

Coaxial Low Pass Filter

ZLFW-K113+

50Ω

DC to 11 GHz



Generic photo used for illustration purposes only

CASE STYLE: UK3042

The Big Deal

- Good power handling, 2.5W
- Temperature stable
- Broadband connectorized package
- Good rejection, 35 dB typical

Product Overview

ZLFW-K113+ is a 50Ω low pass filter built in broadband connectorized package. Covering DC-11 GHz bandwidth, these units offer good matching within the passband and good rejection in stopband. ZLFW-K113+ offer low insertion loss, and good power handling capability. It handles up to 2.5W RF input power and provides a wide operating temperature range from -55°C to 125°C.

Key Features

Feature	Advantages
Low passband insertion loss	Suitable for high performance application.
2.5W Power handling	Supports a range of system power requirements.
Connectorized package	The connectorized package is easy to interface with other devices and 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

50Ω

DC to 11 GHz

ZLFW-K113+



Features

- Good rejection 35dB typ.
- Temperature stable

Generic photo used for illustration purposes only

CASE STYLE: UK3042

Connectors Model
2.92mm-F ZLFW-K113+

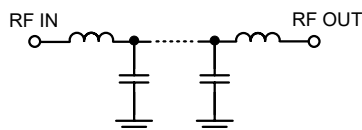
+RoHS Compliant

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

Applications

- X-Band radar
- Public safety communications

Functional Schematic



Electrical Specifications at 25°C

Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Insertion Loss	DC-F1	DC - 11000	—	2.1	3.1 dB
	Freq. Cut-Off	F2*	11900	—	3.0	— dB
	Return Loss	DC-F1	DC - 11000	—	12	— dB
Stop Band	Rejection Loss	F3-F4	14800 - 16000	19	35	— dB
		F4-F5	16000 - 19000	23	34	— dB
		F5-F6	19000 - 23500	22	31	— dB
		F6-F7	23500 - 26500	—	20	— dB

In Applications where DC voltage is present at either input or output ports, DC blocks are required.
* Typically, a $\pm 5\%$ frequency deviation from the stated value may occur on a unit-to-unit basis.

Maximum Ratings

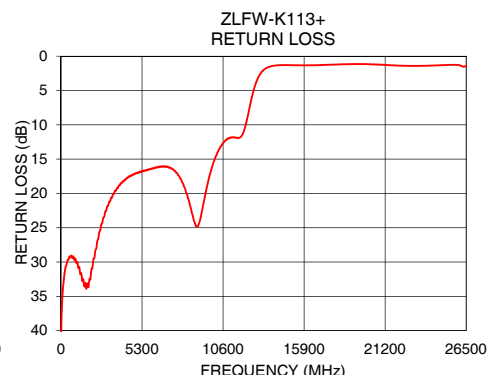
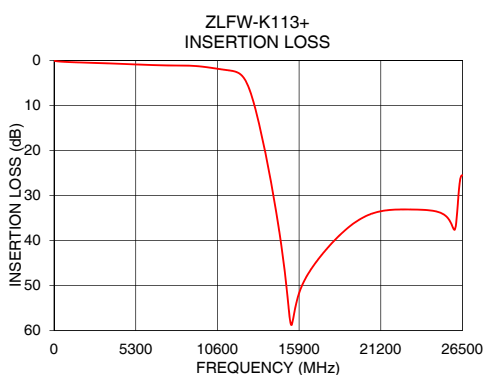
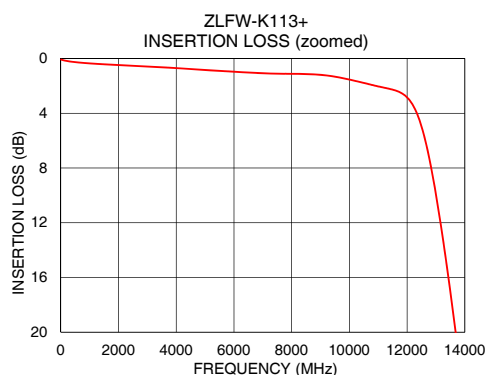
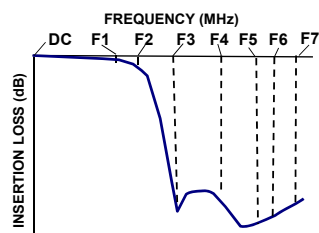
Operating Temperature	-55°C to 125°C
Storage Temperature	-55°C to 125°C
RF Power Input*	2.5W max. @ 25°C

*Passband rating, derate linearly to 0.7W at 125°C ambient
Permanent damage may occur if any of these limits are exceeded.

Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)
10	0.07	40.49
100	0.13	34.78
500	0.26	29.59
1000	0.35	30.11
2000	0.48	30.98
3000	0.58	22.09
6000	0.96	16.40
10000	1.54	15.35
11000	2.04	11.89
11900	2.66	11.27
12100	3.08	9.83
13600	18.66	1.56
14100	27.42	1.33
14800	42.35	1.30
16000	50.72	1.33
19000	37.35	1.15
20000	34.98	1.16
21000	33.63	1.26
23500	33.11	1.41
26500	25.52	1.38

Typical Frequency Response



Notes

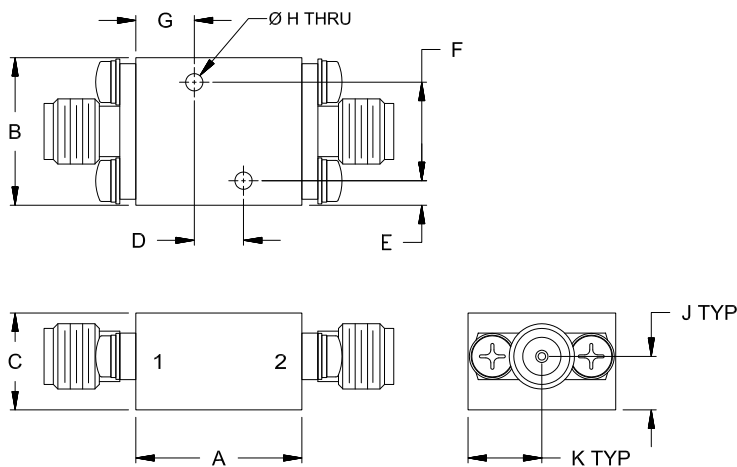
- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's 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



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

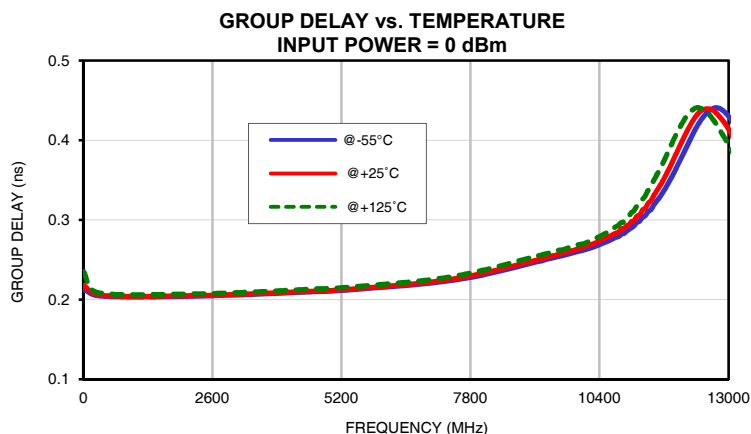
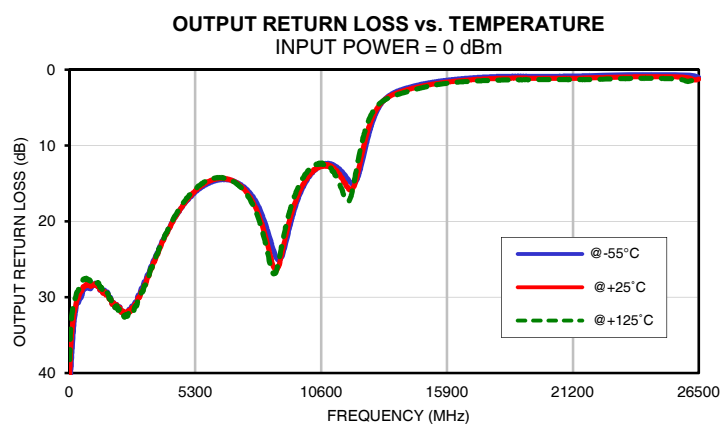
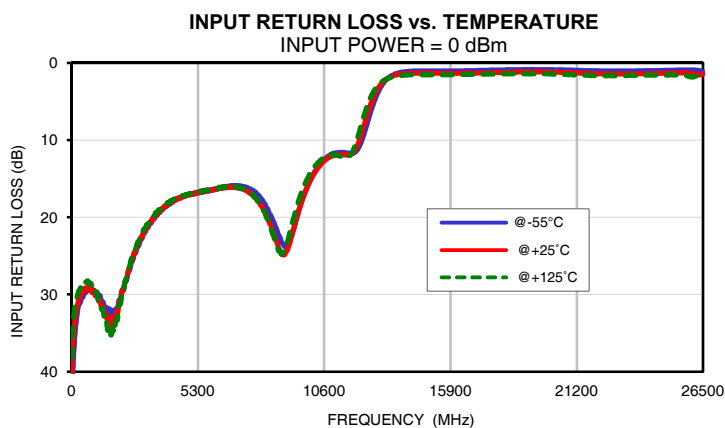
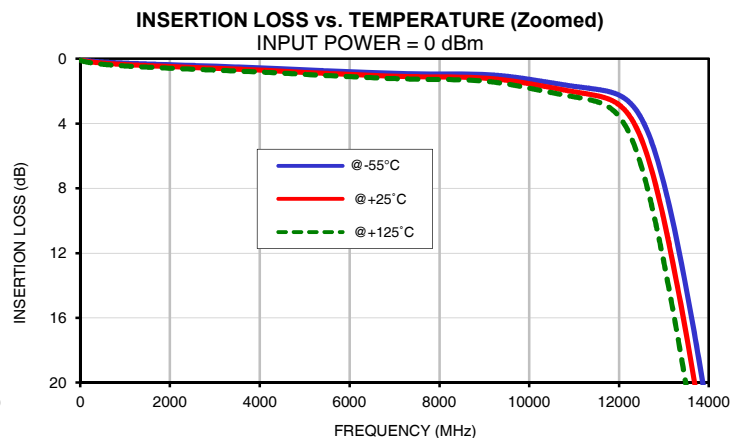
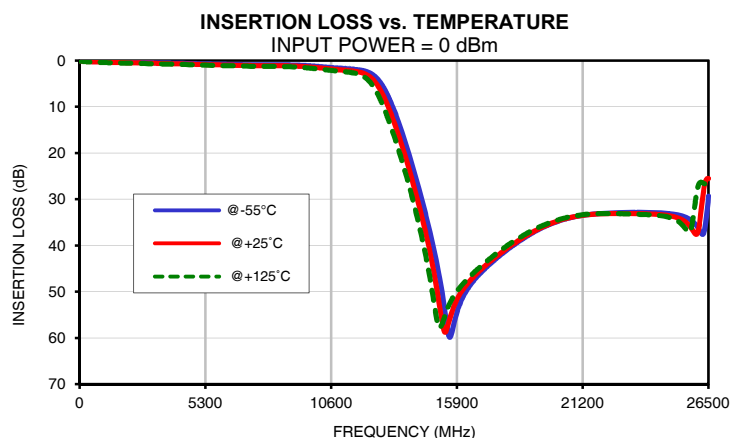
Typical Performance Data

FREQ.	INSERTION LOSS			INPUT RETURN LOSS			OUTPUT RETURN LOSS		
(MHz)	(dB)			(dB)			(dB)		
	@-55°C	@+25°C	@+125°C	@-55°C	@+25°C	@+125°C	@-55°C	@+25°C	@+125°C
10	0.05	0.07	0.09	42.02	40.49	38.26	42.35	40.49	38.24
100	0.09	0.13	0.18	37.29	34.78	32.64	37.48	34.75	32.59
200	0.13	0.18	0.23	33.47	32.23	30.69	33.22	32.06	30.57
250	0.14	0.19	0.25	32.29	31.41	30.10	32.04	31.38	30.12
300	0.15	0.21	0.27	31.34	30.71	29.56	31.00	30.60	29.51
400	0.18	0.24	0.31	30.69	30.01	28.92	30.59	29.91	28.86
500	0.19	0.26	0.34	30.18	29.59	28.52	30.03	29.24	28.16
600	0.21	0.28	0.36	29.64	29.30	28.38	29.01	28.58	27.60
700	0.23	0.30	0.38	29.23	29.11	28.34	28.57	28.32	27.50
800	0.24	0.32	0.41	29.17	29.19	28.51	28.74	28.41	27.72
1000	0.27	0.35	0.44	30.00	30.11	29.71	28.41	28.35	27.77
2000	0.37	0.48	0.58	30.70	30.98	31.38	31.00	31.01	31.13
3000	0.46	0.58	0.70	22.29	22.09	21.80	29.15	29.54	29.72
4000	0.55	0.70	0.82	18.47	18.39	18.23	22.08	22.23	22.07
6000	0.79	0.96	1.10	16.42	16.40	16.32	14.81	14.58	14.40
7000	0.90	1.08	1.22	15.92	16.16	16.11	14.80	14.85	14.93
8000	0.93	1.12	1.28	17.71	18.66	18.67	18.22	19.35	19.92
10000	1.26	1.54	1.81	15.29	15.35	14.38	14.61	14.36	13.55
10500	1.48	1.78	2.09	12.87	13.02	12.49	12.85	12.83	12.40
11000	1.70	2.04	2.35	11.68	11.89	11.86	12.43	12.72	12.96
11100	1.73	2.08	2.40	11.63	11.84	11.91	12.61	13.03	13.42
11200	1.77	2.13	2.45	11.61	11.82	11.98	12.78	13.33	13.95
11300	1.81	2.17	2.51	11.59	11.82	12.06	12.95	13.60	14.54
11380	1.84	2.21	2.55	11.61	11.87	12.17	13.09	13.77	14.99
11400	1.84	2.22	2.57	11.60	11.85	12.16	13.18	13.92	15.21
11500	1.88	2.27	2.64	11.64	11.91	12.24	13.48	14.35	15.97
11900	2.13	2.66	3.26	11.54	11.27	10.68	15.04	15.82	16.21
12100	2.40	3.08	3.95	10.63	9.83	8.67	14.55	14.23	12.97
13000	7.70	9.93	12.60	2.99	2.69	2.48	5.16	4.90	4.65
13700	17.30	20.31	23.72	1.29	1.48	1.65	2.98	3.19	3.40
14000	22.31	25.56	29.29	1.12	1.36	1.57	2.61	2.85	3.10
14250	26.82	30.31	34.39	1.05	1.32	1.53	2.37	2.62	2.87
14800	37.91	42.35	48.08	1.02	1.30	1.52	1.93	2.19	2.40
14900	40.15	44.95	51.22	1.02	1.30	1.52	1.87	2.13	2.33
15000	42.52	47.77	54.40	1.02	1.31	1.53	1.82	2.07	2.27
15100	45.07	50.85	57.09	1.02	1.31	1.53	1.76	2.02	2.20
15200	47.83	54.19	57.71	1.02	1.31	1.52	1.70	1.96	2.14
15300	50.96	57.44	56.65	1.02	1.31	1.51	1.65	1.90	2.07
15500	58.03	57.66	53.67	1.03	1.33	1.52	1.55	1.80	1.96
15600	59.87	55.81	52.47	1.03	1.33	1.51	1.51	1.76	1.91
16000	52.94	50.72	49.24	1.02	1.33	1.50	1.34	1.60	1.75
16200	50.68	49.19	48.04	1.01	1.32	1.48	1.27	1.53	1.68
16400	49.00	47.89	46.96	1.00	1.32	1.48	1.21	1.47	1.62
16600	47.65	46.78	45.93	0.99	1.31	1.46	1.16	1.41	1.57
16800	46.46	45.75	45.01	0.99	1.31	1.47	1.11	1.35	1.53
17000	45.43	44.79	44.09	0.96	1.29	1.45	1.06	1.31	1.50
17200	44.44	43.88	43.24	0.94	1.27	1.43	1.02	1.27	1.46
17400	43.53	43.04	42.40	0.93	1.26	1.42	0.98	1.23	1.43
17600	42.65	42.22	41.60	0.91	1.24	1.42	0.95	1.20	1.41
17800	41.80	41.44	40.82	0.90	1.23	1.40	0.93	1.17	1.40
18000	41.01	40.66	40.09	0.88	1.21	1.39	0.90	1.15	1.38
18200	40.24	39.94	39.38	0.87	1.20	1.39	0.87	1.12	1.35
18400	39.53	39.24	38.73	0.86	1.18	1.40	0.87	1.12	1.35
19000	37.53	37.35	36.94	0.83	1.15	1.37	0.85	1.10	1.32
20000	35.06	34.98	34.74	0.85	1.16	1.40	0.87	1.13	1.31
21000	33.65	33.63	33.49	0.93	1.26	1.52	0.83	1.11	1.29
22000	33.07	33.15	33.09	1.00	1.37	1.62	0.78	1.06	1.27
22500	32.92	33.08	33.10	1.02	1.40	1.63	0.74	1.03	1.24
23500	32.84	33.11	33.25	1.02	1.41	1.61	0.67	0.95	1.16
26500	29.33	25.52	26.92	1.14	1.38	1.49	1.04	1.23	1.31

Typical Performance Data

FREQ.	GROUP DELAY		
(MHz)	(nsec)		
	@-55°C	@+25°C	@+125°C
10	0.21	0.22	0.23
20	0.21	0.22	0.23
100	0.21	0.21	0.22
250	0.21	0.21	0.21
500	0.20	0.20	0.21
750	0.20	0.20	0.21
1000	0.20	0.20	0.21
1250	0.20	0.20	0.21
1500	0.20	0.20	0.21
1750	0.20	0.20	0.21
2000	0.20	0.20	0.21
2250	0.20	0.20	0.21
2500	0.20	0.21	0.21
2750	0.21	0.21	0.21
3000	0.21	0.21	0.21
3250	0.21	0.21	0.21
3500	0.21	0.21	0.21
3750	0.21	0.21	0.21
4000	0.21	0.21	0.21
4250	0.21	0.21	0.21
4500	0.21	0.21	0.21
4750	0.21	0.21	0.21
5000	0.21	0.21	0.21
5250	0.21	0.21	0.22
5500	0.21	0.21	0.22
5750	0.21	0.21	0.22
6000	0.22	0.22	0.22
6250	0.22	0.22	0.22
6500	0.22	0.22	0.22
6750	0.22	0.22	0.22
7000	0.22	0.22	0.23
7250	0.22	0.22	0.23
7500	0.22	0.23	0.23
7750	0.23	0.23	0.23
8000	0.23	0.23	0.24
8250	0.23	0.24	0.24
8500	0.24	0.24	0.24
8750	0.24	0.24	0.25
9000	0.25	0.25	0.25
10000	0.26	0.26	0.27
11000	0.29	0.29	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:

- Case material: Brass alloy.
- Case Finish:
 - Case & Cover of the units –Gold plating.
- 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



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 125° C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 125° C Ambient Environment	Individual Model Data Sheet