

T-74-09-01

Frequency Mixers

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

Models

SRA-3
GRA-3
ZLW-3
ZAD-3



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)			freq. (MHz)	Isolation L-R (dB)			LO	Isolation L-I (dB)		
		+4dBm	+7dBm	+10dBm		+4dBm	+7dBm	+10dBm		+4dBm	+7dBm	+10dBm
.025	30.025	7.21	6.94	6.77	.025	61.68	58.72	56.56	57.08	53.27	51.07	
.040	30.040	6.05	5.80	5.65	.040	57.71	55.35	53.96	54.31	51.43	49.68	
.050	30.050	5.74	5.52	5.37	.050	56.72	54.61	53.34	53.56	51.09	49.47	
.100	30.100	5.32	5.16	4.95	.100	55.43	53.51	52.62	52.38	50.41	49.13	
.200	30.200	5.21	4.98	4.86	.200	55.00	53.27	52.45	51.97	50.18	49.00	
.500	30.500	5.14	4.92	4.82	.500	54.58	53.12	52.30	51.86	50.13	48.94	
1.000	31.000	5.00	4.82	4.72	1.000	53.86	53.18	52.24	51.81	50.48	49.14	
2.000	32.000	4.95	4.77	4.67	2.000	53.82	53.13	52.17	51.42	50.55	49.22	
5.000	35.000	4.94	4.76	4.66	5.000	54.18	53.42	52.39	52.01	50.99	49.53	
10.000	40.000	5.00	4.81	4.69	10.000	54.39	53.68	52.71	52.35	51.27	49.73	
20.000	50.000	5.11	4.87	4.75	20.000	54.46	53.67	52.78	51.61	50.52	49.12	
38.482	68.482	5.19	4.96	4.84	38.482	54.62	53.25	52.25	51.07	48.52	46.85	
50.000	80.000	5.16	4.94	4.84	50.000	54.76	53.49	52.53	49.96	47.54	45.77	
69.247	99.247	5.10	4.90	4.78	69.247	54.38	53.53	52.77	47.69	45.77	44.16	
84.630	54.630	5.07	4.86	4.78	84.630	54.10	53.31	52.51	45.33	44.13	42.88	
100.000	70.000	4.95	4.81	4.73	100.000	53.91	53.55	52.96	43.50	42.70	41.62	
123.087	93.087	5.02	4.87	4.81	123.087	55.23	55.31	55.03	40.89	40.58	39.80	
153.852	123.852	5.11	4.96	4.89	153.852	52.25	52.97	52.92	38.71	38.04	37.79	
176.926	146.926	5.30	5.19	5.10	176.926	47.72	49.53	51.11	37.78	38.76	38.46	
200.000	170.000	5.37	5.28	5.21	200.000	43.90	45.61	47.46	36.16	38.31	40.01	

mixer VSWR

φ detection

freq. MHz	VSWR, RF port			VSWR, LO port			freq. (MHz)	VSWR, IF port			freq. (MHz)	max. DC output mV	DC offset mV
	+4dBm	+7dBm	+10dBm	+4dBm	+7dBm	+10dBm		+4dBm	+7dBm	+10dBm			
5.000	1.28	1.16	1.09	1.39	2.06	2.93	5.000	1.53	1.42	1.33	.025	-227.82	+ .96
10.000	1.29	1.17	1.09	1.38	2.04	2.90	10.000	1.54	1.43	1.33	.030	-237.32	+1.02
16.143	1.29	1.17	1.09	1.36	2.01	2.83	16.143	1.55	1.44	1.34	.050	-248.89	+1.03
20.000	1.29	1.16	1.09	1.34	1.99	2.80	20.000	1.55	1.44	1.34	.100	-255.16	+1.01
27.286	1.28	1.16	1.08	1.39	2.05	2.85	27.286	1.55	1.45	1.35	.500	-258.65	+1.02
38.429	1.27	1.15	1.08	1.43	2.08	2.86	38.429	1.57	1.46	1.36	2.000	-256.76	+1.02
44.000	1.27	1.15	1.07	1.42	2.07	2.86	44.000	1.58	1.47	1.37	5.000	-253.42	+1.00
50.000	1.26	1.14	1.07	1.42	2.07	2.84	50.000	1.59	1.49	1.39	10.000	-256.79	+ .99
60.714	1.25	1.13	1.06	1.41	2.05	2.80	60.714	1.62	1.52	1.42	20.000	-252.96	+ .98
77.429	1.23	1.11	1.06	1.41	2.02	2.77	77.429	1.67	1.57	1.47	38.482	-249.19	+ .98
94.143	1.21	1.10	1.06	1.42	2.02	2.76	94.143	1.73	1.63	1.53	53.864	-257.10	+1.07
100.000	1.20	1.09	1.06	1.42	2.02	2.75	100.000	1.76	1.65	1.55	69.247	-254.46	+1.11
110.857	1.18	1.09	1.08	1.44	2.03	2.75	110.857	1.81	1.70	1.61	84.630	-256.99	+1.21
122.000	1.17	1.08	1.09	1.45	2.03	2.76	122.000	1.87	1.75	1.64	100.000	-257.87	+1.33
138.714	1.16	1.09	1.12	1.47	2.05	2.74	138.714	1.99	1.85	1.76	115.395	-255.22	+1.28
149.857	1.15	1.11	1.14	1.51	2.07	2.72	149.857	2.05	1.92	1.81	130.778	-249.16	+1.29
166.571	1.15	1.13	1.17	1.53	2.11	2.76	166.571	2.16	2.01	1.91	153.852	-254.87	+1.35
177.714	1.16	1.15	1.20	1.56	2.13	2.79	177.714	2.24	2.08	1.98	169.235	-255.80	+1.58
188.857	1.17	1.18	1.23	1.59	2.14	2.82	188.857	2.31	2.16	2.05	184.617	-255.26	+1.77
200.000	1.19	1.21	1.25	1.61	2.15	2.80	200.000	2.39	2.24	2.11	200.000	-253.61	+1.72

0.025 to 200 MHz

Mini-Circuits**ULTRA-REL™ MIXERS**

5-YR. GUARANTEE *

T-74-09-01

mixer harmonic intermodulation

(relative to desired IF output)

RF CAL													
RF ORDER HARMONIC	0	-	-	22	31	27	45	29	45	33	48	40	51
	1	-	34	+0	45	11	62	19	46	25	41	30	46
	2	93	>78	62	>77	62	74	61	76	60	>78	62	>78
	3	>97	69	62	70	63	71	59	66	60	62	59	64
	4	>97	>78	>77	>78	74	>77	77	>78	>77	>78	76	77
	5	>97	>78	>77	>78	>77	>77	>77	>78	76	75	73	>77
	6	>97	>78	>78	76	>78	>77	77	>78	>77	>78	>77	>77
	7	>97	>77	77	>78	>78	>77	>77	>78	76	76	>77	>78
	8	>97	>77	>77	>77	>77	>78	>78	>77	>78	>77	77	>78
	9	>97	>77	>78	>78	>77	>77	>78	>77	>78	76	>77	>77
	10	>96	>77	>79	77	76	77	>78	>77	>78	>78	>77	74
		0	1	2	3	4	5	6	7	8	9	10	
LO Harmonic Order													

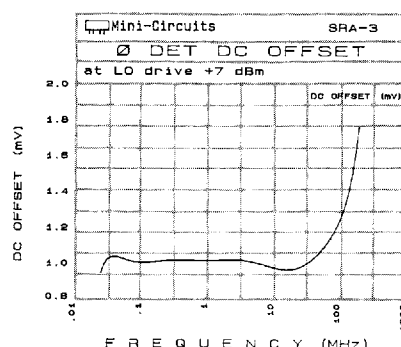
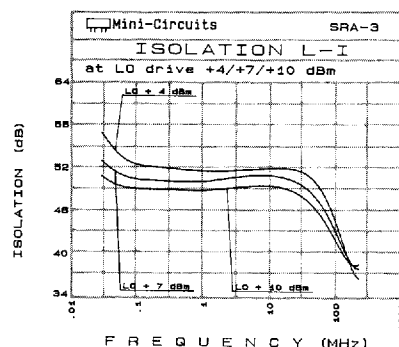
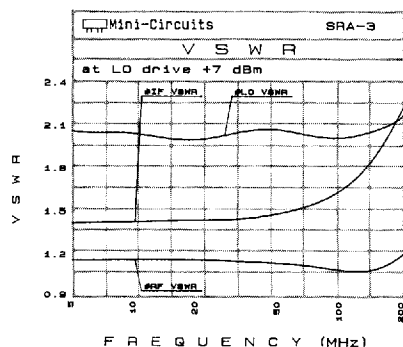
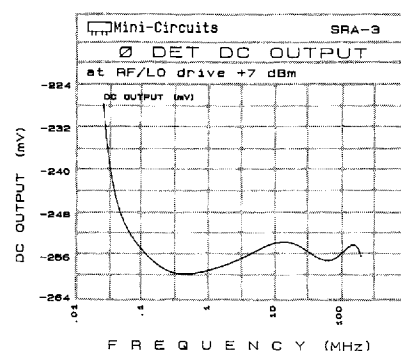
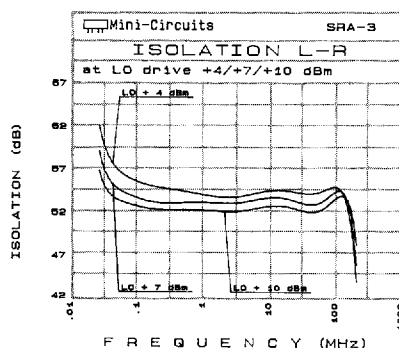
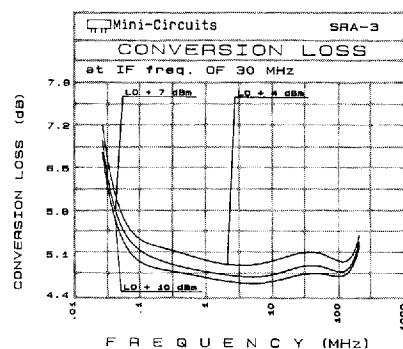
test conditions: RF IN: 10.10 MHz; -14.06 DBM
 LO IN: 40.01 MHz; +6.97 DBM
 IF OUT: 29.91 MHz; -18.83 DBM

RF CAL													
RF ORDER HARMONIC	0	-	-	32	41	38	54	42	57	48	64	60	70
	1	-	33	+0	51	11	45	19	50	25	55	31	51
	2	81	78	60	>87	58	81	56	69	56	69	58	67
	3	86	54	57	54	51	55	58	52	49	52	49	55
	4	>97	84	76	86	75	86	74	82	71	82	72	82
	5	>97	72	73	71	65	72	62	71	60	68	59	66
	6	>96	>87	85	>88	85	>87	87	85	>88	84	>88	82
	7	>97	>87	70	85	70	81	69	79	67	76	66	73
	8	>97	>87	85	>88	87	>86	>87	>87	>87	86	>88	>88
	9	>97	86	80	84	78	>88	77	>87	76	83	74	84
	10	>96	84	87	>87	86	>87	86	>88	87	>87	86	>88
		0	1	2	3	4	5	6	7	8	9	10	
LO Harmonic Order													

test conditions: RF IN: 10.10 MHz; -4.06 DBM
 LO IN: 40.01 MHz; +6.97 DBM
 IF OUT: 29.91 MHz; -8.87 DBM

typical performance curves

(production unit)

**In Stock...Immediate Delivery**