

# Coaxial Reflectionless Low Pass Filter

## ZXLF Series

50Ω DC to 11 GHz



### The Big Deal

- Patented design terminates Stopband signals
- Stopband up to 35 GHz
- High Stopband rejection, up to 50 dB

### Product Overview

Mini-Circuits' ZXLF 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.

#### 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)



# Low Pass Filter

## ZXLF-K332+

50Ω DC to 3250 MHz



Generic photo used for illustration purposes only

CASE STYLE: UK3042  
Connectors Model  
2.92mm-F ZXLF-K332+

### Features

- Match to 50Ω in the stop band, eliminates undesired reflections
- Cascadable
- Temperature stable, up to 105°C
- Protected by US Patent No. 8,392,495

### Applications

- Telecomm
- 5G sub 6GHz

### Electrical Specifications at 25°C

Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit	
Pass Band	Insertion Loss	DC-F1	DC- 3250	-	1.8	2.5	dB
	Freq. Cut-Off	F2	4120	-	3.0	-	dB
	VSWR	DC-F1	DC- 3250	-	1.2	-	:1
Stop Band	Rejection	F3-F4	5900 - 17000	12	15	-	dB
		F4-F5	17000 - 25000	-	19	-	dB
	VSWR	F3-F4	5900 - 17000	-	1.2	-	:1
	F4-F5	17000 - 25000	-	2.0	-	:1	

### Absolute 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 (DC-F1) <sup>1</sup>	2W at 25°C
RF Power Input, Stopband (F2-F5) <sup>2</sup>	0.2W at 25°C

<sup>1</sup> Passband rating derates linearly to 1W at 105°C ambient

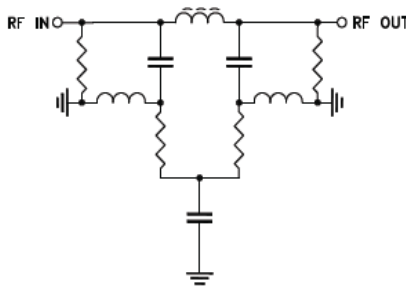
<sup>2</sup> Stopband rating derates linearly to 0.1W at 105°C ambient

<sup>3</sup> Permanent damage may occur if any of these limits are exceeded

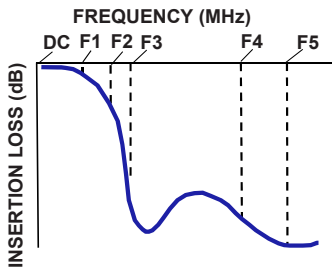
### ESD rating

Human body model (HBM): Class 1A (250 to <500V) in accordance with ANSI/ESD 5.1-2001

### Functional Schematic



### Typical Frequency Response

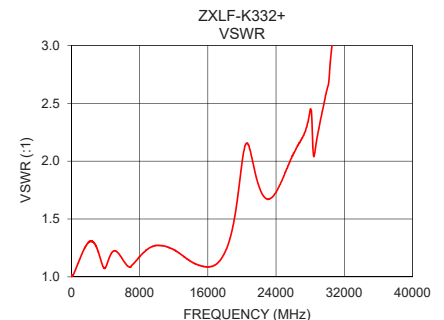
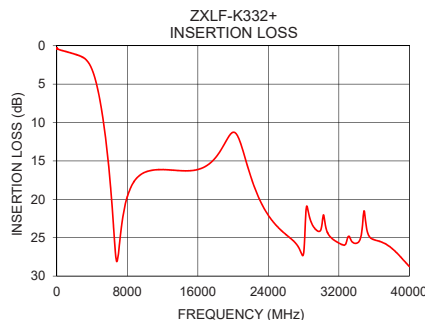


### Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)
1	0.42	1.01
10	0.36	1.01
100	0.40	1.01
150	0.45	1.01
220	0.48	1.02
310	0.52	1.03
370	0.54	1.04
500	0.59	1.06
1000	0.75	1.16
2000	1.08	1.30
3250	1.75	1.20
4120	3.46	1.10
5000	7.80	1.22
5900	15.85	1.16
10000	16.48	1.27
12000	16.14	1.24
17000	15.62	1.11
20000	11.26	1.98
25000	23.54	1.89
40000	28.75	5.36

### +RoHS Compliant

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



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## Coaxial Connections

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

## Outline Drawing



## Outline Dimensions (inch/mm)

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

Note: Please refer to case style drawing for details

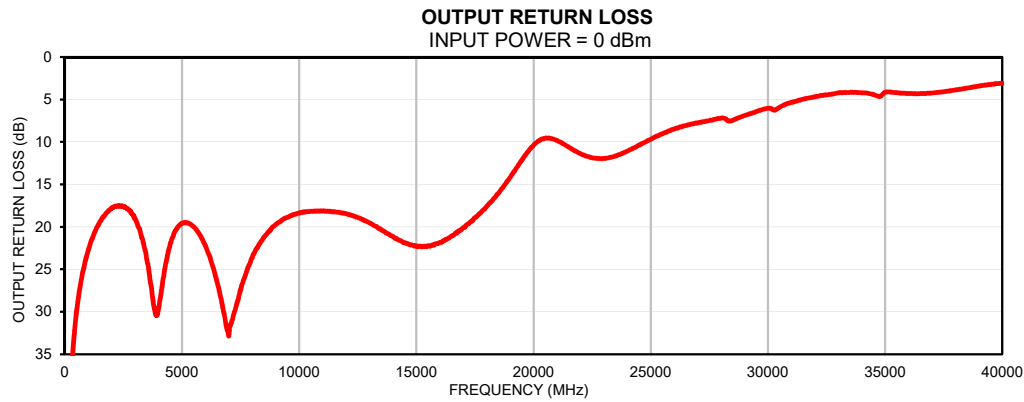
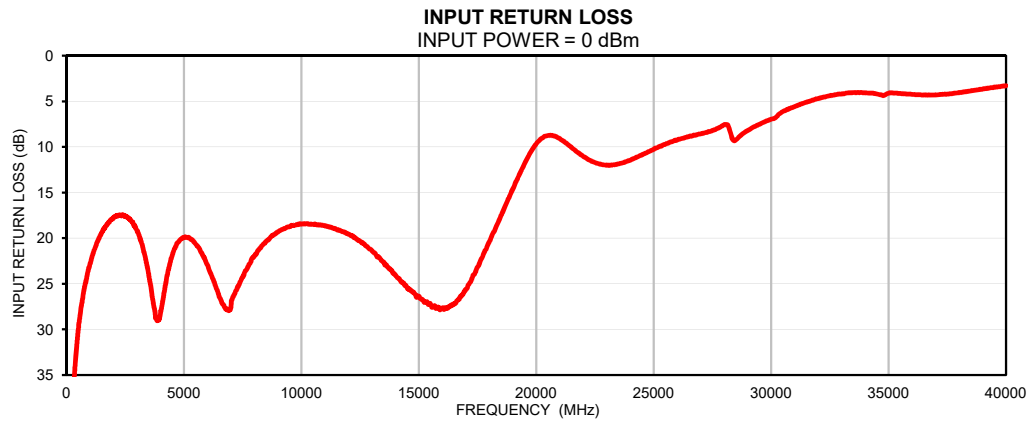
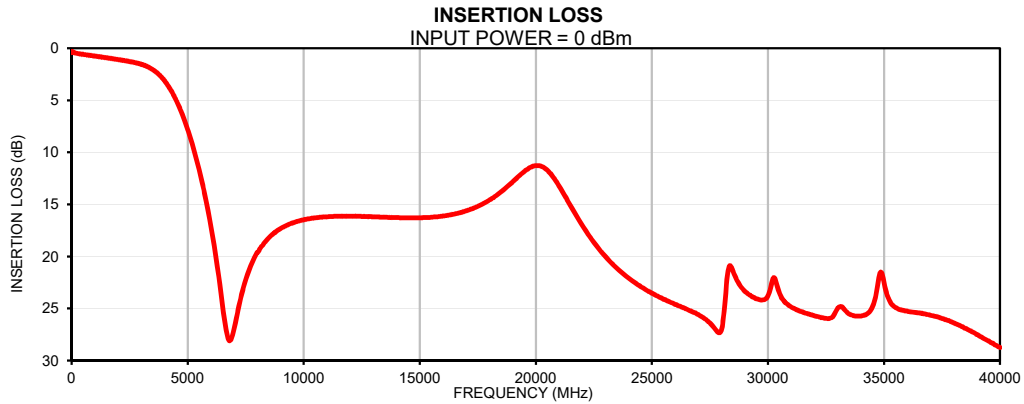
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## Typical Performance Data

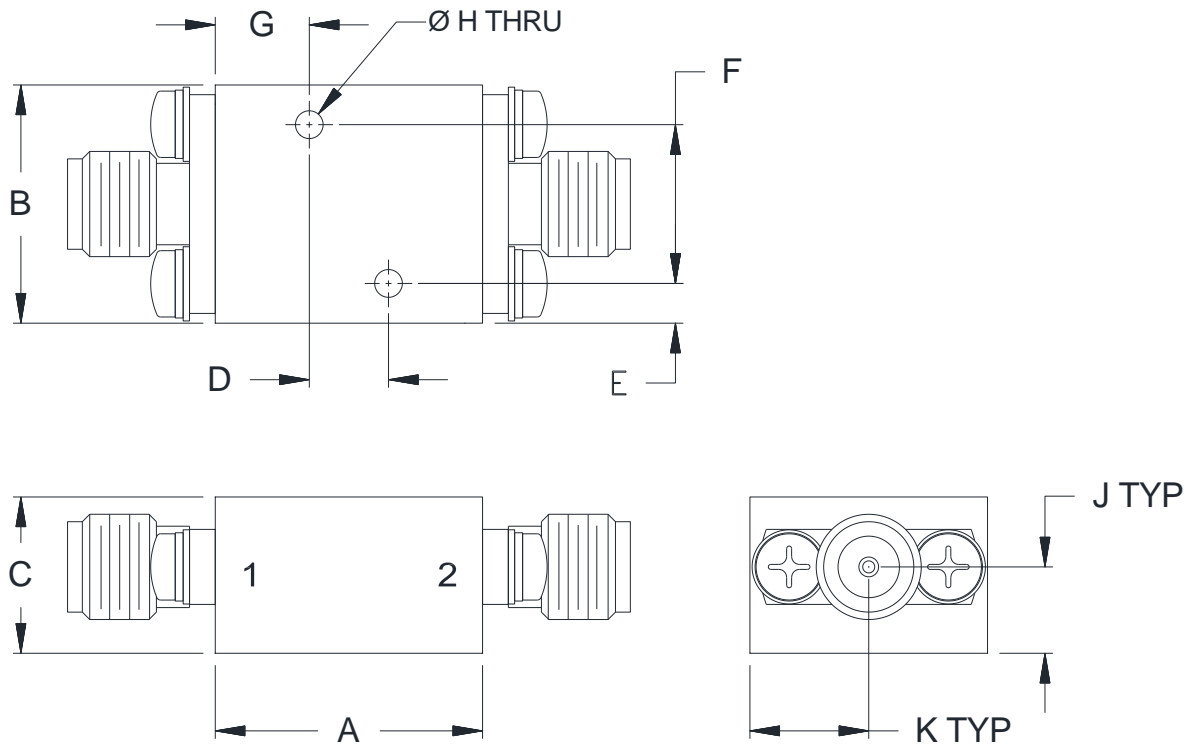
FREQ.	Insertion Loss	Input Return Loss	Output Return Loss
(MHz)	(dB)	(dB)	(dB)
1	0.42	43.02	42.39
5	0.35	47.52	48.20
10	0.36	48.68	48.58
15	0.36	49.33	48.68
25	0.37	49.23	48.92
50	0.32	42.89	42.84
100	0.40	50.34	48.99
150	0.45	48.29	47.86
220	0.48	41.88	41.71
310	0.52	36.30	36.02
370	0.54	33.94	33.71
450	0.57	31.44	31.34
500	0.59	30.14	29.97
570	0.61	28.70	28.55
620	0.63	27.67	27.62
650	0.63	27.18	27.13
700	0.65	26.42	26.29
750	0.67	25.62	25.55
800	0.68	24.97	24.98
900	0.72	23.84	23.71
1000	0.75	22.85	22.75
1500	0.91	19.39	19.37
2000	1.08	17.78	17.78
2500	1.27	17.60	17.65
3000	1.54	19.14	19.11
3250	1.75	20.99	20.93
3500	2.06	23.93	23.90
4000	3.09	28.30	29.66
4120	3.46	26.58	27.57
4550	5.20	21.54	21.60
5000	7.80	19.91	19.60
5200	9.22	19.90	19.50
5500	11.71	20.64	19.99
5900	15.85	22.37	21.62
6000	17.07	22.93	22.24
6200	19.77	24.22	23.67
6500	24.64	26.42	26.58
6800	28.11	27.77	30.31
7000	26.97	27.56	32.84
7500	22.25	24.23	27.39
7900	20.01	22.23	24.27
8000	19.61	21.97	23.61
8100	19.31	21.63	23.01
10000	16.48	18.45	18.36
10200	16.38	18.43	18.28
10400	16.32	18.46	18.20
10500	16.29	18.49	18.17
12000	16.14	19.53	18.44
15000	16.29	26.40	22.24
16000	16.12	27.66	21.83
16500	15.92	27.20	21.09
17000	15.62	25.61	20.09
18000	14.58	20.40	17.57
20000	11.26	9.66	10.38
25000	23.54	10.26	9.68
27000	25.59	8.55	7.75
30000	23.79	6.96	6.02
31000	24.86	5.57	5.35
35000	22.52	4.10	4.14
40000	28.75	3.28	3.08

## 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.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-55° to 105°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 105°C Ambient Environment	Individual Model Data Sheet