

T-74-09-01

Frequency Mixers

LEVEL 3 (+3 dBm LO, up to -3 dBm RF)

Models

RMS-5L
RMS-2L
LRMS-5L
LRMS-2L



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 + 0 dBm	LO + 3 dBm	LO + 6 dBm	LO + 0 dBm	LO + 3 dBm	LO + 6 dBm	LO + 0 dBm	LO + 3 dBm	LO + 6 dBm
400.000	430.000	8.66	7.74	7.20	45.46	39.94	36.72	24.05	28.82	37.26
476.923	506.923	7.78	6.92	6.36	62.86	43.12	37.83	23.06	28.11	37.19
563.846	583.846	7.38	6.37	5.88	42.17	56.16	42.66	22.44	27.98	34.31
605.128	635.128	7.31	6.19	5.62	35.40	41.52	49.39	22.31	27.30	31.00
630.769	660.769	7.29	6.10	5.53	33.19	37.96	44.09	22.11	26.89	29.79
707.692	737.692	7.31	5.93	5.24	26.55	29.29	32.70	21.20	24.68	25.30
733.333	763.333	7.29	5.89	5.20	25.16	27.74	30.80	20.90	24.04	24.60
810.256	840.256	7.19	5.81	5.13	21.99	24.32	26.65	19.83	21.96	21.48
835.897	865.897	7.26	5.95	5.22	21.36	23.55	25.64	19.66	21.29	20.21
887.180	917.180	7.41	6.28	5.55	20.36	22.39	24.29	19.24	20.26	18.77
912.821	942.821	7.27	6.26	5.56	19.91	21.89	23.56	18.82	19.74	18.14
989.744	959.744	7.67	6.84	6.15	18.83	20.56	21.86	17.29	17.73	16.22
1066.667	1036.667	7.78	7.26	6.69	17.90	19.47	20.59	15.29	15.58	14.42
1117.949	1087.949	7.84	7.40	6.99	17.43	18.97	20.08	14.11	14.31	13.41
1143.590	1113.590	8.15	7.64	7.35	17.16	18.77	19.92	13.50	13.78	12.95
1220.513	1190.513	8.36	7.63	7.41	16.55	18.25	19.45	12.04	12.26	11.30
1297.436	1267.436	8.73	7.75	7.47	16.05	17.96	19.40	10.74	10.95	10.27
1348.718	1318.718	8.96	7.73	7.47	15.83	17.87	19.45	9.84	10.20	9.64
1374.359	1344.359	9.16	7.64	7.32	15.81	17.90	19.58	9.40	9.72	9.22
1400.000	1370.000	9.33	7.79	7.46	15.74	17.92	19.67	8.95	9.13	8.78

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
	LO + 0 dBm	LO + 3 dBm	LO + 6 dBm	LO + 0 dBm	LO + 3 dBm	LO + 6 dBm		LO + 0 dBm	LO + 3 dBm	LO + 6 dBm			
400.000	1.53	1.50	1.47	1.32	1.45	1.67	1.000	2.65	2.10	1.73	400.000	142.20	-3.39
477.500	1.44	1.40	1.36	1.40	1.53	1.71	2.000	2.65	2.11	1.74	475.000	143.89	-3.99
500.000	1.42	1.38	1.34	1.43	1.56	1.73	5.000	2.66	2.11	1.74	500.000	147.80	-4.34
580.000	1.33	1.28	1.23	1.51	1.64	1.77	10.000	2.67	2.12	1.74	575.000	147.54	-4.94
657.500	1.25	1.19	1.15	1.60	1.71	1.81	20.000	2.61	2.09	1.79	650.000	153.50	-4.93
707.500	1.23	1.16	1.12	1.65	1.75	1.83	50.000	2.67	2.13	1.75	700.000	148.82	-4.06
732.500	1.22	1.17	1.12	1.68	1.78	1.85	100.000	2.69	2.14	1.77	725.000	151.91	-3.25
760.000	1.22	1.17	1.13	1.72	1.80	1.85	156.000	2.68	2.15	1.80	750.000	153.86	-2.53
800.000	1.21	1.18	1.14	1.77	1.85	1.89	200.000	2.67	2.17	1.83	800.000	155.38	-0.83
862.500	1.22	1.20	1.17	1.86	1.93	1.95	267.000	2.65	2.18	1.87	850.000	143.16	1.10
937.500	1.25	1.24	1.22	1.99	2.03	2.00	356.000	2.56	2.17	1.91	925.000	142.71	3.74
1000.000	1.26	1.26	1.25	2.13	2.10	2.04	400.000	2.49	2.14	1.94	1000.000	146.75	7.02
1040.000	1.27	1.27	1.26	2.21	2.18	2.09	423.000	2.45	2.11	1.92	1025.000	142.23	7.68
1092.500	1.28	1.29	1.29	2.33	2.28	2.14	467.000	2.37	2.06	1.91	1075.000	141.82	7.20
1117.500	1.29	1.30	1.30	2.39	2.34	2.16	500.000	2.31	2.04	1.92	1100.000	153.67	7.35
1200.000	1.31	1.32	1.32	2.60	2.51	2.25	578.000	2.14	1.92	1.88	1175.000	152.39	8.63
1272.500	1.31	1.32	1.32	2.81	2.68	2.33	667.000	1.92	1.78	1.82	1250.000	154.48	9.41
1347.500	1.33	1.33	1.34	2.99	2.89	2.46	750.000	1.72	1.64	1.77	1325.000	154.45	9.87
1375.000	1.34	1.34	1.35	3.06	2.98	2.52	778.000	1.65	1.62	1.77	1375.000	142.31	11.36
1400.000	1.35	1.35	1.35	3.12	3.06	2.57	800.000	1.60	1.58	1.76	1400.000	151.00	12.56



400 to 1400 MHz

Mini-Circuits

ULTRA-REL™ MIXERS

5-YR. GUARANTEE*

mixer harmonic intermodulation

(relative to desired IF output)

T-74-09-01

RF CAL													
RF ORDER HARMONIC	0	-	-	+9	1	7	15	29	32	53	40	31	40
	1	-	9	+0	18	29	28	36	40	51	57	52	39
	2	> 96	42	36	37	36	50	56	45	54	61	58	59
	3	> 96	65	64	54	62	54	68	60	63	65	> 70	61
	4	> 97	> 70	69	68	> 70	70	> 70	> 69	> 70	68	> 69	> 71
	5	> 97	> 70	> 71	> 70	> 70	> 71	> 70	> 71	67	> 71	69	> 69
	6	> 96	> 70	> 44	> 71	> 70	> 70	70	> 70	69	> 70	69	69
	7	89	63	69	> 70	> 70	> 70	> 69	> 70	> 71	> 70	68	> 70
	8	> 91	> 65	63	> 69	> 70	> 70	> 70	69	> 70	> 70	70	> 69
	9	> 91	> 66	63	> 64	> 69	68	> 70	69	> 69	70	70	> 71
	10	91	> 65	> 65	> 65	> 64	> 70	68	> 68	> 71	> 70	> 71	70
	0	1	2	3	4	5	6	7	8	9	10		
Harmonic LO Order													

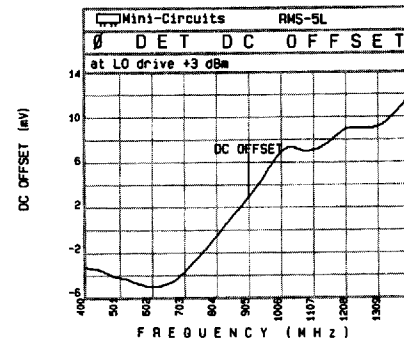
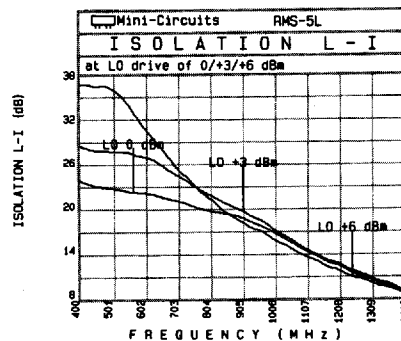
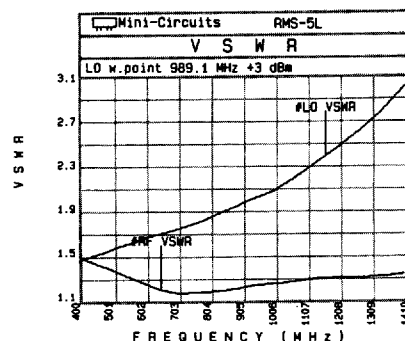
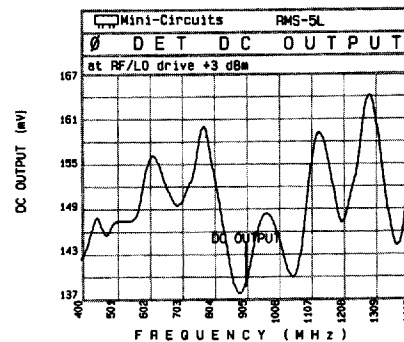
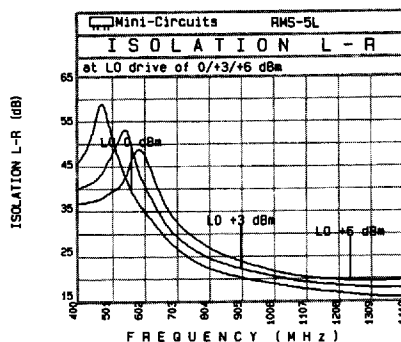
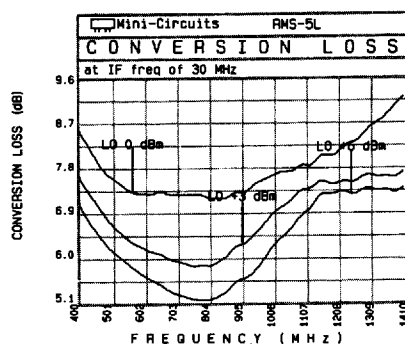
RF CAL													
RF ORDER HARMONIC	0	-	-	1	13	20	29	38	56	57	60	67	60
	1	-	10	0	19	32	31	39	52	61	64	58	51
	2	85	33	27	30	26	44	54	42	52	63	63	63
	3	94	50	50	37	48	40	54	48	53	58	65	62
	4	> 98	61	66	57	58	47	71	62	58	55	62	65
	5	95	> 79	75	77	72	56	61	59	72	65	59	67
	6	> 96	78	62	80	> 80	> 79	66	65	72	77	68	67
	7	88	> 75	> 79	> 79	80	> 80	79	78	71	74	> 79	78
	8	> 90	> 74	> 75	79	> 80	> 80	79	79	73	77	> 80	> 79
	9	> 92	> 75	71	> 75	> 80	79	79	> 82	> 80	79	> 80	> 81
	10	> 91	> 75	74	> 74	> 74	> 80	79	> 80	> 80	> 79	79	80
	0	1	2	3	4	5	6	7	8	9	10		
Harmonic LO Order													

test condition: RF IN: 910.10 MHz; -19.93 DBM
 LO IN: 940.01 MHz; +2.96 DBM
 IF OUT: 29.91 MHz; -26.16 DBM

test condition: RF IN: 910.10 MHz; -9.95 DBM
 LO IN: 940.01 MHz; +2.96 DBM
 IF OUT: 29.91 MHz; -16.00 DBM

typical performance curves

(production unit)



In Stock...Immediate Delivery