

# 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 employ 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-K551+

50Ω DC to 550 MHz



Generic photo used for illustration purposes only

CASE STYLE: UK3042  
Connectors Model  
2.92mm-F ZXLF-K551+

### 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

- Aerospace & Defense
- Military Radios

### Electrical Specifications at 25°C

Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit	
Pass Band	Insertion Loss	DC-F1	DC- 550	-	1.5	2.1	dB
		F2	770	-	3.0	-	dB
	VSWR	DC-F1	DC- 550	-	1.2	-	:1
Stop Band	Rejection	F3-F4	1140 - 5800	11	15	-	dB
		F4-F5	5800 - 18500	-	24	-	dB
	VSWR	F3-F4	1140 - 5800	-	1.2	-	:1
		F4-F5	5800 - 18500	-	1.6	-	: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

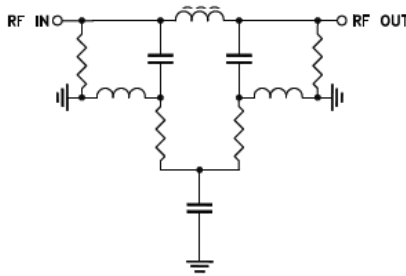
<sup>2</sup> Stopband rating derates linearly to 0.1W at 105°C ambient

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

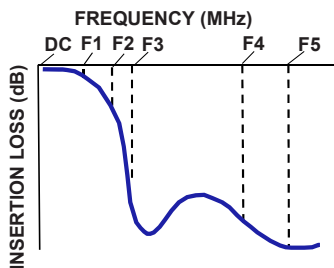
### ESD rating

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

### Functional Schematic



### Typical Frequency Response

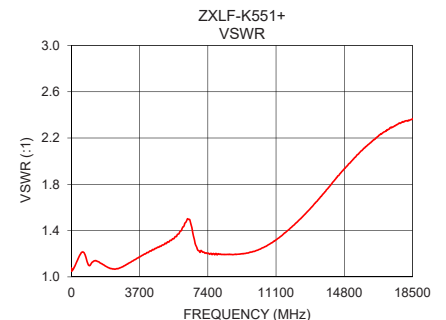
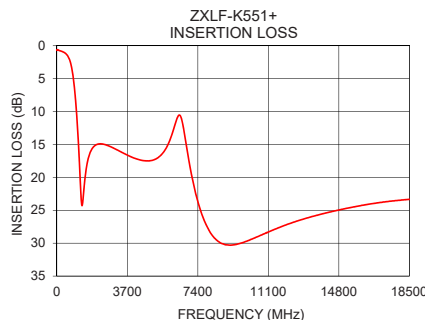


### Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)
1	0.65	1.06
10	0.64	1.06
100	0.69	1.07
150	0.74	1.08
200	0.79	1.10
400	1.04	1.17
420	1.08	1.18
550	1.44	1.21
770	3.19	1.18
1000	8.84	1.10
1140	15.14	1.13
1450	20.93	1.13
2000	15.17	1.08
3000	15.59	1.11
5800	15.22	1.37
8000	28.10	1.20
10000	29.65	1.23
16000	24.25	2.13
17000	23.81	2.26
18500	23.35	2.36

### +RoHS Compliant

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



### Notes

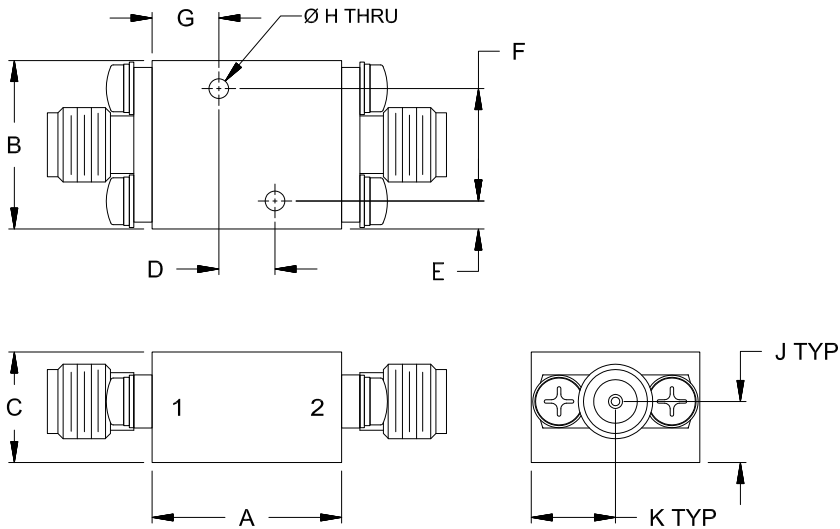
- Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- 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)



## Coaxial Connections

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

## Outline Drawing



## Outline Dimensions (inch/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	24	

Note: Please refer to case style drawing for details

### 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)

# Coaxial Reflectionless Low Pass Filter

# ZXLF-K551+

## Typical Performance Data

FREQ.	Insertion Loss	Input Return Loss	Output Return Loss
(MHz)	(dB)	(dB)	(dB)
1	0.65	30.90	31.06
5	0.64	31.27	31.23
10	0.64	31.17	31.22
15	0.64	31.06	31.20
25	0.65	30.94	31.02
50	0.60	31.68	31.81
100	0.69	29.97	30.24
250	0.84	25.36	25.86
400	1.04	22.20	22.73
420	1.08	21.87	22.40
500	1.28	20.93	21.46
550	1.44	20.42	20.99
600	1.66	20.26	20.82
610	1.72	20.26	20.82
770	3.19	21.73	22.44
900	5.73	25.49	26.53
980	8.13	26.70	27.73
1000	8.84	26.66	27.59
1050	10.81	25.84	26.62
1140	15.14	24.45	25.08
1250	21.76	23.76	24.16
1500	19.61	24.36	24.58
1750	16.22	26.10	26.16
2000	15.17	28.23	28.20
2500	15.00	29.35	30.26
3000	15.59	25.79	27.02
3500	16.33	23.01	23.62
4000	17.00	20.92	21.08
4500	17.44	19.40	19.15
5000	17.42	18.31	17.68
5200	17.20	17.69	16.90
5800	15.22	16.14	15.13
6000	13.82	15.31	14.39
6500	10.75	14.78	15.43
7000	18.55	20.22	20.48
7500	24.64	21.01	19.28
8000	28.10	20.94	18.66
8500	29.79	21.09	18.95
9000	30.28	21.00	19.28
9500	30.12	20.60	19.71
10000	29.65	19.87	19.97
10500	29.05	18.75	19.69
11000	28.42	17.48	18.77
11500	27.82	16.13	17.36
12000	27.26	14.91	15.95
12500	26.75	13.78	14.59
13000	26.29	12.76	13.37
13500	25.87	11.82	12.34
14000	25.50	11.04	11.46
14200	25.35	10.71	11.15
14500	25.16	10.32	10.72
15000	24.84	9.74	10.08
15200	24.70	9.53	9.84
15500	24.54	9.23	9.53
16000	24.25	8.86	9.05
16250	24.14	8.69	8.82
17000	23.81	8.28	8.27
17250	23.71	8.17	8.10
17500	23.62	8.09	7.94
18500	23.35	7.84	7.30

FREQ.	Group Delay
(MHz)	(ns)
1	0.25
5	0.29
10	0.36
15	0.43
16	0.43
17	0.43
18	0.43
19	0.43
20	0.44
21	0.44
22	0.44
23	0.44
24	0.44
25	0.44
26	0.44
27	0.44
28	0.44
29	0.43
30	0.44
31	0.44
32	0.44
33	0.44
34	0.45
35	0.45
36	0.45
50	0.43
100	0.43
110	0.43
120	0.43
130	0.43
140	0.43
150	0.43
160	0.43
170	0.43
180	0.43
190	0.43
200	0.43
210	0.43
220	0.43
230	0.43
240	0.43
250	0.44
260	0.44
270	0.44
280	0.44
240	0.43
250	0.44
260	0.44
270	0.44
280	0.44
290	0.44
300	0.44
310	0.44
320	0.45
350	0.45
400	0.47
450	0.48
500	0.50
520	0.51
550	0.52



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

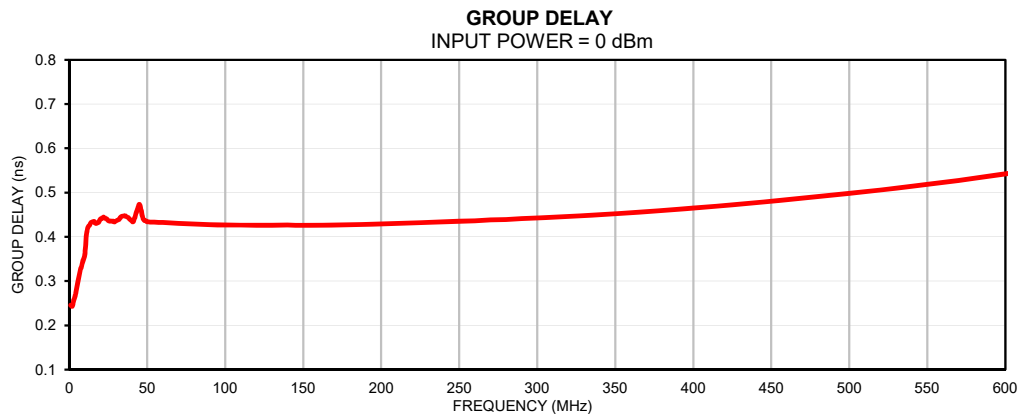
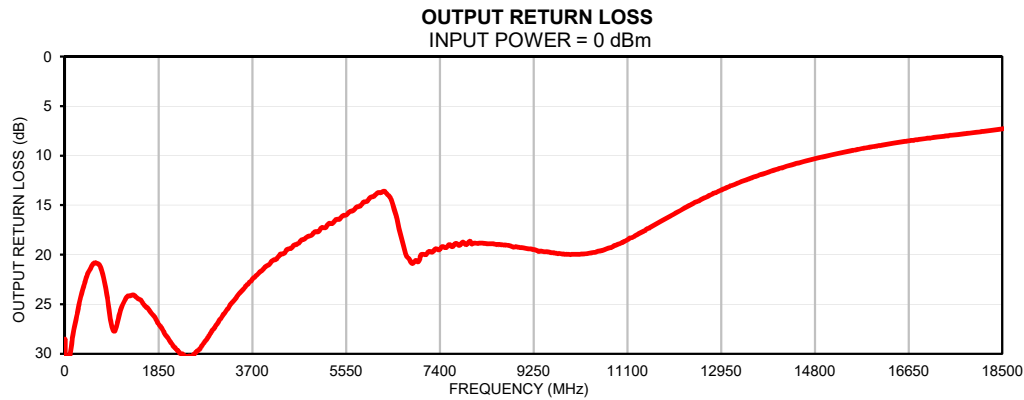
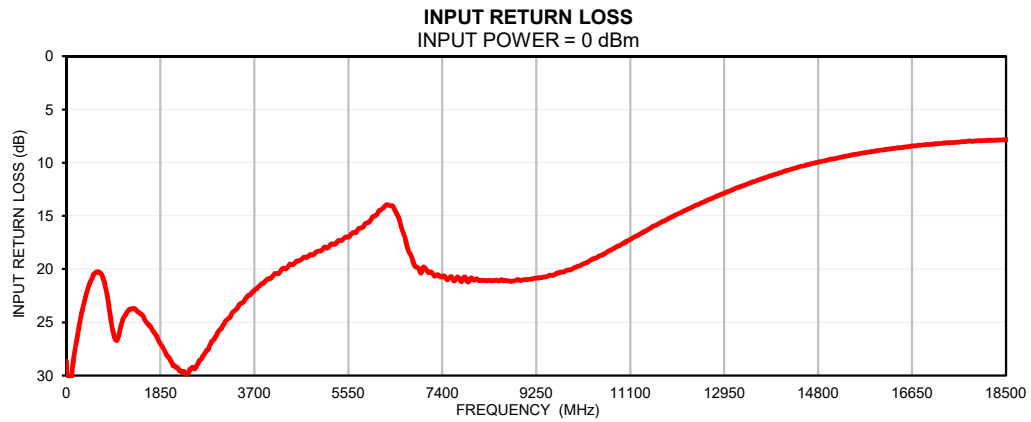
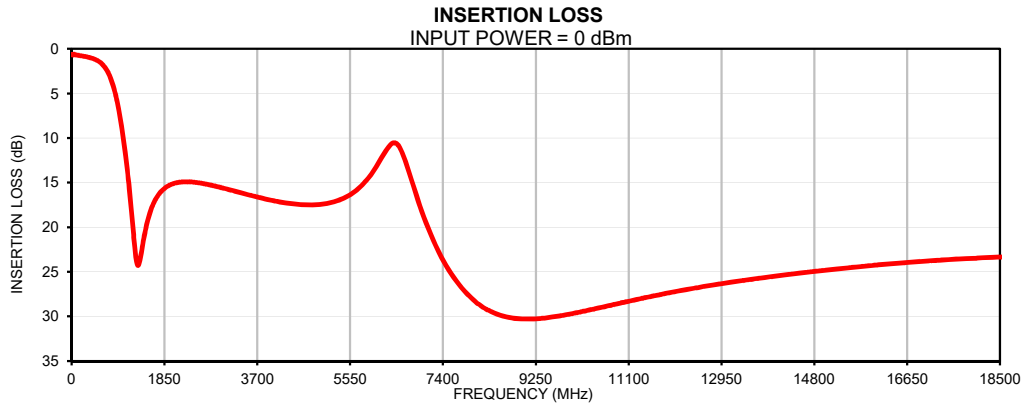


The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: [www.minicircuits.com](http://www.minicircuits.com)

IF/RF MICROWAVE COMPONENTS

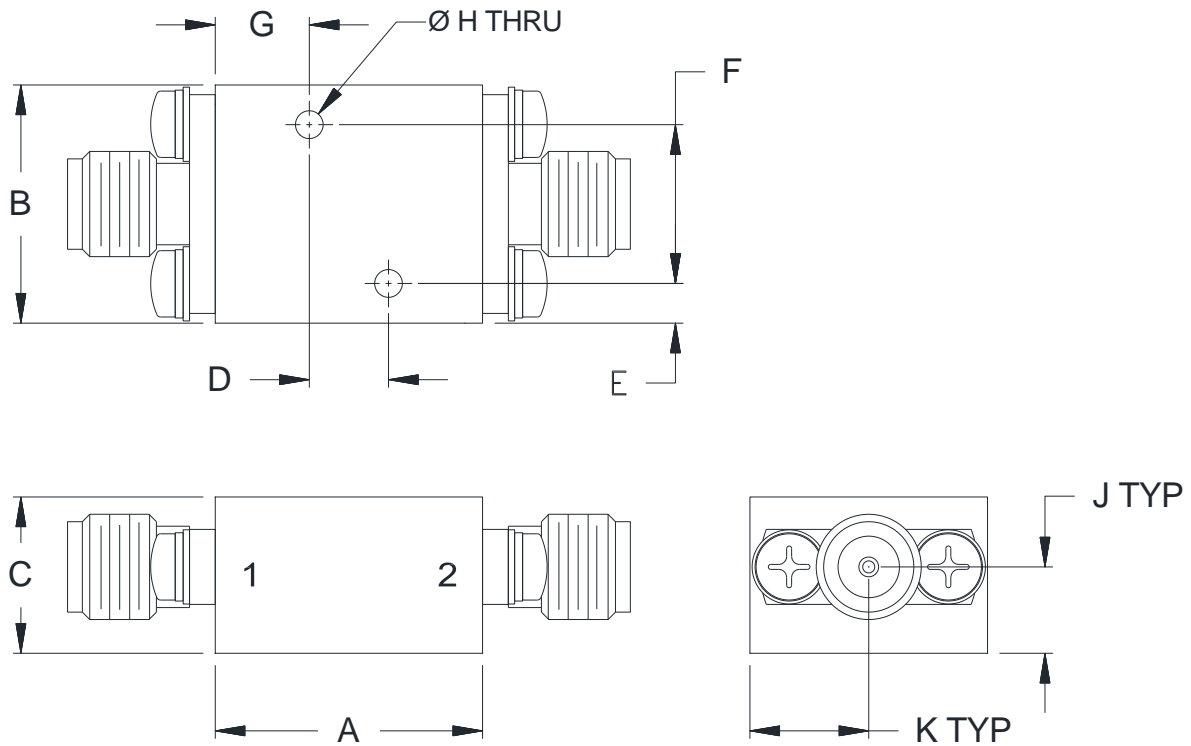
REV. OR  
ZXLF-K551+  
201117  
Page 1 of 1

## 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