

Frequency Mixers

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

Models

TUF-3
TUF-3SM

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 + 4 dBm	LO + 7 dBm	LO + 10 dBm	LO + 4 dBm	LO + 7 dBm	LO + 10 dBm	LO + 4 dBm	LO + 7 dBm	LO + 10 dBm
0.150	30.150	5.84	5.60	5.46	82.59	77.37	74.58	60.69	63.67	66.98
0.200	30.200	5.75	5.52	5.39	83.04	77.64	74.35	60.44	63.64	66.75
0.300	30.300	5.69	5.47	5.33	82.49	77.00	74.12	60.19	63.40	66.52
0.500	30.500	5.64	5.41	5.28	81.86	76.78	74.01	60.36	63.48	66.51
1.000	31.000	5.54	5.31	5.20	80.26	76.45	73.66	60.46	63.55	66.86
1.500	31.500	5.47	5.25	5.14	80.37	75.88	73.40	60.37	63.58	66.40
2.000	32.000	5.44	5.22	5.10	79.14	75.76	73.07	60.34	63.46	66.57
5.000	35.000	5.44	5.19	5.06	77.84	74.18	72.40	60.54	63.18	65.20
10.000	40.000	5.46	5.21	5.07	74.42	72.35	70.36	59.32	61.65	63.66
20.000	50.000	5.44	5.19	5.07	69.83	68.26	67.08	59.13	60.76	61.68
50.000	80.000	5.39	5.19	5.08	62.13	60.65	59.84	54.30	54.03	53.94
77.044	107.044	5.40	5.20	5.10	58.01	56.86	55.86	49.93	50.29	50.76
100.000	70.000	5.52	5.26	5.13	56.31	54.74	53.67	47.96	48.45	48.86
153.939	123.939	5.44	5.27	5.18	53.29	50.70	49.21	44.86	45.02	44.64
200.000	170.000	5.50	5.33	5.24	46.94	45.62	45.07	44.33	43.77	42.57
230.833	200.833	5.58	5.38	5.26	47.41	46.53	47.19	42.19	41.53	40.76
300.000	270.000	5.79	5.57	5.45	50.32	49.67	45.53	41.24	37.33	34.73
369.242	339.242	6.25	5.94	5.74	50.19	48.35	38.52	45.32	36.42	32.36
384.621	354.621	6.31	5.93	5.68	44.96	48.35	42.68	39.40	33.54	29.97
400.000	370.000	6.44	5.93	5.62	45.50	56.18	47.40	36.15	32.89	29.89

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 + 4 dBm	LO + 7 dBm	LO + 10 dBm	LO + 4 dBm	LO + 7 dBm	LO + 10 dBm	LO + 4 dBm	LO + 7 dBm	LO + 10 dBm			
5.000	1.27	1.21	1.22	1.81	2.60	3.64	1.67	1.41	1.23	0.150	243.74	-0.02
10.000	1.19	1.09	1.07	1.71	2.50	3.52	1.68	1.41	1.23	0.200	244.51	-0.02
20.000	1.20	1.07	1.03	1.57	2.32	3.27	1.69	1.43	1.24	0.300	245.19	-0.03
50.000	1.21	1.08	1.02	1.52	2.26	3.18	1.71	1.45	1.27	0.500	245.83	-0.03
65.557	1.21	1.08	1.02	1.51	2.24	3.17	1.73	1.46	1.29	1.000	247.57	-0.01
90.029	1.21	1.09	1.02	1.51	2.22	3.13	1.76	1.49	1.32	1.500	247.54	-0.02
100.000	1.21	1.09	1.02	1.50	2.21	3.10	1.77	1.51	1.34	2.000	247.08	-0.04
130.814	1.20	1.08	1.03	1.51	2.19	3.05	1.82	1.56	1.40	5.000	246.13	-0.03
163.443	1.20	1.08	1.02	1.52	2.17	2.98	1.88	1.63	1.48	10.000	243.89	-0.03
200.000	1.19	1.07	1.04	1.56	2.18	2.97	1.96	1.72	1.57	20.000	242.18	-0.01
204.229	1.19	1.07	1.04	1.57	2.18	2.97	1.98	1.73	1.57	50.000	256.04	-0.01
212.386	1.19	1.07	1.03	1.57	2.19	2.97	2.00	1.74	1.59	77.044	258.28	0.01
236.857	1.17	1.06	1.03	1.60	2.20	2.96	2.06	1.80	1.65	100.000	262.95	0.06
269.486	1.19	1.09	1.03	1.67	2.26	3.00	2.11	1.87	1.72	153.939	244.26	0.13
300.000	1.18	1.09	1.03	1.71	2.33	3.12	2.18	1.93	1.76	200.000	245.72	0.27
326.586	1.22	1.14	1.08	1.76	2.35	3.13	2.20	1.96	1.80	230.833	258.58	0.10
359.214	1.27	1.19	1.14	1.84	2.39	3.14	2.24	2.02	1.85	300.000	237.32	0.09
375.529	1.32	1.25	1.21	1.89	2.41	3.14	2.15	1.94	1.78	369.242	224.13	-0.05
391.843	1.39	1.31	1.28	1.95	2.45	3.15	2.20	1.99	1.82	384.621	226.89	0.29
400.000	1.40	1.32	1.29	1.98	2.49	3.18	2.21	2.01	1.83	400.000	227.14	0.78



Distribution Centers/NORTH AMERICA 800-654-7949 417-335-5935 Fax 417-335-5945 EUROPE 44-252-835094 Fax 44-252-837010

0.15 to 400 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	-	-	15	25	15	32	17	37	22	48	29	46
	1	-	14	+0	27	11	31	18	41	29	42	39	41
	2	96	66	53	71	54	66	55	73	61	68	52	74
	3	> 96	66	63	65	64	66	58	75	58	67	61	75
	4	96	75	> 75	> 77	75	75	> 76	> 76	> 76	74	> 77	75
	5	> 96	> 76	75	> 76	> 77	> 76	> 76	> 77	75	> 77	> 76	> 76
	6	94	> 76	> 56	> 76	> 76	> 76	> 76	> 76	> 77	75	75	> 76
	7	95	> 76	> 77	> 76	> 76	75	> 77	> 77	> 76	> 77	75	> 76
	8	> 96	> 76	> 76	75	> 76	> 76	75	76	> 76	> 76	> 76	75
	9	> 96	75	72	> 76	> 77	> 76	> 76	75	> 74	> 76	> 77	> 76
	10	95	> 76	> 76	> 76	72	> 75	> 76	> 76	> 76	> 77	75	> 76
		0	1	2	3	4	5	6	7	8	9	10	
Harmonic LO Order													

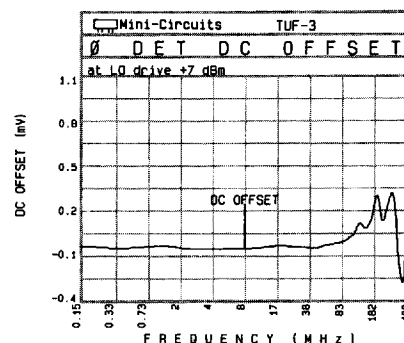
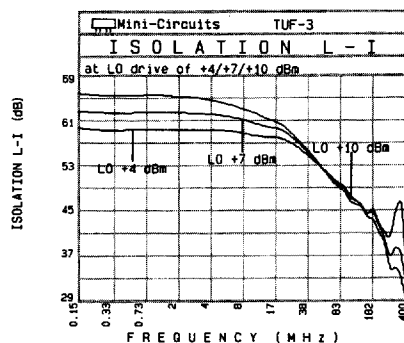
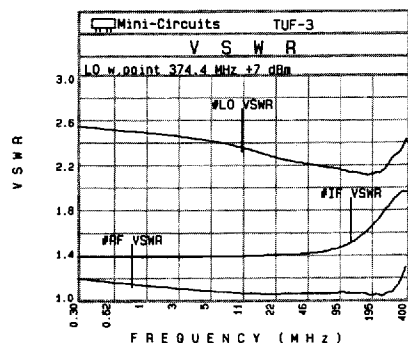
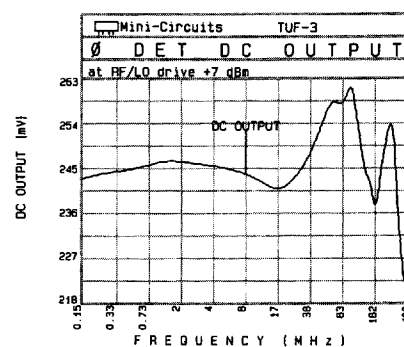
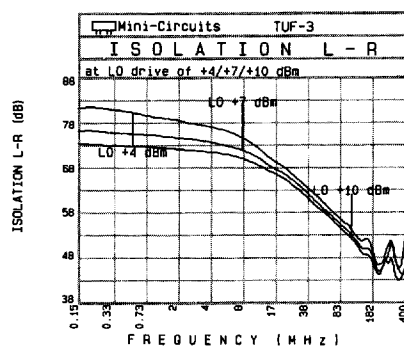
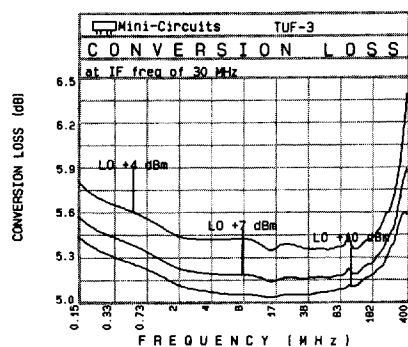
test condition: RF IN: 185.10 MHz; -15.08 DBM
LO IN: 155.01 MHz; +7.07 DBM
IF OUT: 30.09 MHz; -20.13 DBM

RF CAL													
RF ORDER HARMONIC	0	-	-	26	33	25	43	27	48	36	60	45	59
	1	-	14	+0	27	11	33	18	39	29	46	41	47
	2	81	64	54	77	54	68	57	80	69	58	46	71
	3	95	51	46	49	49	54	50	54	50	54	56	57
	4	> 96	70	60	69	61	74	64	71	66	73	70	79
	5	> 96	75	64	66	68	69	59	64	55	66	53	68
	6	> 96	> 86	> 76	85	78	81	74	81	75	82	74	78
	7	96	83	85	81	75	83	69	79	73	80	72	80
	8	93	> 86	> 86	> 86	> 86	85	> 86	85	> 86	86	85	> 86
	9	> 95	83	> 85	> 86	> 86	> 86	82	82	80	83	80	81
	10	> 96	> 87	> 85	85	> 85	> 86	> 86	> 86	85	> 86	> 86	85
	0	1	2	3	4	5	6	7	8	9	10		
Harmonic LO Order													

test condition: RF IN: 185.10 MHz; -4.99 DBM
LO IN: 155.01 MHz; +7.07 DBM
IF OUT: 30.09 MHz; -10.07 DBM

typical performance curves

(production unit)



In Stock...Immediate Delivery