

Frequency Multiplier (Doublers)

ZX90-2-13-S+

Typical Performance Data

Frequency (MHz)				RF IN = 4dBm			
				Conversion Loss (dB)	Harmonic Output* (-dBc)		
X1 Output	X2 Output	X3 Output	X4 Output	X2 Output	X1 Output	X3 Output	X4 Output
10	20	30	40	11.11	59.15	71.19	15.25
12	24	36	48	11.11	59.13	80.11	15.26
14	28	42	56	11.05	57.87	78.65	15.27
15	30	45	60	11.08	56.79	75.26	15.30
17	34	51	68	11.04	56.14	76.86	15.28
19	38	57	76	10.99	55.21	76.15	15.28
21	42	63	84	11.02	54.38	75.25	15.27
30	60	90	120	11.12	49.42	63.71	15.14
35	70	105	140	11.04	50.01	71.18	15.20
40	80	120	160	11.06	48.92	70.05	15.18
45	90	135	180	11.05	47.95	68.75	15.22
50	100	150	200	10.98	47.15	67.89	15.27
55	110	165	220	10.95	46.47	66.97	15.28
60	120	180	240	10.85	45.80	66.24	15.26
64	128	192	256	10.88	45.23	65.54	15.26
68	136	204	272	10.89	44.74	64.77	15.25
80	160	240	320	11.25	43.16	51.34	15.29
90	180	270	360	11.25	43.12	61.64	15.31
100	200	300	400	11.32	41.98	60.02	15.28
110	220	330	440	11.29	41.16	59.26	15.23
120	240	360	480	11.06	40.53	59.35	15.09
130	260	390	520	11.26	39.78	59.29	15.05
140	280	420	560	11.05	39.23	59.78	14.92
143	285	428	570	11.03	39.08	59.92	14.91
145	290	435	580	11.02	38.96	59.93	14.81
170	340	510	680	11.06	37.29	56.33	15.01
186	372	558	744	11.07	36.50	55.57	15.17
202	404	606	808	11.12	35.80	53.75	15.27
218	436	654	872	10.95	35.29	50.73	15.65
234	468	702	936	11.06	34.83	49.46	15.93
250	500	750	1000	10.90	34.28	47.86	16.20
260	520	780	1040	10.90	33.89	46.95	16.50
270	540	810	1080	10.90	33.53	46.33	16.52
280	560	840	1120	11.06	30.69	40.28	16.46
324	648	972	1296	11.02	31.54	45.33	17.68
368	736	1104	1472	10.99	29.85	41.65	18.38
412	824	1236	1648	10.98	28.44	39.69	19.06
456	912	1368	1824	11.01	27.96	38.89	20.42
500	1000	1500	2000	11.37	27.17	40.48	20.75

*Harmonic Output below power level of X2 Output .



P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 • Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site



The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

IF/RF MICROWAVE COMPONENTS

REV. OR

ZX90-2-13-S+

1/3/2019

Page 1 of 2

Frequency Multiplier (Doublers)

ZX90-2-13-S+

Typical Performance Data

Frequency (MHz)				RF IN = 10dBm			
				Conversion Loss (dB)	Harmonic Output* (-dBc)		
X1 Output	X2 Output	X3 Output	X4 Output	X2 Output	X1 Output	X3 Output	X4 Output
10	20	30	40	11.95	46.31	48.75	22.22
12	24	36	48	11.97	58.24	77.56	22.07
14	28	42	56	11.87	57.08	76.03	22.67
15	30	45	60	11.99	55.73	70.81	22.00
17	34	51	68	11.97	55.37	73.44	22.41
19	38	57	76	11.90	54.53	72.71	22.84
21	42	63	84	11.93	53.82	71.85	22.76
30	60	90	120	11.91	47.59	56.55	22.33
35	70	105	140	11.79	49.72	67.27	22.85
40	80	120	160	11.83	48.64	66.36	23.15
45	90	135	180	11.84	47.67	65.30	23.40
50	100	150	200	11.91	46.95	64.56	23.38
55	110	165	220	11.86	46.13	63.68	23.67
60	120	180	240	11.72	45.41	63.06	24.02
64	128	192	256	11.75	44.81	62.56	24.06
68	136	204	272	11.77	44.24	62.01	24.07
80	160	240	320	11.25	43.16	51.34	15.29
90	180	270	360	11.25	43.12	61.64	15.31
100	200	300	400	11.32	41.98	60.02	15.28
110	220	330	440	11.29	41.16	59.26	15.23
120	240	360	480	11.06	40.53	59.35	15.09
130	260	390	520	11.26	39.78	59.29	15.05
140	280	420	560	11.05	39.23	59.78	14.92
143	285	428	570	11.03	39.08	59.92	14.91
145	290	435	580	11.02	38.96	59.93	14.81
170	340	510	680	12.18	37.07	53.41	19.35
186	372	558	744	12.18	36.27	49.55	19.34
202	404	606	808	12.07	35.68	46.78	20.87
218	436	654	872	11.68	35.20	44.84	23.42
234	468	702	936	11.84	34.81	44.13	25.71
250	500	750	1000	11.55	34.18	43.20	29.69
260	520	780	1040	11.60	33.80	42.59	32.25
270	540	810	1080	11.66	33.41	42.26	34.00
280	560	840	1120	11.78	29.14	33.99	31.13
324	648	972	1296	11.91	31.64	40.13	49.34
368	736	1104	1472	12.20	29.85	38.92	35.96
412	824	1236	1648	12.26	28.93	37.04	36.98
456	912	1368	1824	12.27	28.12	36.56	36.58
500	1000	1500	2000	12.51	28.32	35.15	29.11

*Harmonic Output below power level of X2 Output .



P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 • Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site



The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

IF/RF MICROWAVE COMPONENTS

REV. OR
ZX90-2-13-S+
1/3/2019
Page 2 of 2