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# X3 Frequency Multiplier ZXF90-3-223-K+

50Ω Output 10 to 22 GHz SMA-Female to 2.92 mm-Male

## KEY FEATURES

- Wideband Output, 10 to 22 GHz
- Wide Input Power Range, +12 to +18 dBm
- Low Conversion Loss, 17 dB Typ.
- Good Fundamental and Harmonic Suppression
  - F1: 55 dBc Typ.
  - F2: 50 dBc Typ.
  - F4: 35 dBc Typ.

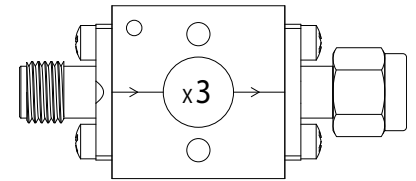


Generic photo used for illustration purposes only

## APPLICATIONS

- Satellite Communications, X-, Ku-, Ka-Band
- Test and Measurement Equipment
- Radar, EW, and ECM Defense Systems

## FUNCTIONAL DIAGRAM



## PRODUCT OVERVIEW

Mini-Circuits' ZXF90-3-223-K+ is a wideband frequency tripler utilizing MCLs' own GaAs HBT multiplier, CY3-223-DG+, converting input frequencies from 3.33 to 7.33 GHz into output frequencies from 10 to 22 GHz. Its wide output range makes this model suitable for broadband systems, as well as a wide variety of narrow-band applications. This multiplier is housed in a rugged, small form factor (0.7" x 0.7" x 0.37") connectorized housing, saving space in crowded layouts.

## ELECTRICAL SPECIFICATIONS<sup>1</sup> AT +25°C AND Z<sub>0</sub> = 50Ω, UNLESS NOTED OTHERWISE

Parameter	Input Frequency (GHz)	Output Frequency (GHz)	Min.	Typ.	Max.	Unit	
Multiplication Factor	-	-	3				
Frequency Range, Input (F1)	-	-	3.33	-	7.33	GHz	
Frequency Range, Output (F3)	-	-	10	-	22	GHz	
Input Power	-	-	+12	-	+18	dBm	
Conversion Loss (X3)	3.33 - 4	10 - 12	-	17.0	20.5	dB	
	4 - 6	12 - 18	-	16.5	19.5		
	6 - 7.33	18 - 22	-	18.0	21.5		
Harmonic Suppression <sup>2</sup>	F1	3.33 - 4	3.33 - 4	-	55.0	-	dBc
		4 - 6	4 - 6	-	60.0	-	
		6 - 7.33	6 - 7.33	-	45.0	-	
	F2	3.33 - 4	6.66 - 8	-	65.0	-	
		4 - 6	8 - 12	-	45.0	-	
		6 - 7.33	12 - 14.66	-	50.0	-	
	F4	3.33 - 4	13.32 - 16	-	25.0	-	
		4 - 6	16 - 24	-	35.0	-	
		6 - 7.33	24 - 29.32	-	45.0	-	

1. Measured with input power at +16 dBm.

2. Harmonics of input frequency below the power level of F3.





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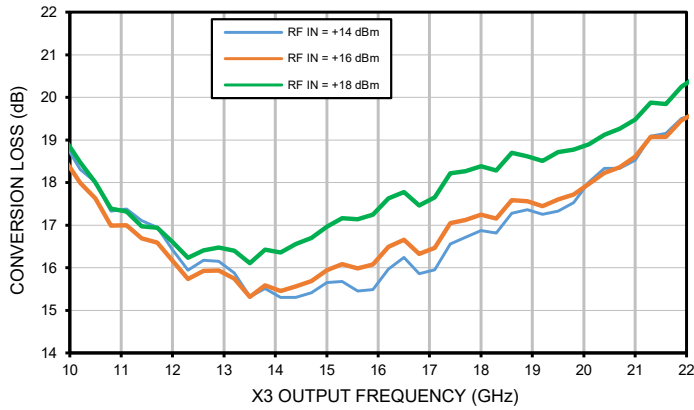
# X3 Frequency Multiplier ZXF90-3-223-K+



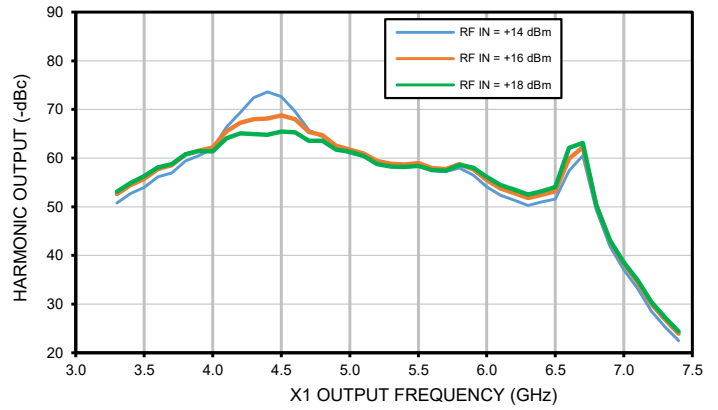
50Ω Output 10 to 22 GHz SMA-Female to 2.92 mm-Male

## TYPICAL PERFORMANCE CURVES

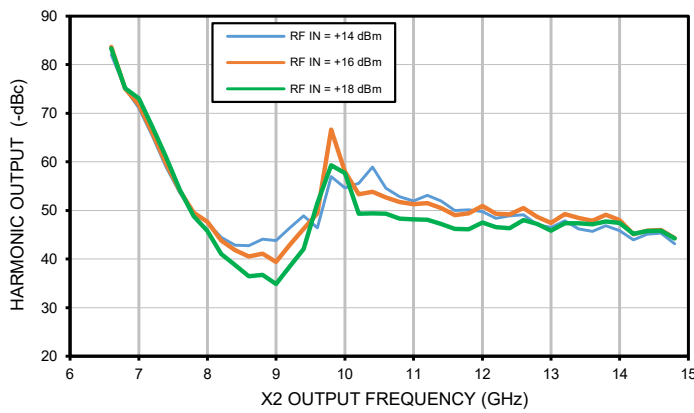
### CONVERSION LOSS X3 OUTPUT



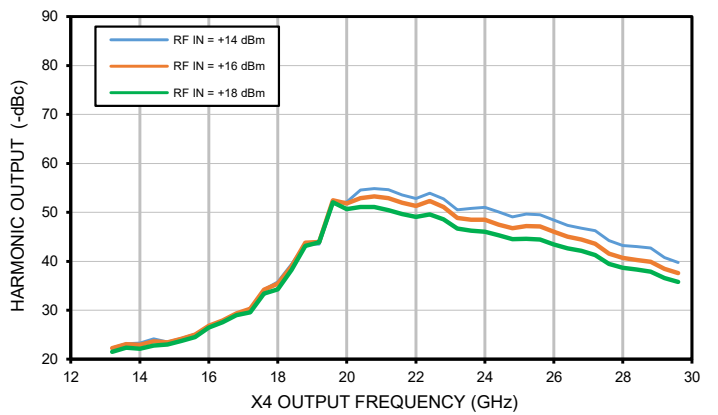
### HARMONIC X1 OUTPUT



### HARMONIC X2 OUTPUT



### HARMONIC X4 OUTPUT





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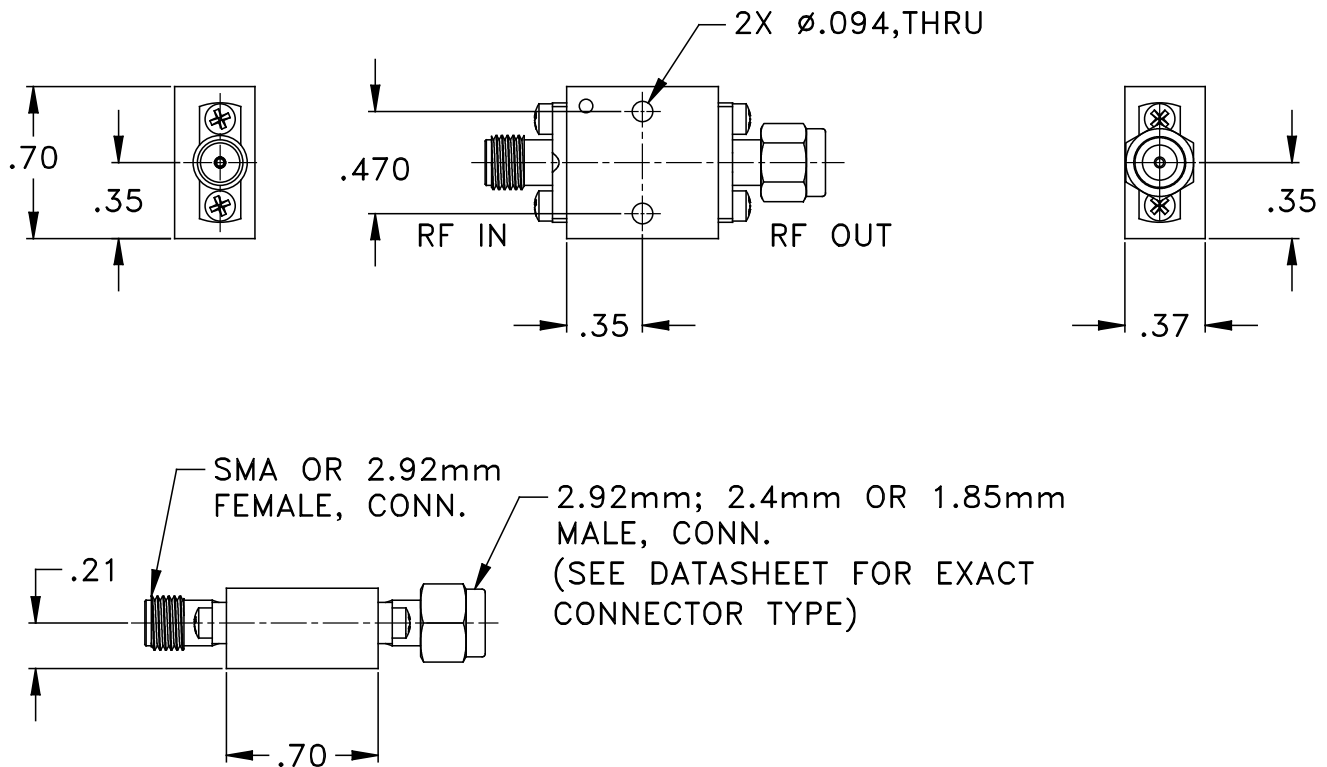
50Ω Output 10 to 22 GHz SMA-Female to 2.92 mm-Male

### ABSOLUTE MAXIMUM RATINGS<sup>3</sup>

Parameter	Ratings
Operating Temperature	-40°C to +85°C Baseplate
Storage Temperature	-40°C to +85°C
RF Input Power	+19 dBm

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

### CASE STYLE DRAWING



Weight: 14.0 grams

Dimensions are in inches [mm]. Tolerances: 2 Pl. + .03; 3 Pl. + .015 Inches





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## ADDITIONAL INFORMATION IS AVAILABLE ON OUR DASHBOARD

Performance Data & Graphs	Data
	Graphs
RoHS Status	Compliant
Environmental Ratings	ENV131
Export Information	EAR99

## ORDERING INFORMATION

Model No. Links	<a href="#">ZXF90-3-223-K+</a>
Product Marking	ZXF90-3- 223-K+
Case Style	UK3641
Connector	SMA-Female to 2.92 mm-Male

### 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.
- C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the standard terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at [www.minicircuits.com/terms/viewterm.html](http://www.minicircuits.com/terms/viewterm.html)

