

# X2 Frequency Multiplier

50Ω Output 140 to 3000 MHz

## FK-3000+



Generic photo used for illustration purposes only

CASE STYLE: H16

Connectors Model  
**SMA** FK-3000+  
**BRACKET (OPTION "B")**

**+RoHS Compliant**

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

### Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Input Power	200mW

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

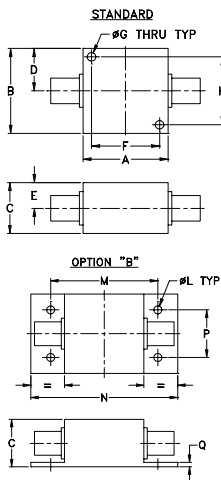
### Features

- wideband, 140 to 3000 MHz
- low insertion loss, 11 dB typ.
- rugged shielded case

### Applications

- synthesizers
- local oscillators

### Outline Drawing



### Outline Dimensions (Inch/mm)

A	B	C	D	E	F	G	H
1.25	1.25	.75	.63	.38	1.000	.125	1.000
31.75	31.75	19.05	16.00	9.65	25.40	3.18	25.40

J	K	L	M	N	P	Q	wt
--	--	.125	1.688	2.18	.750	.06	grams
--	--	3.18	42.88	55.37	19.05	1.52	70.0

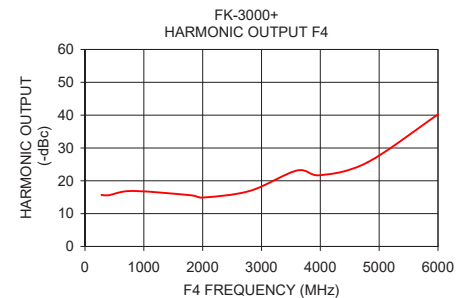
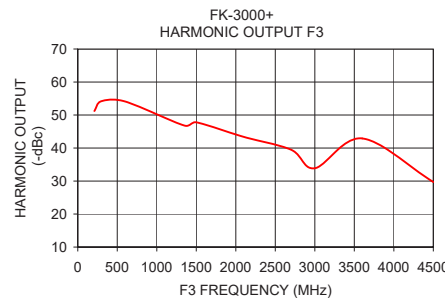
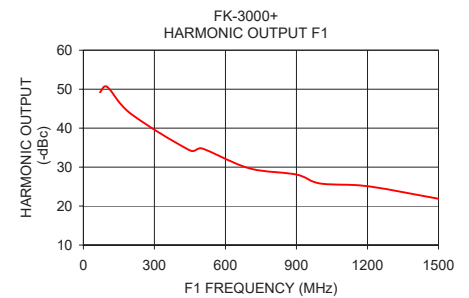
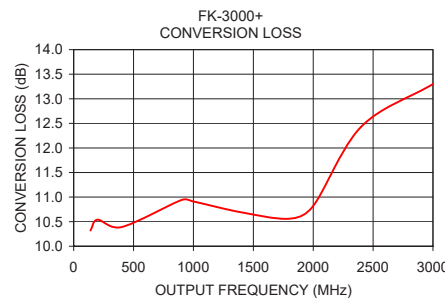
### Electrical Specifications

MULTIPLICATION FACTOR	FREQUENCY (MHz)		INPUT POWER (dBm)		CONVERSION LOSS (dB)		*HARMONIC OUTPUT (dBc)					
	F1 Input	F2 Output	Min.	Max.	Typ.	Max.	F1		F3		F4	
2	70-1000	140-2000	12	15	11.0	14.0	31	20	40	25	15	10
	1000-1500	2000-3000	12	15	12.0	17.5	22	15	30	20	30	14

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

### Typical Performance Data

Input Frequency (MHz)	Conversion Loss (dB) F2	Harmonic Output (-dBc)		
		F1	F3	F4
70.00	10.32	49.20	51.20	15.70
100.00	10.54	50.60	54.20	15.60
200.00	10.39	43.70	54.10	16.90
450.00	10.94	34.30	46.80	15.60
500.00	10.91	34.80	47.80	14.90
700.00	10.69	29.70	43.40	16.90
900.00	10.56	28.10	39.50	23.10
1000.00	10.82	25.80	33.90	21.70
1200.00	12.43	25.10	42.90	25.60
1500.00	13.30	21.90	29.70	40.20



### Notes

- 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.
- 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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# Frequency Multiplier (Doublers)

# FK-3000+

## Typical Performance Data

FREQUENCY (MHz)				CONVERSION LOSS (dB)	HARMONIC OUTPUT*		
X 1 OUTPUT	X 2 OUTPUT	X 3 OUTPUT	X 4 OUTPUT		X 2 OUTPUT	X 1 OUTPUT	X 3 OUTPUT
70	140	210	280	10.32	49.20	51.20	15.70
100	200	300	400	10.54	50.60	54.20	15.60
200	400	600	800	10.39	43.70	54.10	16.90
450	900	1350	1800	10.94	34.30	46.80	15.60
500	1000	1500	2000	10.91	34.80	47.80	14.90
700	1400	2100	2800	10.69	29.70	43.40	16.90
900	1800	2700	3600	10.56	28.10	39.50	23.10
1000	2000	3000	4000	10.82	25.80	33.90	21.70
1200	2400	3600	4800	12.43	25.10	42.90	25.60
1500	3000	4500	6000	13.30	21.90	29.70	40.20

\*Harmonic Output below power level of X 2 Output .

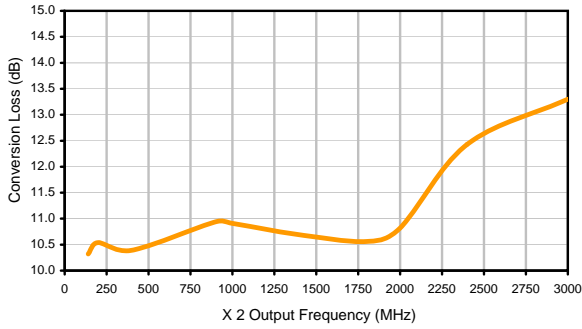


# Frequency Multiplier (Doublers)

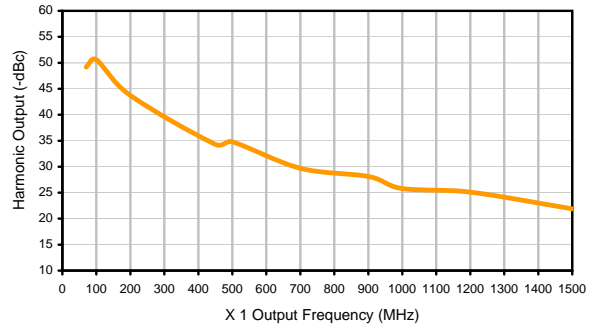
# FK-3000+

## Typical Performance Curves

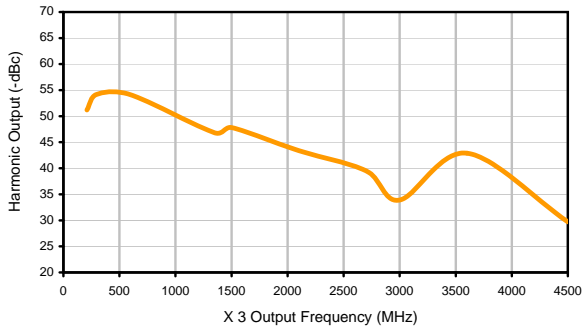
### Conversion Loss X 2 Output



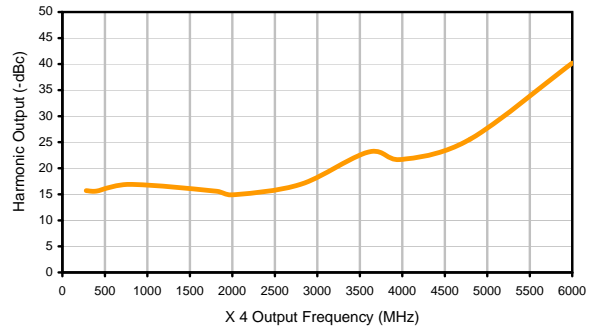
### Harmonic X 1 Output



### Harmonic X 3 Output



### Harmonic X 4 Output

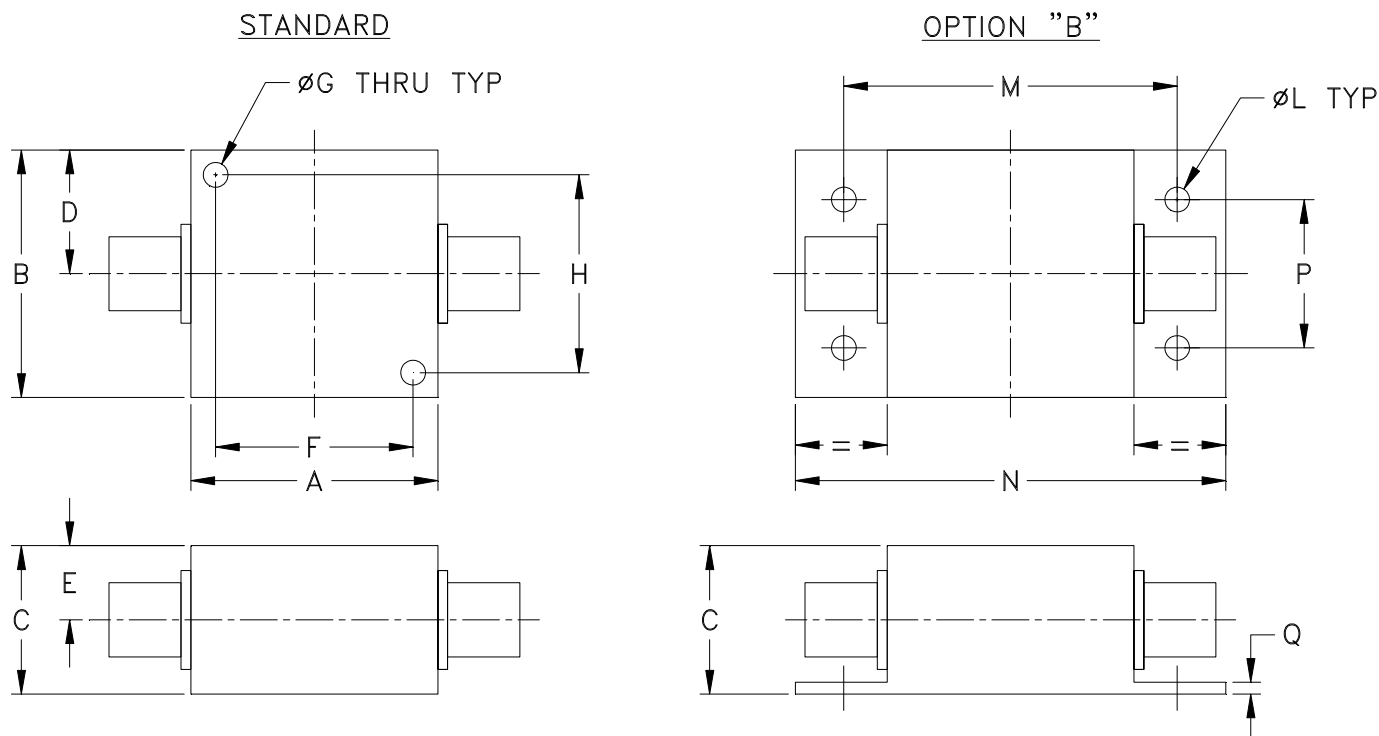


# Case Style

# H

## Outline Dimensions

### H16



CASE#	A	B	C	D	E	F	G	H	J	K	L	M	N
H16	1.25 (31.75)	1.25 (31.75)	.750 (19.05)	.63 (16.00)	.38 (9.65)	1.000 (25.40)	.125 (3.18)	1.000 (25.40)	--	--	.125 (3.18)	1.688 (42.88)	2.18 (55.37)

CASE#	P	Q	WT.GRAMS
H16	.750 (19.05)	.06 (1.52)	70

Dimensions are in inches (mm). Tolerances: 2PL. ± .03; 3PL. ± .015

### Notes:

1. Case material: Aluminum alloy.
2. Case finish:  
For RoHS Case Styles: Clear chemical conversion coating, non-chrome or trivalent chrome based.
3. Mounting bracket available on request. Add suffix B to part number.
4. Bracket version, option B, dimension "C" changes from .75 to .94 inches when connectors are type N.
5. Refer to the individual model data sheet for the type of connectors available.

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RF/IF MICROWAVE COMPONENTS



All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

<b>Specification</b>	<b>Test/Inspection Condition</b>	<b>Reference/Spec</b>
Operating Temperature	-55° to 100°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Barometric Pressure	100,000 Feet	MIL-STD-202, Method 105, Condition D
Humidity	90% RH, 65°C Units may require bake-out after humidity to restore full performance.	MIL-STD-202, Method 103
Thermal Shock	-65° to 125°C, 5 cycles	MIL-STD-202, Method 107, Condition B
Vibration (High Frequency)	20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36)	MIL-STD-202, Method 204, Condition D
Mechanical Shock	100g, 6ms sawtooth, 3 shocks each direction 3 axes (total 18)	MIL-STD-202, Method 213, Condition I