



COAXIAL REFLECTIONLESS

# Bandpass Filters

## ZXBF SERIES

50Ω 2 to 21 GHz

### THE BIG DEAL

- Patented design terminates Stopband signals
- Stopband up to 40 GHz
- High Stopband rejection, up to 60 dB



### PRODUCT OVERVIEW

Mini-Circuits' ZXBF Series reflectionless filters employs a novel filter topology which absorbs and terminates stop band signals internally rather than reflecting them back to the source. Reflectionless filters eliminate stopband reflections, allowing them to be paired with sensitive devices and used in applications that otherwise require circuits such as isolation amplifiers or attenuators. This is developed in a new broadband, stable connectorized package.

### KEY FEATURES

Feature	Advantages
Easy integration with sensitive reflective components, e.g. mixers, multipliers	Reflectionless filters absorb unwanted signals, preventing reflections back to the source. This reduces generation of additional unwanted signals without the need for extra components like attenuators, improving system dynamic range.
Cascadable	Reflectionless filters can be cascaded in multiple sections to provide sharper and higher attenuation, while also preventing any standing waves that could affect pass band signals.
Excellent stability over temperature	Minimal variation in electrical performance across temperature.
Operating temperature up to 105 °C	Suitable for operation close to high power components.
Broadband connectorized package	The connectorized package works well even in high frequencies and easy to interface with other devices. This is well suited for test setups.

REV. OR  
ECO-012169  
ZXBF-K183+  
EDU3921  
URJ  
220307





COAXIAL REFLECTIONLESS

# Bandpass Filter

## ZXBF-K183+

50Ω 17.5 to 18.5 GHz

### FEATURES

- Match to 50Ω in the stop band, eliminates undesired reflections
- Cascadable
- Good stopband rejection, 47dB typ.
- Temperature stable, up to 105°C
- Protected by US Patents 8,392,495; 9,705,467, additional patent pending
- Protected by China Patent 201080014266.1
- Protected by Taiwan Patent I581494



Generic photo used for illustration purposes only

Model No.	ZXBF-K183+
Case Style	UK3042
Connectors	2.92mm-F

### APPLICATIONS

- Telecomm
- Microwave Point-to-Point Links

**+RoHS Compliant**

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

### ELECTRICAL SPECIFICATIONS AT 25°C

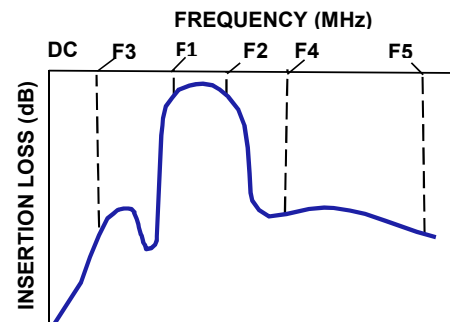
Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Units	
Passband	Insertion Loss	F1-F2	17500 - 18500	—	5.2	6.5	dB
	Return Loss	F1-F2	17500 - 18500	—	12.7	—	dB
Stop Band, Lower	Insertion Loss	DC-F3	DC - 9000	43	51	—	dB
	Return Loss	DC-F3	DC - 9000	—	20	—	dB
Stop Band, Upper	Insertion Loss	F4-F5	27000 - 32000	30	47	—	dB
	Return Loss	F4-F5	27000 - 32000	—	8.5	—	dB

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

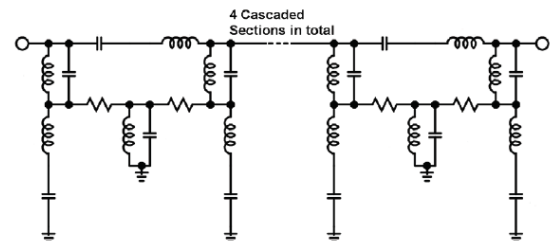
Parameter	Ratings
Operating temperature	-55°C to +105°C
Storage temperature	-55°C to +105°C
RF Power Input, Passband (F1-F2) <sup>1</sup>	0.5W at 25°C
RF Power Input, Stopband (DC-F1, F2-F5) <sup>2</sup>	0.16W at 25°C

1. Passband rating derates linearly to 0.25W at 105°C ambient
2. Stopband rating derates linearly to 0.08W at 105°C ambient
3. Permanent damage may occur if any of these limits are exceeded

### TYPICAL FREQUENCY RESPONSE



### FUNCTIONAL SCHEMATIC

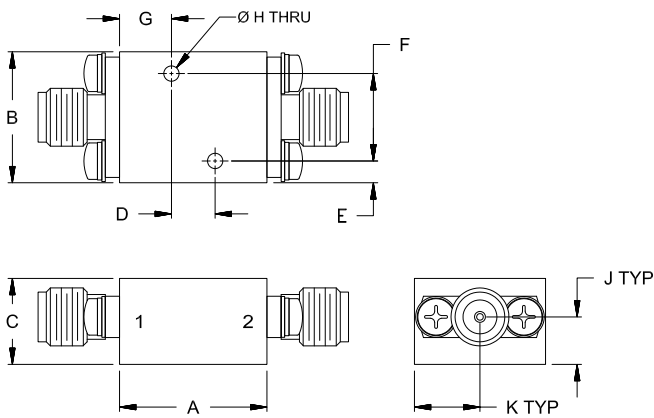




### COAXIAL CONNECTIONS

PORT 1	2.92mm-Female
PORT 2	2.92mm-Female

### OUTLINE DRAWING



### OUTLINE DIMENSIONS (Inches/mm)

A	B	C	D	E	F
.68	.60	.39	.200	.10	.400
17.1	15.2	10.0	5.08	2.5	10.16
G	H	J	K	Wt.	
.24	.070	.22	.30	grams	
6.0	1.78	5.5	7.6	<b>24</b>	

Note. Please refer to case style drawing for details

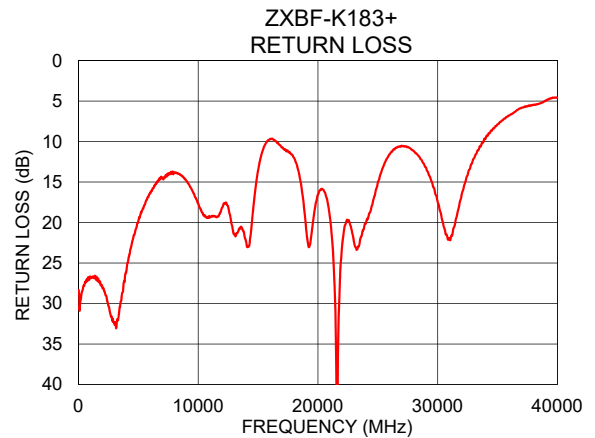
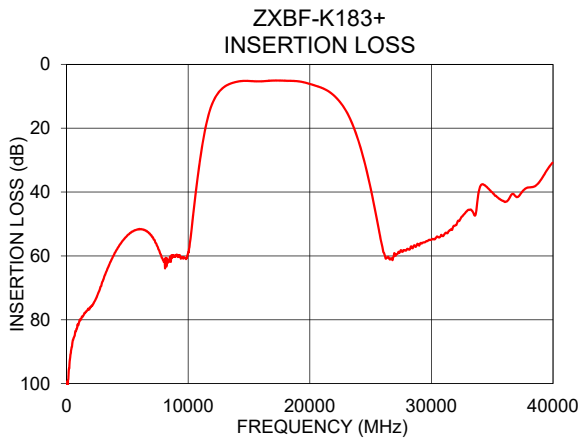
### ESD RATING

Human Body Model (HBM): Class 1C (Pass 1000V) in accordance with ANSI/ESD STM 5.1 - 2001



TYPICAL PERFORMANCE DATA AT 25°C

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)
25	101.62	28.33
500	86.79	27.70
5000	53.59	19.88
9000	60.02	14.83
10975	30.04	19.30
11400	20.41	19.21
17500	5.08	11.20
17700	5.09	11.43
18000	5.12	11.99
18500	5.18	14.59
23650	20.09	21.67
24475	30.25	18.05
27000	59.66	10.51
32000	50.35	16.58
40000	30.62	4.60



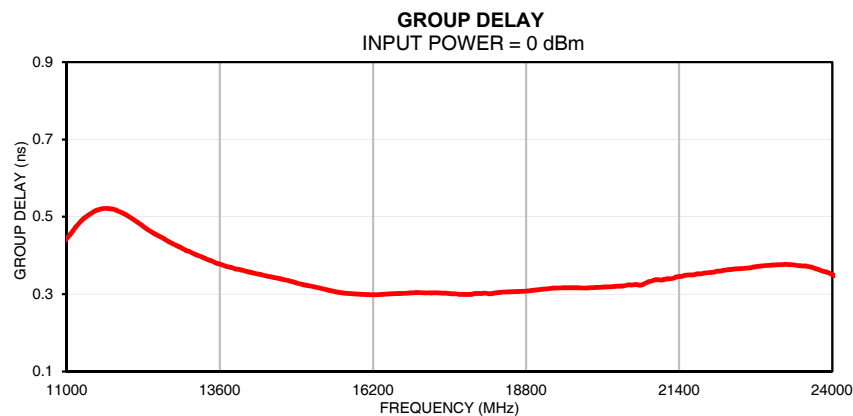
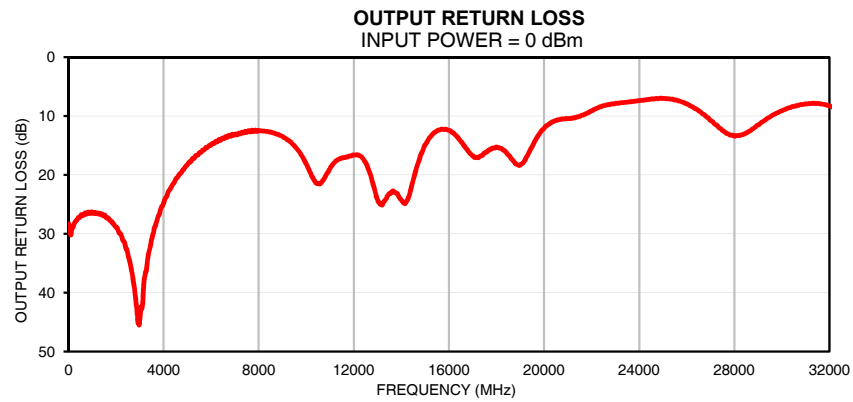
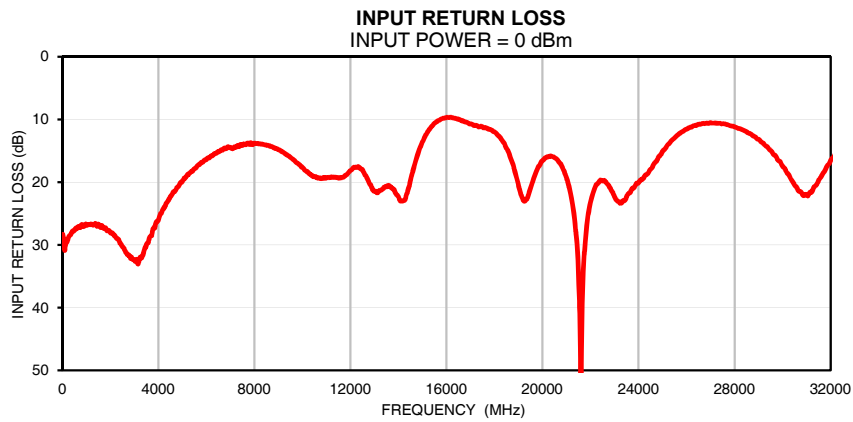
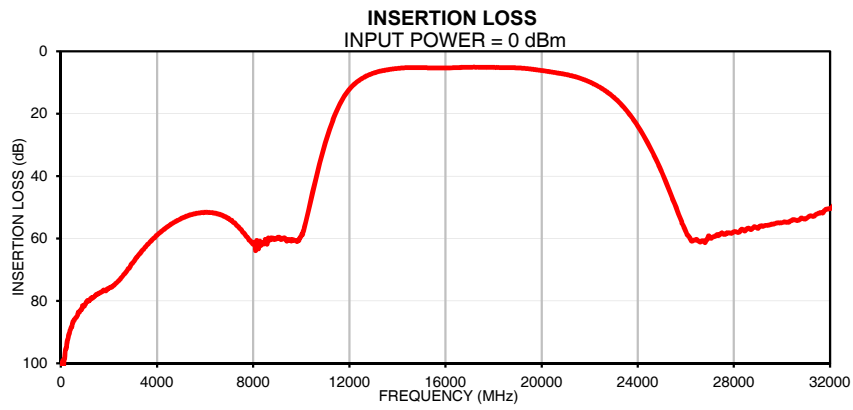
NOTES

- 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/MCLStore/terms.jsp](http://www.minicircuits.com/MCLStore/terms.jsp)

## Typical Performance Data

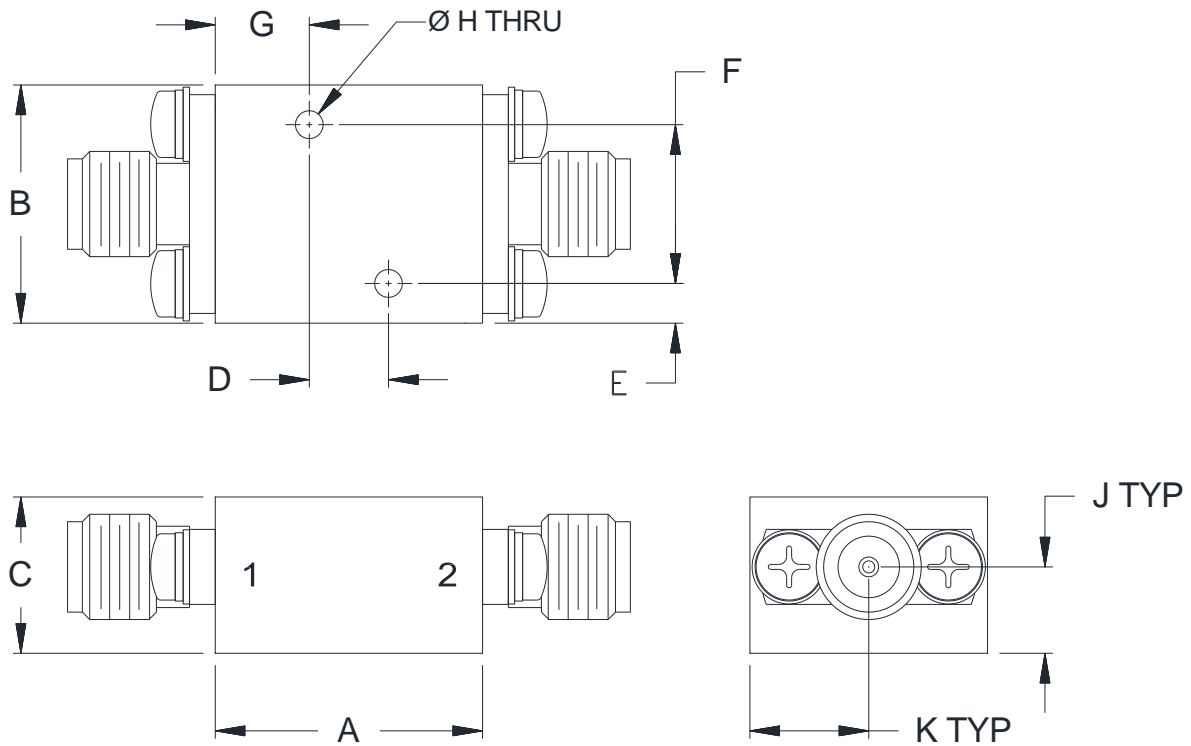
FREQ.	Insertion Loss	Input Return Loss	Output Return Loss	FREQ.	Group Delay
(MHz)	(dB)	(dB)	(dB)	(MHz)	(ns)
25	101.62	28.33	28.28	17250	0.30
50	106.17	28.81	28.72	17275	0.30
100	104.09	30.86	30.17	17300	0.30
200	95.31	29.49	28.82	17325	0.30
300	91.87	28.52	27.84	17350	0.30
500	86.79	27.70	27.09	17375	0.30
700	84.29	27.11	26.46	17400	0.30
1000	81.09	26.75	26.36	17425	0.30
1200	79.80	26.67	26.50	17450	0.30
1400	78.54	26.70	26.61	17475	0.30
1600	77.56	27.23	27.28	17500	0.30
1800	76.65	27.28	27.86	17525	0.30
2000	76.00	28.01	28.82	17550	0.30
2500	72.67	30.24	33.42	17575	0.30
3000	67.73	32.42	44.66	17600	0.30
3500	62.85	30.06	30.90	17625	0.30
4000	58.93	26.08	24.79	17650	0.30
4500	55.89	22.30	20.80	17675	0.30
5000	53.59	19.88	18.30	17700	0.30
5500	52.18	17.86	16.25	17725	0.30
6000	51.56	16.41	14.91	17750	0.30
6500	52.06	15.12	13.76	17775	0.30
7000	53.70	14.46	13.10	17800	0.30
7500	57.17	14.15	12.77	17825	0.30
8000	61.86	13.80	12.41	17850	0.30
8500	60.29	14.08	12.72	17875	0.30
9000	60.02	14.83	13.46	17900	0.30
10975	30.04	19.30	19.05	17925	0.30
11400	20.41	19.21	17.26	17950	0.30
12275	10.06	17.58	16.80	17975	0.30
17500	5.08	11.20	16.22	18000	0.30
17600	5.09	11.31	16.01	18025	0.30
17700	5.09	11.43	15.75	18050	0.30
17800	5.10	11.59	15.50	18075	0.30
18000	5.12	11.99	15.26	18100	0.30
18100	5.17	12.33	15.38	18125	0.30
18200	5.17	12.71	15.50	18150	0.30
18300	5.17	13.24	15.76	18175	0.30
18400	5.19	13.77	16.14	18200	0.30
18500	5.18	14.59	16.62	18225	0.30
22075	10.07	22.05	8.95	18250	0.30
23650	20.09	21.67	7.53	18275	0.30
24475	30.25	18.05	7.15	18300	0.30
25000	38.73	15.08	7.01	18325	0.30
25500	48.23	12.94	7.28	18350	0.30
26000	57.77	11.55	7.93	18375	0.30
26400	60.50	10.97	8.79	18400	0.31
26600	61.12	10.73	9.38	18425	0.31
26800	61.31	10.61	10.03	18450	0.31
27000	59.66	10.51	10.76	18475	0.31
27500	58.20	10.69	12.45	18500	0.31
28000	57.83	11.17	13.40	18525	0.31
28500	57.30	11.96	12.89	18550	0.31
29000	56.76	13.16	11.53	18575	0.31
29500	55.66	14.93	10.14	18600	0.31
30000	54.92	17.46	9.08	18625	0.31
30500	53.97	20.47	8.38	18650	0.31
31000	53.63	22.01	7.92	18675	0.31
31500	51.95	19.70	7.83	18700	0.31
32000	50.35	16.58	8.26	18725	0.31

## Typical Performance Curves



## Outline Dimensions

UK3042



CASE#	A	B	C	D	E	F
UK3042	.68 (17.1)	.60 (15.2)	.39 (10.0)	.200 (5.08)	.10 (2.5)	.400 (10.16)

CASE#	G	H	J	K	WT.GRAMS
UK3042	.24 (6.0)	.070 (1.78)	.22 (5.5)	.30 (7.6)	24

Dimensions are in inches (mm). Tolerances: 2 Pl.  $\pm .050$ ; 3 Pl.  $\pm .015$

### Notes:

1. Case material: Brass alloy.
2. Case Finish:
  - a. Case & Cover of the units –Gold plating.
3. Refer to the individual model data sheet for the type of connectors available.



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](http://www.minicircuits.com)

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 105°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 105°C Ambient Environment	Individual Model Data Sheet