

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



Low Pass Filter

ZXLF-K221+

50Ω DC to 220 MHz



Generic photo used for illustration purposes only

CASE STYLE: UK3042
Connectors Model
2.92mm-F ZXLF-K221+

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

- Military / Defense
- CATV
- Aircraft Communication, Return path upto 208MHz

Electrical Specifications at 25°C

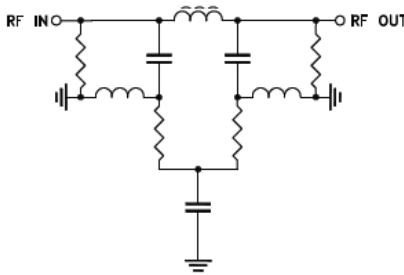
Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	DC-F1	DC - 220	-	1.4	2.0	dB
	F2	370	-	3.0	-	dB
	DC-F1	DC - 220	-	1.2	-	:1
Stop Band	F3-F4	570 - 3500	11	15	-	dB
	F4-F5	3500 - 12000	-	26	-	dB
	F3-F4	570 - 3500	-	1.2	-	:1
	F4-F5	3500 - 12000	-	1.7	-	:1

Absolute Maximum Ratings³

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

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

Functional Schematic



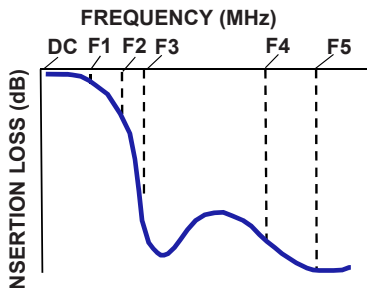
ESD rating

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

Typical Performance Data at 25°C

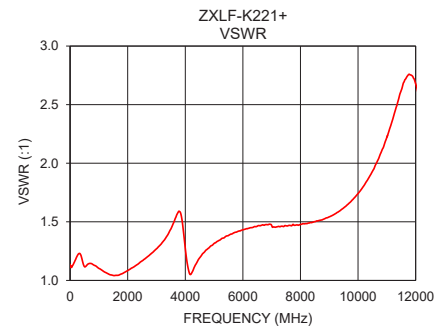
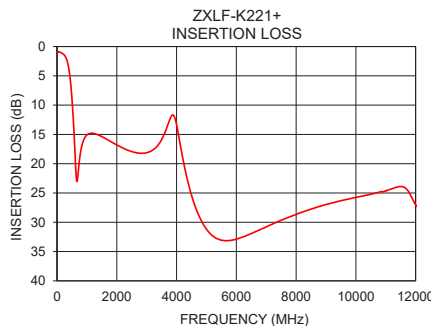
Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)
1	0.88	1.11
10	0.88	1.12
100	0.97	1.13
150	1.09	1.16
220	1.33	1.20
310	2.05	1.23
370	3.12	1.22
500	8.96	1.12
570	14.91	1.13
650	22.71	1.14
750	19.41	1.14
900	15.85	1.12
1000	15.09	1.10
3000	18.13	1.27
3500	15.88	1.44
5000	31.18	1.32
8000	28.67	1.48
10000	25.75	1.74
11000	24.63	2.22
12000	27.03	2.68

Typical Frequency Response



+RoHS Compliant

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



Notes

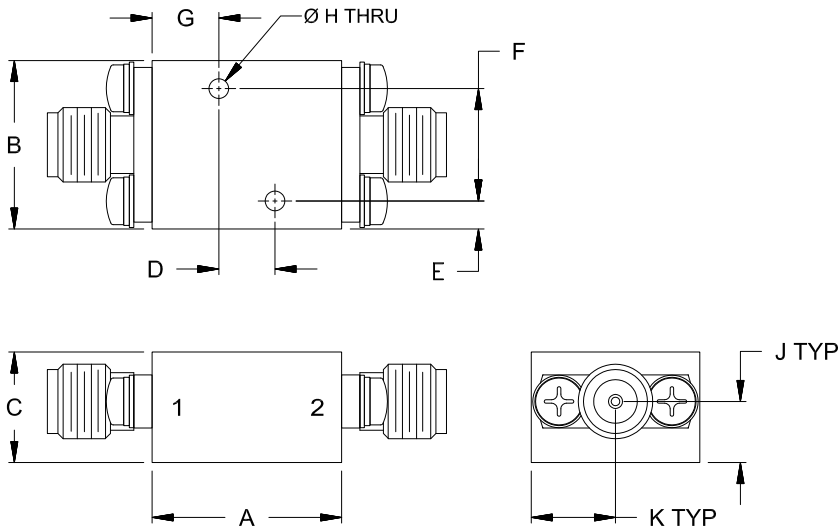
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Coaxial Connections

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

Outline Drawing



Outline Dimensions (inch/mm)

A	B	C	D	E	F
.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

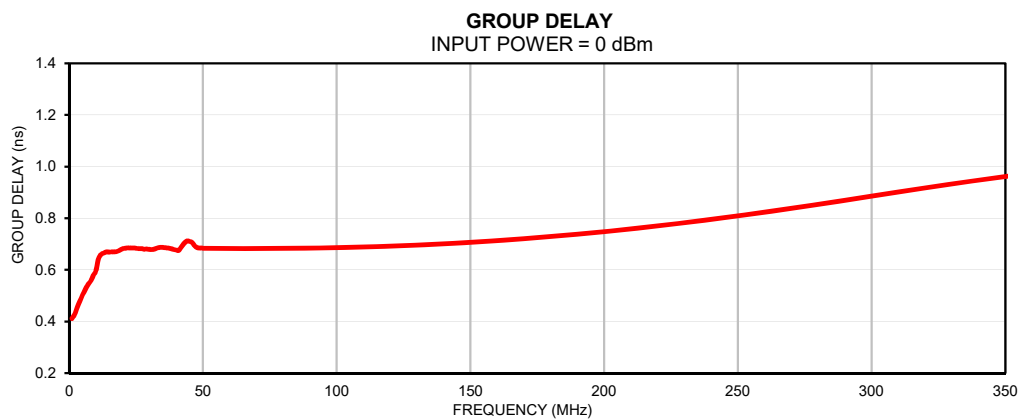
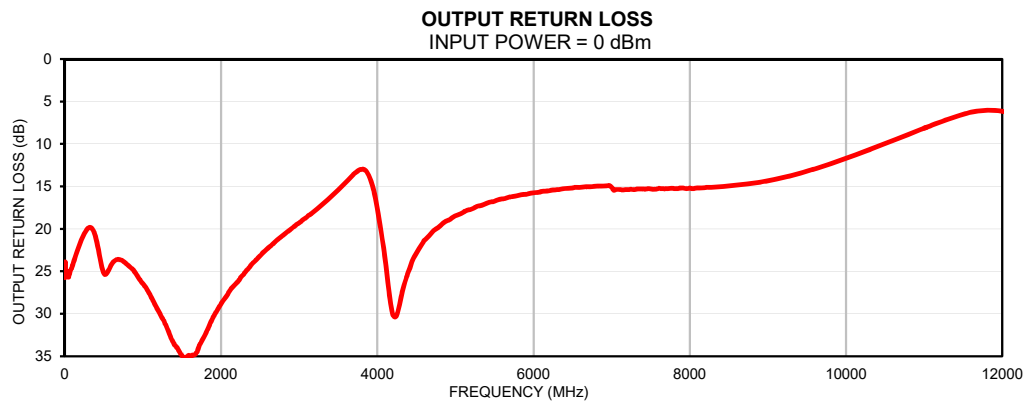
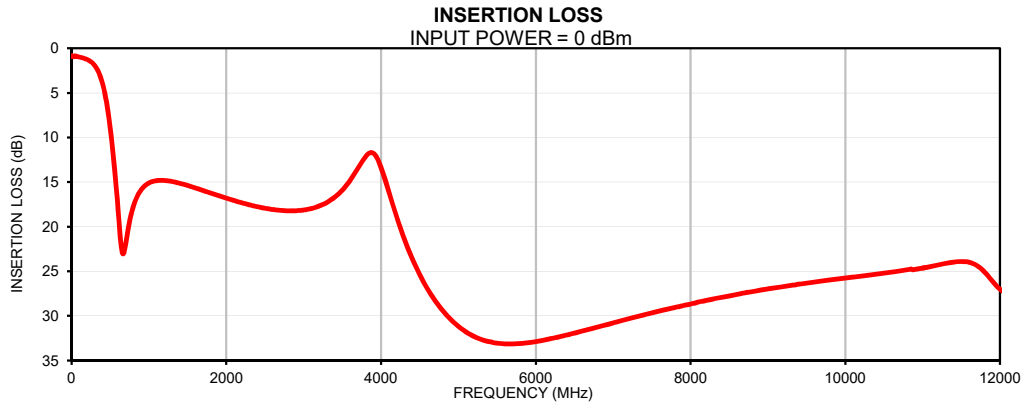
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Typical Performance Data

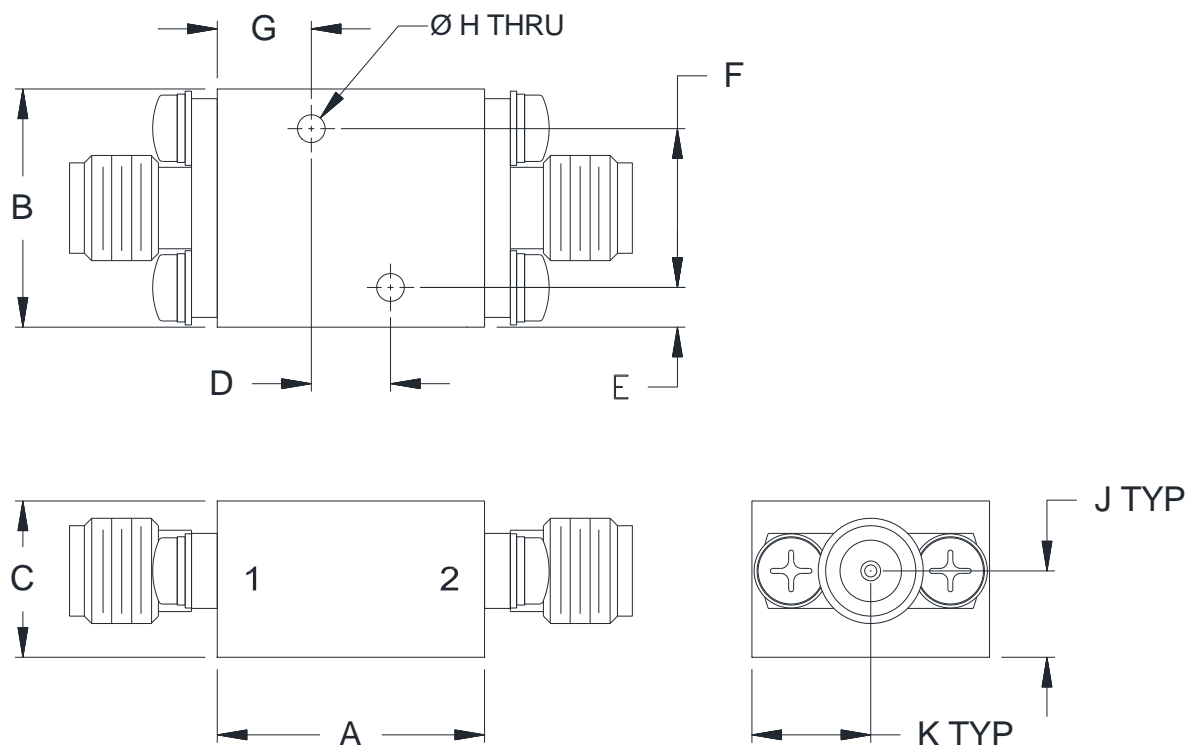
FREQ.	Insertion Loss	Input Return Loss	Output Return Loss	FREQ.	Group Delay
(MHz)	(dB)	(dB)	(dB)	(MHz)	(ns)
1	0.88	25.30	25.40	1	0.41
5	0.88	25.35	25.33	5	0.50
10	0.88	25.29	25.32	10	0.60
15	0.89	25.26	25.33	11	0.64
25	0.89	25.22	25.31	12	0.66
50	0.85	25.54	25.63	13	0.67
100	0.97	24.15	24.25	14	0.67
150	1.09	22.77	22.85	15	0.67
220	1.33	21.00	21.13	16	0.67
310	2.05	19.78	19.85	17	0.67
370	3.12	20.18	20.31	18	0.67
450	5.99	23.34	23.41	19	0.68
500	8.96	25.13	25.24	20	0.68
570	14.91	24.50	24.71	21	0.68
620	20.28	23.75	23.90	22	0.69
650	22.71	23.50	23.69	23	0.68
700	21.90	23.41	23.61	24	0.68
750	19.41	23.52	23.84	25	0.68
800	17.66	24.01	24.23	26	0.68
900	15.85	24.83	25.15	27	0.68
1000	15.09	26.23	26.46	28	0.68
1500	15.38	33.74	34.91	29	0.68
2000	16.79	27.90	28.81	30	0.68
2500	17.93	22.30	23.17	31	0.68
3000	18.13	18.50	19.29	32	0.68
3200	17.67	17.12	17.86	33	0.69
3500	15.88	14.90	15.41	34	0.69
4000	13.36	18.41	17.54	35	0.69
4200	18.88	31.63	30.11	36	0.69
4500	25.38	21.11	22.89	37	0.68
5000	31.18	17.32	18.46	38	0.68
5200	32.30	16.67	17.70	39	0.68
5500	33.06	15.88	16.74	40	0.68
5800	33.11	15.30	16.08	41	0.68
6000	32.87	15.01	15.75	42	0.69
6200	32.53	14.80	15.52	43	0.70
6500	31.92	14.52	15.18	44	0.71
6800	31.26	14.33	14.97	45	0.71
7000	30.78	14.43	15.10	46	0.71
7500	29.66	14.48	15.29	47	0.69
7900	28.85	14.37	15.17	48	0.69
8000	28.67	14.28	15.20	49	0.69
8100	28.44	14.21	15.19	50	0.68
8500	27.75	13.96	14.94	60	0.68
9000	26.98	13.42	14.33	70	0.68
9200	26.70	13.11	13.93	80	0.68
9500	26.32	12.53	13.21	90	0.68
10000	25.75	11.36	11.71	100	0.69
10200	25.54	10.83	11.01	110	0.69
10400	25.33	10.25	10.31	120	0.69
10500	25.22	9.96	9.95	130	0.70
10600	25.10	9.64	9.58	140	0.70
10800	24.83	9.04	8.87	150	0.71
11000	24.63	8.42	8.14	160	0.71
11200	24.30	7.81	7.45	170	0.72
11400	23.97	7.23	6.79	180	0.73
11500	23.90	6.98	6.49	190	0.74
11600	23.99	6.77	6.26	200	0.75
11800	25.08	6.60	6.04	210	0.76
12000	27.03	6.82	6.14	220	0.77

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

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