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
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Coaxial Reflectionless

Low Pass Filter

ZXLF-K122+

50Ω DC to 1150 MHz

Generic photo used for illustration purposes only

CASE STYLE: UK3042

Connectors	Model
2.92mm-F	ZXLF-K122+

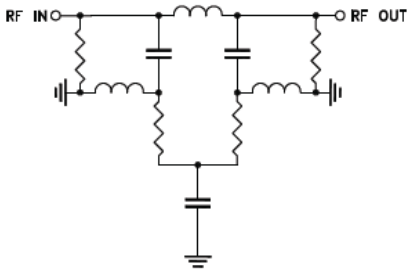
Features

- 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

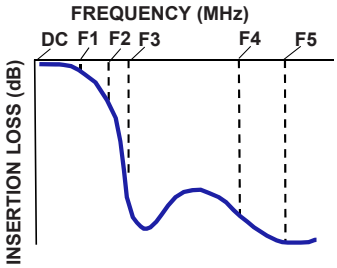
Applications

- Military / Defense
- UHF / VHF Radios

Functional Schematic



Typical Frequency Response



+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.	Unit
Pass Band	Insertion Loss	DC-F1	DC- 1150	-	1.7	2.5	dB
	Freq. Cut-off	F2	1510	-	3.0	-	dB
	VSWR	DC-F1	DC- 1150	-	1.2	-	:1
Stop Band	Rejection	F3-F4	2190 - 10000	10	14	-	dB
		F4-F5	10000 - 21000		21		dB
	VSWR	F3-F4	2190 - 10000	-	1.2	-	:1
		F4-F5	10000 - 21000	-	1.5	-	:1

Absolute Maximum Ratings[3]

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

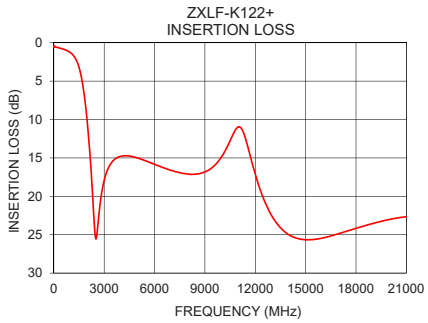
[1] Passband rating derates linearly to 1W at 105°C ambient
[2] Stopband rating derates linearly to 0.25W at 105°C ambient
[3] Permanent damage may occur if any of these limits are exceeded

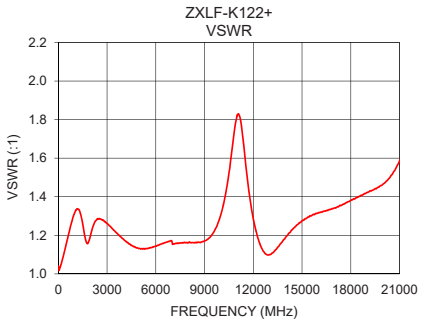
ESD rating

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	0.50	1.02
10	0.48	1.02
100	0.53	1.03
150	0.58	1.04
400	0.72	1.12
500	0.78	1.16
800	1.03	1.26
1000	1.30	1.32
1150	1.61	1.34
1510	3.26	1.25
2000	10.51	1.21
2190	15.66	1.26
2320	20.23	1.28
5000	15.02	1.13
10000	14.84	1.31
11000	10.96	1.82
15000	25.66	1.28
16000	25.44	1.32
18000	24.17	1.38
21000	22.66	1.59





Notes

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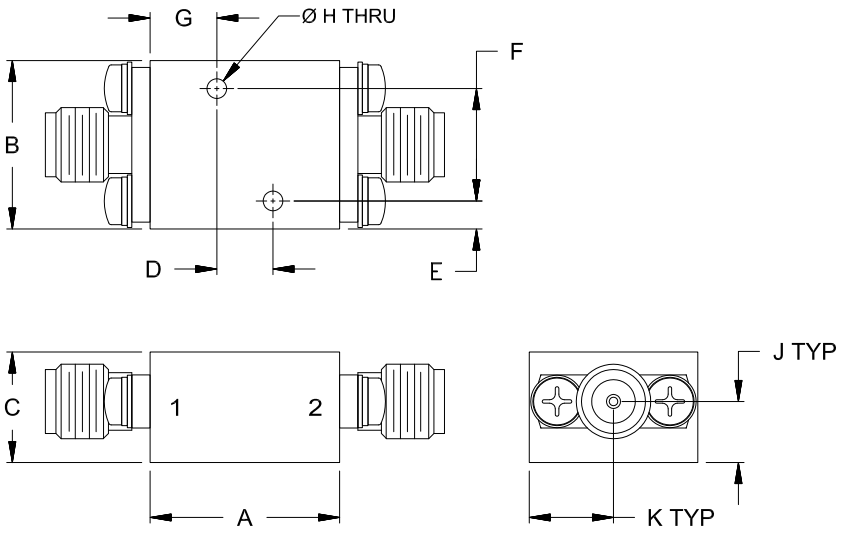
Coaxial Connections

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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Coaxial Reflectionless Low Pass Filter ZXLF-K122+

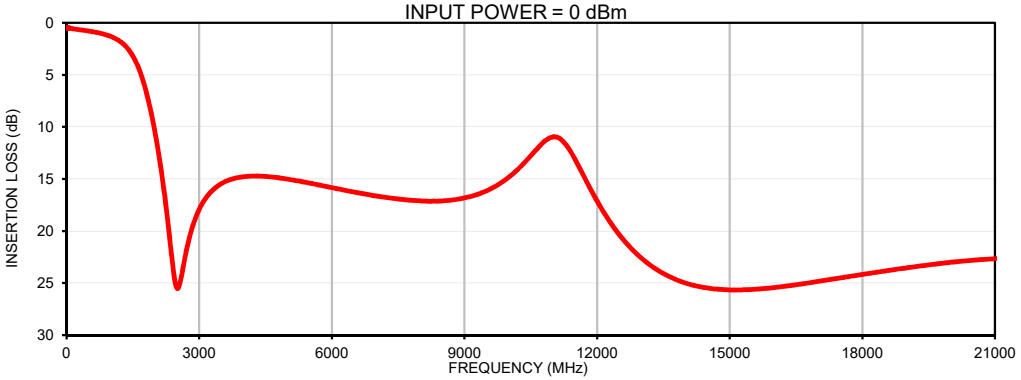
Typical Performance Data

FREQ.	Insertion Loss	Input Return Loss	Output Return Loss
(MHz)	(dB)	(dB)	(dB)
1	0.50	38.55	38.70
5	0.48	40.19	39.79
10	0.48	39.83	39.82
15	0.49	39.46	39.64
25	0.49	39.14	39.18
50	0.45	40.07	40.65
100	0.53	36.48	36.73
150	0.58	33.27	33.30
400	0.72	24.67	24.77
500	0.78	22.69	22.70
800	1.03	18.72	18.85
1000	1.30	17.31	17.41
1150	1.61	16.84	16.97
1280	2.01	16.93	17.10
1500	3.19	18.81	19.04
1510	3.26	18.95	19.20
1550	3.58	19.56	19.86
1600	4.04	20.49	20.79
2000	10.51	20.60	21.05
2150	14.44	19.10	19.53
2190	15.66	18.84	19.29
2200	15.98	18.78	19.23
2300	19.47	18.35	18.75
2320	20.23	18.30	18.71
2400	23.27	18.11	18.57
2500	25.52	18.07	18.53
2600	24.31	18.10	18.60
2700	22.10	18.23	18.72
3000	17.92	18.75	19.37
3500	15.45	20.12	20.88
4000	14.79	21.63	22.77
4200	14.72	22.31	23.67
4500	14.75	23.22	24.98
5000	15.02	24.16	27.07
5500	15.40	24.22	28.25
5600	15.48	24.08	28.30
6000	15.83	23.48	27.95
6500	16.25	22.60	27.22
7000	16.63	22.33	27.02
7500	16.92	22.56	27.52
7900	17.08	22.51	26.37
8000	17.10	22.45	26.22
8100	17.12	22.44	25.95
8700	17.04	22.45	23.27
9000	16.83	22.09	21.69
9300	16.47	21.36	19.97
10000	14.84	17.53	15.55
11000	10.96	10.74	9.99
14000	25.01	21.23	19.05
15000	25.66	18.35	17.07
16000	25.44	17.30	16.38
18000	24.17	15.92	16.81
18500	23.85	15.53	17.02
19000	23.55	15.17	16.96
19500	23.26	14.85	16.61
20000	23.00	14.46	15.83
20200	22.92	14.24	15.37
20500	22.80	13.81	14.60
20800	22.70	13.29	13.73
21000	22.66	12.90	13.08

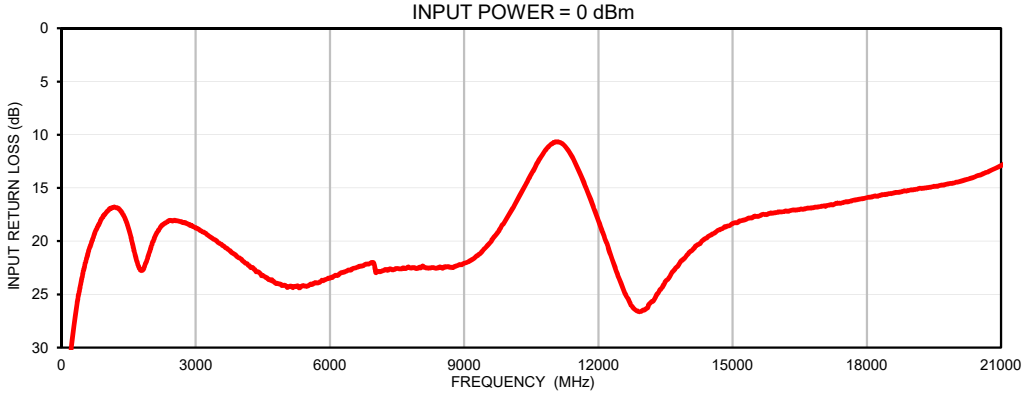
FREQ.	Group Delay
(MHz)	(ns)
1	0.20
5	0.20
10	0.24
15	0.31
20	0.32
25	0.31
50	0.31
70	0.31
80	0.30
90	0.30
100	0.30
110	0.30
120	0.30
130	0.30
140	0.30
150	0.30
160	0.30
170	0.30
180	0.30
190	0.30
200	0.30
210	0.30
220	0.30
230	0.30
240	0.30
250	0.30
260	0.30
270	0.30
280	0.30
290	0.30
300	0.30
310	0.30
320	0.30
330	0.30
340	0.30
350	0.30
370	0.30
400	0.30
450	0.30
500	0.31
550	0.31
600	0.31
650	0.31
700	0.31
720	0.31
750	0.32
780	0.32
800	0.32
820	0.32
850	0.32
880	0.33
900	0.33
920	0.33
950	0.33
980	0.34
1000	0.34
1050	0.34
1100	0.35
1120	0.35
1150	0.36

Typical Performance Curves

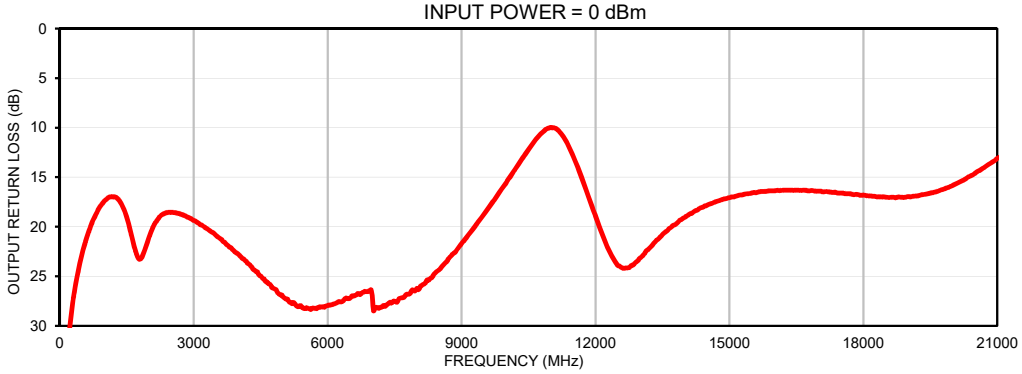
INSERTION LOSS
INPUT POWER = 0 dBm



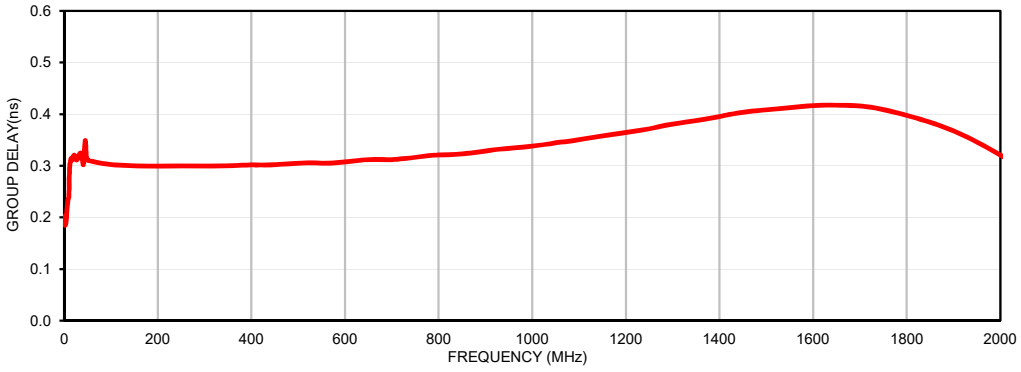
INPUT RETURN LOSS
INPUT POWER = 0 dBm



OUTPUT RETURN LOSS
INPUT POWER = 0 dBm



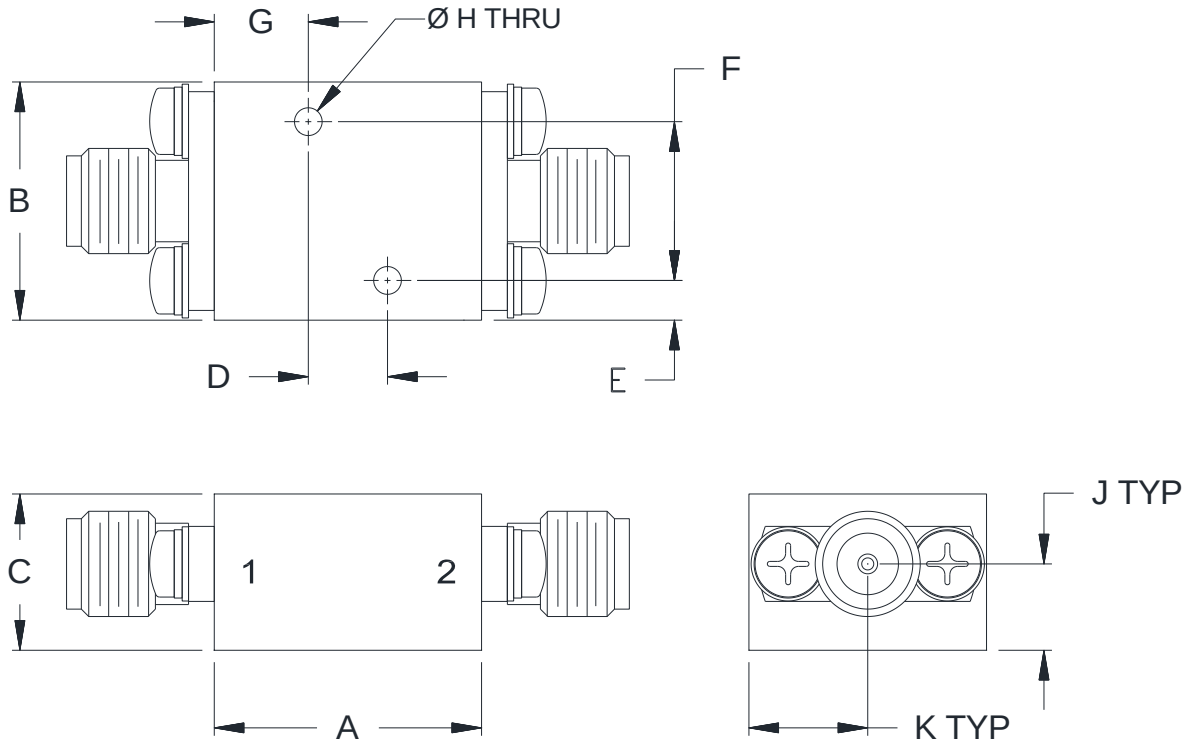
GROUP DELAY
INPUT POWER = 0 dBm



Case Style UK

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. ± .050; 3 Pl. ± .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.

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Environmental Specifications ENV002

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

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