

Frequency Mixers

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

Models

TFM-5
TSM-5

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) LO			Isolation L-R (dB) LO			Isolation L-I (dB) LO		
		+ 4 dBm	+ 7 dBm	+ 10 dBm	+ 4 dBm	+ 7 dBm	+ 10 dBm	+ 4 dBm	+ 7 dBm	+ 10 dBm
5.000	35.000	7.34	6.85	6.66	64.17	64.43	64.40	68.87	68.03	67.20
10.000	40.000	7.18	6.72	6.54	62.80	62.97	62.64	64.30	63.27	62.24
20.000	50.000	7.21	6.72	6.56	61.05	61.20	60.90	60.45	59.10	57.87
50.000	80.000	7.26	6.78	6.59	56.25	56.26	56.27	53.37	52.02	50.94
100.000	70.000	7.19	6.73	6.55	51.44	51.61	51.66	47.98	46.56	45.40
149.677	119.677	7.13	6.66	6.48	48.59	48.85	48.96	45.14	43.67	42.84
200.000	170.000	6.97	6.55	6.44	46.18	46.50	46.66	42.63	41.59	40.88
294.355	264.355	6.79	6.45	6.36	43.36	43.79	43.77	40.03	39.07	38.18
439.032	409.032	6.67	6.37	6.28	40.49	40.94	40.99	36.09	35.50	34.82
500.000	470.000	6.67	6.37	6.29	39.43	39.83	39.78	34.67	34.23	33.50
583.710	553.710	6.66	6.39	6.31	37.97	38.25	38.66	32.62	32.42	32.40
728.387	698.387	6.90	6.62	6.55	37.93	38.35	38.55	29.85	30.32	30.37
750.000	720.000	6.99	6.71	6.62	37.93	38.31	38.41	29.42	30.01	30.25
873.065	843.065	7.63	7.17	6.90	36.59	36.81	36.75	27.49	27.56	27.60
1000.000	970.000	7.94	7.24	6.78	35.14	35.43	35.15	25.91	26.60	27.07
1017.742	987.742	7.99	7.30	6.79	34.96	35.41	35.28	25.52	26.40	26.98
1162.419	1132.419	8.56	7.47	6.96	33.03	33.52	33.88	23.46	24.70	26.08
1307.097	1277.097	8.89	7.96	7.35	32.61	33.37	34.03	21.91	23.40	25.14
1451.774	1421.774	9.23	8.45	7.93	32.56	33.96	34.75	22.49	24.78	26.81
1500.000	1470.000	9.22	8.50	7.98	32.87	34.28	35.09	23.23	25.75	27.73

mixer VSWR

φ detection

FREQ. (MHz)	VSWR RF port			VSWR LO port			VSWR IF port			FREQ. (MHz)	max DC output mV	DC offset mV
	+ 4 dBm	+ 7 dBm	+ 10 dBm	+ 4 dBm	+ 7 dBm	+ 10 dBm	+ 4 dBm	+ 7 dBm	+ 10 dBm			
5.000	1.49	1.58	1.65	1.86	2.54	3.50	1.50	1.31	1.17	5.000	-222.66	0.28
10.000	1.42	1.53	1.60	1.74	2.45	3.32	1.51	1.31	1.18	10.000	-222.67	0.28
20.000	1.40	1.51	1.58	1.77	2.54	3.44	1.51	1.31	1.18	20.000	-220.72	0.28
50.000	1.41	1.51	1.58	1.72	2.42	3.26	1.51	1.32	1.19	50.000	-232.00	0.31
100.000	1.40	1.49	1.57	1.73	2.39	3.21	1.56	1.37	1.24	100.000	-224.70	0.33
149.677	1.39	1.47	1.54	1.73	2.39	3.22	1.63	1.43	1.31	149.677	-227.68	0.34
200.000	1.37	1.45	1.52	1.69	2.36	3.14	1.72	1.52	1.39	200.000	-247.26	0.34
294.355	1.35	1.41	1.47	1.68	2.33	3.06	1.92	1.71	1.57	294.355	-244.77	0.38
439.032	1.35	1.36	1.39	1.71	2.23	2.78	2.22	1.99	1.85	439.032	-255.70	0.85
500.000	1.35	1.34	1.36	1.79	2.25	2.80	2.34	2.11	1.96	500.000	-224.65	0.82
583.710	1.35	1.32	1.32	1.90	2.25	2.79	2.50	2.25	2.10	583.710	-223.35	1.09
728.387	1.33	1.27	1.26	1.94	2.40	3.00	2.72	2.43	2.25	728.387	-227.74	1.44
750.000	1.33	1.26	1.25	1.97	2.43	3.02	2.77	2.47	2.28	750.000	-219.12	1.33
873.065	1.33	1.23	1.21	2.01	2.32	2.75	2.86	2.54	2.31	873.065	-203.66	1.40
1000.000	1.42	1.29	1.28	2.04	2.25	2.55	2.91	2.57	2.33	1000.000	-178.88	1.53
1017.742	1.44	1.30	1.30	2.03	2.23	2.53	2.91	2.57	2.32	1017.742	-177.35	1.90
1162.419	1.73	1.46	1.47	2.09	2.24	2.48	2.75	2.44	2.24	1162.419	-174.30	1.73
1307.097	1.99	1.60	1.60	1.87	1.91	2.06	2.50	2.24	2.08	1307.097	-178.51	2.27
1451.774	2.23	1.67	1.72	1.55	1.54	1.68	2.27	2.05	1.92	1451.774	-181.34	0.69
1500.000	2.33	1.73	1.78	1.56	1.55	1.69	2.19	2.00	1.89	1500.000	-190.31	-1.72



5 to 1500 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	-	-	7	22	14	32	26	47	34	43	30	39
1	-	21	0	27	13	32	17	37	37	50	57	45	
2	96	74	54	65	52	72	52	69	57	74	64	> 75	
3	> 96	66	65	68	65	70	62	69	61	72	73	> 75	
4	93	74	75	> 76	> 76	75	> 76	> 77	> 76	> 74	> 75	> 74	
5	> 95	> 75	> 76	> 76	> 77	> 75	> 76	> 76	75	> 76	> 75	74	
6	> 95	74	> 75	75	> 76	75	> 76	> 77	73	76	> 76	> 75	
7	> 97	> 77	74	> 74	> 75	75	> 75	> 76	> 76	> 76	> 76	72	
8	> 96	75	> 75	74	> 75	> 76	> 76	75	> 76	> 76	> 76	76	
9	> 96	74	> 76	> 77	> 74	> 75	> 75	> 76	> 76	> 76	> 77	> 76	
10	> 96	> 76	> 76	> 76	> 75	74	> 75	> 75	> 76	75	> 77	> 76	
		0	1	2	3	4	5	6	7	8	9	10	
LO HARMONICS ORDER													

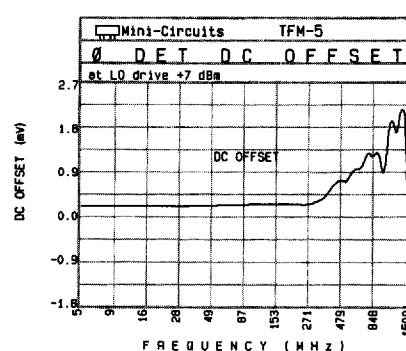
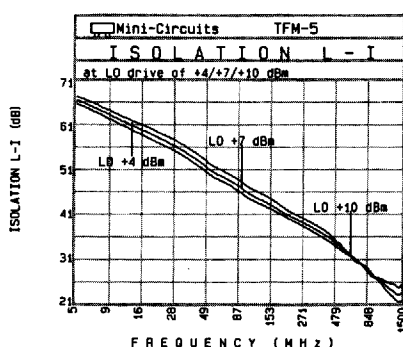
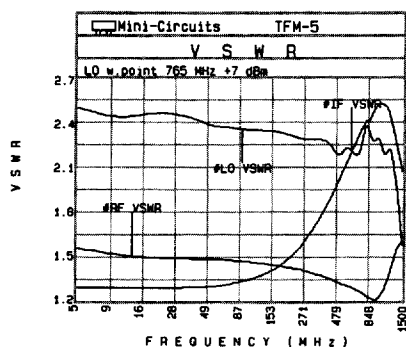
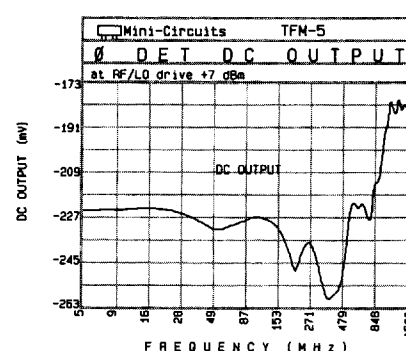
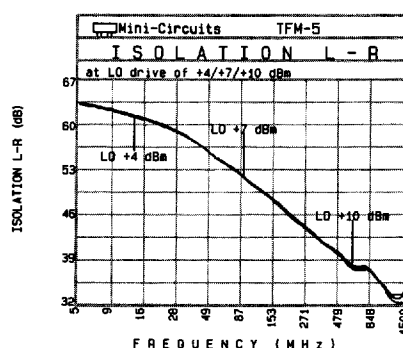
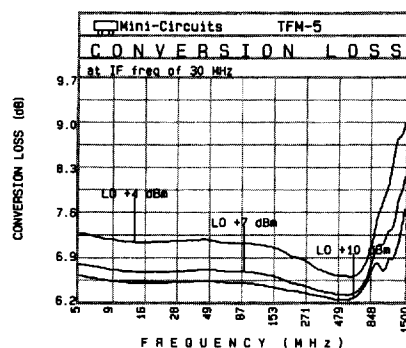
test condition RF IN: 500.10 MHz; -13.99 DBM
LO IN: 470.01 MHz; +7.02 DBM
IF OUT: 30.09 MHz; -20.34 DBM

RF CAL														
RF ORDER HARMONIC	0	-	-	17	36	26	41	37	59	48	57	45	56	
	1	-	21	0	29	13	32	18	39	37	58	55	55	
	2	82	64	47	57	46	69	46	61	52	76	61	70	
	3	95	50	45	52	46	50	44	55	42	55	63	66	
	4	94	78	71	80	66	77	64	73	61	72	64	78	
	5	95	74	75	72	64	72	59	75	57	68	57	78	
	6	94	> 84	84	> 85	> 85	> 86	> 86	85	81	83	75	82	
	7	> 96	> 86	> 86	> 85	> 84	82	82	> 86	82	84	81	80	82
	8	> 95	> 86	> 87	> 85	> 84	> 84	82	> 85	> 86	> 86	> 86	> 87	
	9	> 96	> 85	81	> 86	85	> 85	81	> 86	> 86	> 86	85	> 87	
	10	> 96	> 86	> 86	> 85	> 86	> 86	> 84	81	> 85	> 87	> 86	> 86	
	0	1	2	3	4	5	6	7	8	9	10			
LO HARMONICS ORDER														

test condition RF IN: 500.10 MHz; -3.92 DBM
LO IN: 470.01 MHz; +7.02 DBM
IF OUT: 30.09 MHz; -10.23 DBM

typical performance curves

(production unit)



In Stock...Immediate Delivery