

# X2 Frequency Multiplier

50Ω Output 20 to 1000 MHz

## ZX90-2-13+



CASE STYLE: JA1242

Connectors Model  
SMA ZX90-2-13-S+

### Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Input Power, 25°C	23 dBm

Permanent damage may occur if any of these limits are exceeded.

### Coaxial Connections

INPUT	1
OUTPUT	2

### Features

- broadband
- low conversion loss, 11 dB typ.
- rugged construction
- protected by US Patent 6,790,049

### Applications

- synthesizers
- local oscillators

### +RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

### Electrical Specifications

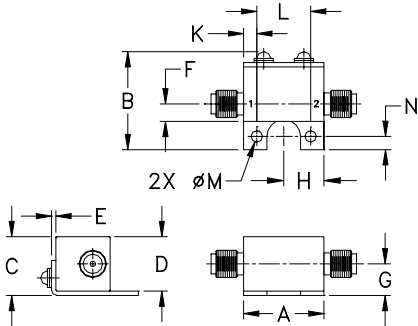
MULTIPLICATION FACTOR	FREQUENCY (MHz)		INPUT POWER (dBm)		CONVERSION LOSS (dB)	*HARMONIC OUTPUT (dBC)			
	F1 Input	F2 Output	Min.	Max.		F1 Typ.	F3 Typ.	F4 Typ.	
2	10-500	20-1000	4	10	Typ. 11.0	Max. 14.5	F1 45	F3 21	F4 25

\* Harmonics of input frequency below the power level of F2

### Typical Performance Data

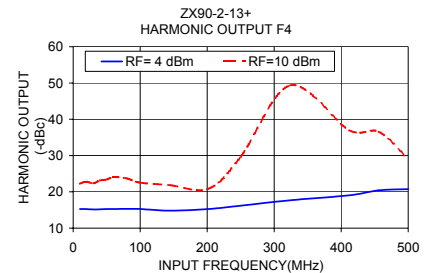
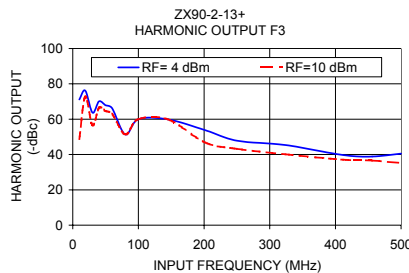
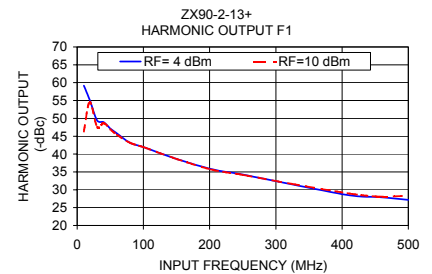
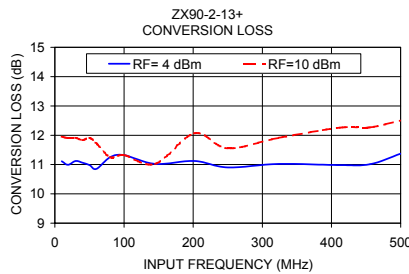
Input Frequency (MHz)	INPUT RF=4dBm			INPUT RF=10 dBm				
	Conversion Loss (dB)	Harmonic Output Below F2 (-dBc)		Conversion Loss (dB)	Harmonic Output Below F2 (-dBc)			
		F1	F3	F4	F1	F3	F4	
10.00	11.11	59.15	71.19	15.25	11.95	46.31	48.75	22.22
19.00	10.99	55.21	76.15	15.28	11.90	54.53	72.71	22.84
30.00	11.12	49.42	63.71	15.14	11.91	47.59	56.55	22.33
40.00	11.06	48.92	70.05	15.18	11.83	48.64	66.36	23.15
50.00	10.98	47.15	67.89	15.27	11.91	46.95	64.56	23.38
60.00	10.85	45.80	66.24	15.26	11.72	45.41	63.06	24.02
80.00	11.25	43.16	51.34	15.29	11.25	43.16	51.34	23.72
100.00	11.32	41.98	60.02	15.28	11.32	41.98	60.02	22.55
145.00	11.02	38.96	59.93	14.81	11.02	38.96	59.93	21.84
202.00	11.12	35.80	53.75	15.27	12.07	35.68	46.78	20.87
250.00	10.90	34.28	47.86	16.20	11.55	34.18	43.20	29.69
324.00	11.02	31.54	45.33	17.68	11.91	31.64	40.13	49.34
412.00	10.98	28.44	39.69	19.06	12.26	28.93	37.04	36.98
456.00	11.01	27.96	38.89	20.42	12.27	28.12	36.56	36.58
500.00	11.37	27.17	40.48	20.75	12.51	28.32	35.15	29.11

### Outline Drawing



### Outline Dimensions (inch/mm)

A	B	C	D	E	F	G
.74	.90	.54	.50	.04	.16	.29
18.80	22.86	13.72	12.70	1.02	4.06	7.37
H	J	K	L	M	N	wt
.37	--	.122	.496	.106	.122	grams
9.40	--	3.10	12.60	2.69	3.10	19.0



### Notes

A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.  
 B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.  
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