>76
8	>84	>78	>78	>78	>78	>76	>76	>76	>76	>76	>77	>77	>77
9	>84	>78	>78	>78	>78	>78	>76	>76	>76	>76	>76	>76	>77
10	>83	>77	78	>78	>78	>78	>78	>76	>76	>76	>76	>76	>76

test conditions: RF = 185.100 MHz INPUT P. = +0.00DBM  
 LO = 155.010 MHz INPUT P. = +6.92DBM  
 IF = 30.090 MHz IF AMPLIT. = -6.11 DBM

test conditions: RF = 185.100 MHz INPUT P. = -10.03DBM  
 LO = 155.010 MHz INPUT P. = +6.92DBM  
 IF = 30.090 MHz IF AMPLIT. = -15.84 DBM

### typical performance curves

(production unit)



In Stock...immediate Delivery