

Frequency Mixers

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

Models

GRA-1
SRA-1
SRA-1 TX
ZLW-1
ZAD-1

T-74-09-01



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
.500	30.50	7.78	7.29	7.01	> 64.00	> 67.00	64.94	> 64.00	> 67.00	56.93
1.000	31.00	7.34	6.89	6.61	> 64.00	> 67.00	63.22	> 64.00	62.73	56.27
2.000	32.00	6.97	6.49	6.20	> 64.00	> 67.00	61.14	> 64.00	61.28	55.71
5.000	35.00	6.39	6.01	5.80	> 64.00	> 67.00	60.28	> 64.00	60.55	55.46
10.000	40.00	6.40	5.99	5.75	> 64.00	> 67.00	59.63	> 64.00	59.37	55.25
20.000	50.00	6.46	6.02	5.75	> 64.00	> 67.00	58.89	> 64.00	59.08	55.09
32.726	62.73	6.37	5.96	5.74	> 64.00	59.27	56.91	> 64.00	57.92	54.20
50.000	80.00	6.28	5.91	5.71	58.05	56.01	54.48	> 64.00	56.08	53.11
64.952	94.95	6.22	5.87	5.64	54.46	53.83	52.86	57.32	54.11	51.72
100.000	70.00	6.13	5.81	5.66	50.35	49.90	48.91	51.33	49.45	47.96
161.630	131.63	6.13	5.84	5.70	45.29	44.60	44.03	44.16	43.60	43.25
200.000	170.00	6.27	5.99	5.82	42.19	41.47	41.29	41.32	40.82	40.93
226.080	196.08	6.26	5.95	5.75	41.04	40.62	40.68	39.98	39.96	40.20
258.310	228.31	6.19	5.89	5.72	39.93	39.44	39.63	38.30	37.84	38.74
306.650	276.65	6.26	5.99	5.84	36.83	37.26	37.70	35.84	36.42	36.87
354.990	324.99	6.57	6.23	6.05	34.24	34.94	35.71	33.81	34.34	35.10
403.330	373.33	6.74	6.32	6.07	33.60	33.70	34.26	33.74	33.77	34.23
451.660	421.66	7.29	6.68	6.25	33.90	33.66	34.10	34.38	33.23	33.15
483.890	453.89	7.77	7.17	6.69	33.99	34.17	34.71	34.99	34.46	34.37
500.000	470.00	7.86	7.25	6.77	34.23	34.51	35.08	34.62	34.41	34.36

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			
5.001	1.22	1.21	1.25	1.36	1.98	2.99	1.47	1.28	1.16	10.000	-270.82	-.24
17.692	1.12	1.03	1.09	1.29	1.93	2.84	1.48	1.29	1.17	20.000	-267.82	-.23
30.384	1.10	1.02	1.09	1.30	1.96	2.82	1.48	1.30	1.18	24.000	-264.99	-.21
55.768	1.11	1.06	1.12	1.27	1.86	2.69	1.50	1.32	1.21	50.000	-261.17	-.19
81.152	1.12	1.10	1.14	1.25	1.83	2.61	1.53	1.35	1.25	80.000	-263.77	-.16
106.540	1.14	1.13	1.17	1.28	1.87	2.68	1.58	1.40	1.30	100.000	-264.35	-.15
119.230	1.16	1.15	1.19	1.29	1.88	2.67	1.60	1.43	1.33	122.000	-267.69	-.12
144.610	1.19	1.19	1.23	1.31	1.91	2.63	1.69	1.52	1.42	150.000	-263.45	-.11
170.000	1.22	1.23	1.26	1.32	1.91	2.59	1.73	1.54	1.43	178.000	-262.10	-.07
208.070	1.28	1.29	1.33	1.35	1.92	2.62	1.86	1.66	1.54	200.000	-261.22	-.13
233.460	1.33	1.35	1.38	1.39	1.91	2.59	1.96	1.74	1.62	248.000	-265.76	-.10
271.530	1.41	1.42	1.46	1.43	1.99	2.65	2.10	1.88	1.73	276.000	-270.40	-.18
296.920	1.47	1.49	1.52	1.48	1.99	2.63	2.18	1.97	1.80	304.000	-266.94	-.26
322.300	1.53	1.56	1.58	1.52	1.99	2.66	2.29	2.07	1.90	332.000	-249.96	-.23
360.380	1.62	1.65	1.68	1.62	2.03	2.64	2.45	2.19	2.03	360.000	-231.15	-.47
398.450	1.73	1.74	1.77	1.73	2.16	2.72	2.59	2.33	2.13	388.000	-211.89	-.18
423.840	1.80	1.81	1.83	1.77	2.20	2.83	2.65	2.40	2.20	430.000	-189.53	-.45
461.910	1.92	1.93	1.94	1.80	2.27	2.90	2.76	2.49	2.29	458.000	-184.41	-.03
487.300	1.99	2.00	2.00	1.82	2.25	2.87	2.81	2.53	2.32	486.000	-184.46	-.13
500.000	2.03	2.03	2.02	1.83	2.26	2.86	2.79	2.55	2.33	500.000	-181.27	-.33

Measurements at RF & LO Power +7 dBm



Mini-Circuits

500 KHz to 500 MHz

ULTRA-REL™ MIXERS
 5-YR. GUARANTEE*

00-09

T-74-09-01

mixer harmonic intermodulation

(relative to desired IF output)

RF CAL	0	1	2	3	4	5	6	7	8	9	10
0 >94	-	36	51	42	61	42	60	58	62	54	72
1 >94	23	-	39	12	46	22	51	35	56	48	72
2 74	68	54	71	55	73	55	74	55	64	50	77
3 81	47	41	49	40	53	42	55	42	56	44	64
4 >94	73	75	76	71	77	67	76	66	76	62	75
5 >94	70	66	67	52	71	49	66	49	71	52	65
6 >94	84	77	>86	>86	>86	81	>86	82	84	82	83
7 >94	83	65	79	65	78	75	76	60	77	55	73
8 >94	86	85	>88	81	>86	>86	>86	>86	>86	84	>86
9 93	87	84	86	80	82	73	85	75	86	84	78
10 >93	>87	>87	86	>87	>88	>88	>86	>86	>86	>86	>86
	0	1	2	3	4	5	6	7	8	9	10
	Harmonic LO Order										

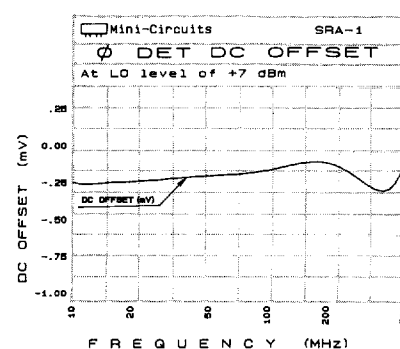
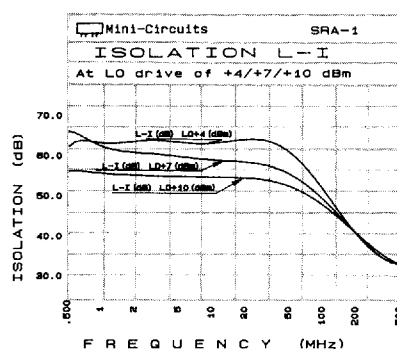
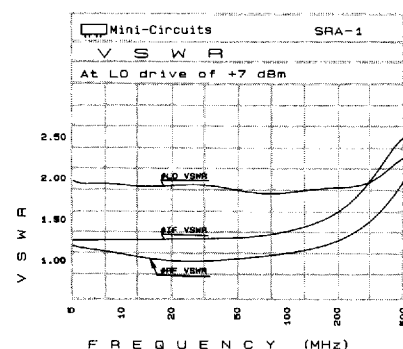
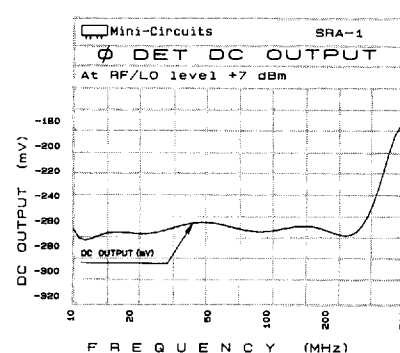
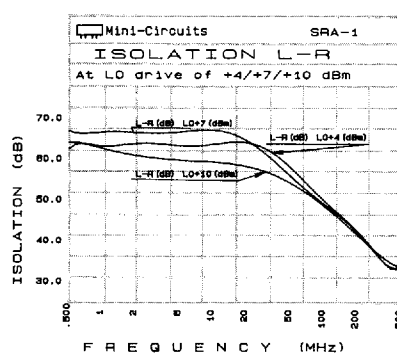
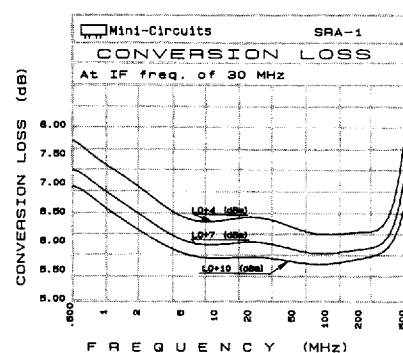
test conditions: RF = 185.100 MHz INPUT P. = +0.00DBM
 LO = 155.010 MHz INPUT P. = +6.92DBM
 IF = 30.090 MHz IF AMPLIT. = -6.18 DBM

RF CAL	0	1	2	3	4	5	6	7	8	9	10
0 >84	-	28	42	28	52	27	43	30	48	35	48
1 >84	22	-	36	13	40	21	47	30	44	36	49
2 82	75	60	76	60	73	59	73	58	69	49	69
3 >84	65	62	67	66	69	56	73	55	69	53	68
4 >84	>76	>76	>76	>76	>76	>76	>76	>76	>76	>76	>76
5 >84	>76	>76	>76	>76	>76	>76	>76	>76	>76	>76	>76
6 >84	>78	>76	>76	>76	>76	>76	>76	>76	>76	>76	>76
7 84	>78	>78	>76	>76	>76	>76	>76	>76	>76	>76	>76
8 >84	>78	>78	78	>78	>76	>76	>76	>76	>76	>76	>76
9 82	77	>78	>78	>78	>78	>76	>76	>76	>76	>76	>76
10 >82	>76	78	78	>78	78	>78	>76	>76	>76	>76	>76
	0	1	2	3	4	5	6	7	8	9	10
	Harmonic LO Order										

test conditions: RF = 185.100 MHz INPUT P. = -9.96DBM
 LO = 155.010 MHz INPUT P. = +6.92DBM
 IF = 30.090 MHz IF AMPLIT. = -15.97 DBM

typical performance curves

(production unit)



In Stock...Immediate Delivery