



## COAXIAL

# X3 Frequency Multiplier ZXF90-3-64-E+

50Ω Output 30 to 60 GHz 2.92 mm-Female to 1.85 mm-Male

### KEY FEATURES

- Wideband Output, 30 to 60 GHz
- Wide Input Power Range, +12 to +19 dBm
- Low Conversion Loss, 21 dB Typ.
- Good Fundamental and Harmonic Suppression
  - F1: 35 dBc Typ.
  - F2: 40 dBc Typ.
  - F4: 40 dBc Typ.

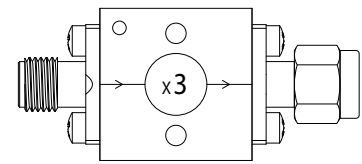


Generic photo used for illustration purposes only

### APPLICATIONS

- 5G MIMO and Back Haul Radio Systems
- Satellite Communications
- Test and Measurement Equipment
- Radar, EW, and ECM Defense Systems

### FUNCTIONAL DIAGRAM



### PRODUCT OVERVIEW

Mini-Circuits' ZXF90-3-64-E+ is a wideband frequency tripler utilizing MCL's own GaAs HBT multiplier, CY3-64-DG+, converting input frequencies from 10 to 20 GHz into output frequencies from 30 to 60 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)		-	-	10	-	20	GHz
Frequency Range, Output (F3)		-	-	30	-	60	GHz
Input Power		-	-	+12	-	+19	dBm
Conversion Loss (X3)		10 - 15	30 - 45	-	18.5	22.0	dB
		15 - 18	45 - 54	-	20.5	24.0	
		18 - 20	54 - 60	-	22.5	26.0	
Harmonic Suppression <sup>2</sup>	F1	10 - 15	10 - 15	-	40.0	-	dBc
		15 - 18	15 - 18	-	32.0	-	
		18 - 20	18 - 20	-	25.0	-	
	F2	10 - 15	20 - 30	-	48.0	-	
		15 - 18	30 - 36	-	35.0	-	
		18 - 20	36 - 40	-	26.0	-	
	F4	10 - 15	40 - 60	-	40.0	-	
		15 - 18	60 - 72	-	40.0	-	
		18 - 20	72 - 80	-	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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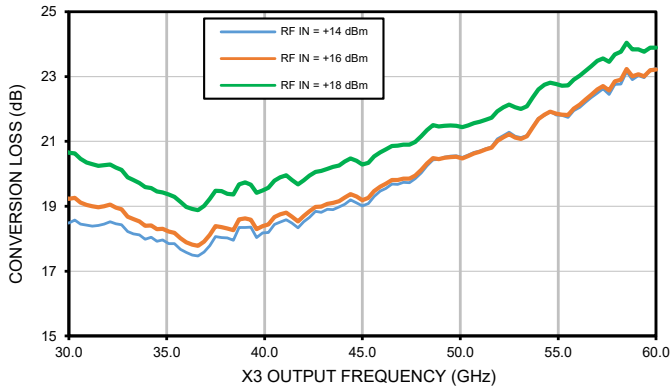
# X3 Frequency Multiplier ZXF90-3-64-E+



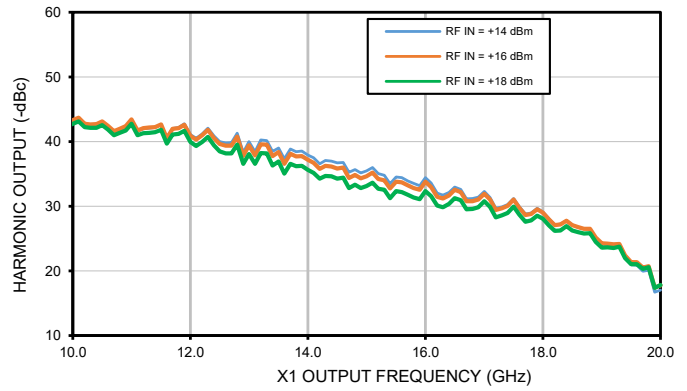
50Ω Output 30 to 60 GHz 2.92 mm-Female to 1.85 mm-Male

## TYPICAL PERFORMANCE CURVES

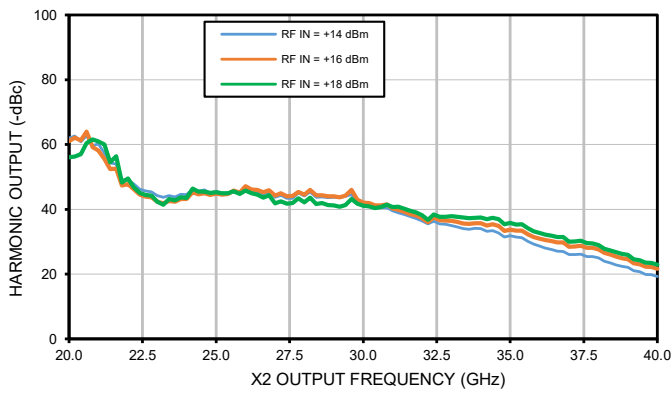
CONVERSION LOSS X3 OUTPUT



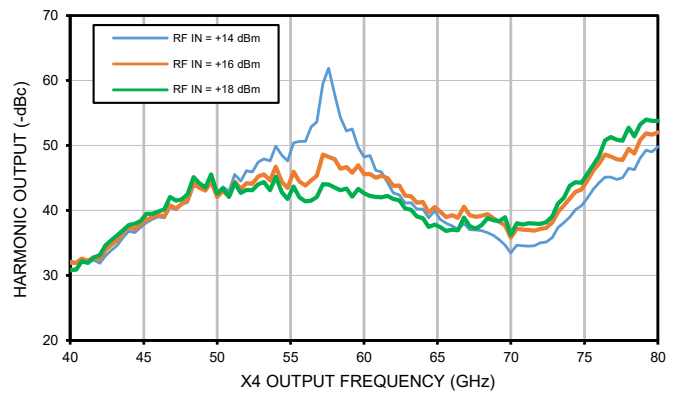
HARMONIC X1 OUTPUT



HARMONIC X2 OUTPUT



HARMONIC X4 OUTPUT





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# X3 Frequency Multiplier ZXF90-3-64-E+



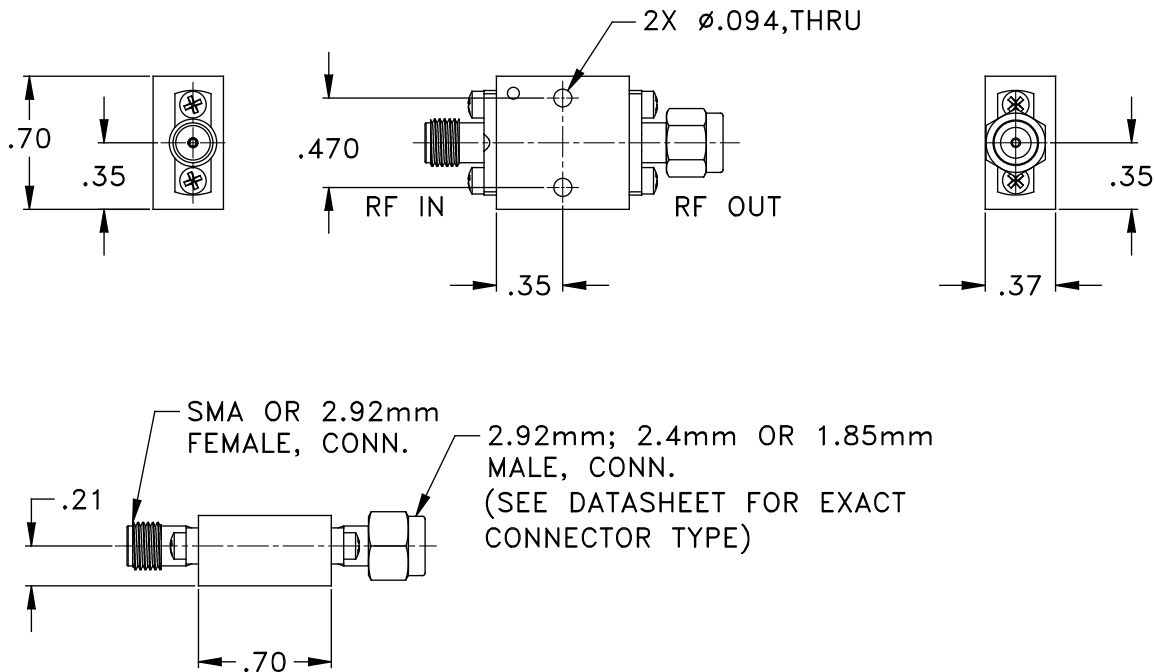
50Ω Output 30 to 60 GHz 2.92 mm-Female to 1.85 mm-Male

### 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	+22 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="#">ZXF90-3-64-E+</a>
Product Marking	ZXF90-3-64-E+
Case Style	UK3641
Connector	2.92 mm-Female to 1.85 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-Circuits' 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)

