



Mini-Circuits

THIN FILM COAXIAL

Low Pass Filter

ZALF-5000-S+

50Ω DC to 5 GHz SMA Male/Female

KEY FEATURES

- Low Passband Insertion Loss, 1.5 dB Typ.
- High Rejection, 38 dB Typ.
- Small Size

APPLICATIONS

- Telecommunication & Broadband Wireless System
- Test and Measurement Equipment
- 5G Sub 6GHz

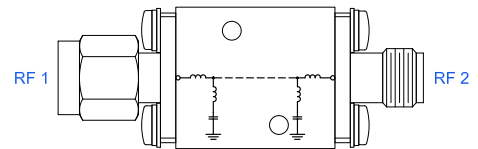
PRODUCT OVERVIEW

Mini-Circuits' Connectorized Thin-Film filters offer low insertion loss and high rejection realized via Thin-Film on Alumina substrate, using a sputtering process that can guarantee an enhanced Q and repeatable performance. Low pass, high pass, and bandpass connectorized thin-film designs can be realized with this technology up to 40 GHz in a small form factor helping customers achieve their SWaP objectives. Using our high quality thin-film manufacturing process we can guarantee repeatability on large batches of filters.



Generic photo used for illustration purposes only

FUNCTIONAL DIAGRAM



ELECTRICAL SPECIFICATIONS¹ AT +25°C

Parameter		F#	Frequency (GHz)	Min.	Typ.	Max.	Units
Passband	Insertion Loss	DC-F1	DC - 5	—	1.5	2.0	dB
	Freq. Cut-Off ²	Fc	5.77	—	3	—	dB
	Return Loss	DC-F1	DC - 5	—	15	—	dB
Stopband	Rejection	F2-F3	6.7 - 7.5	20	33	—	dB
		F3-F4	7.5 - 12	32	38	—	
		F4-F5	12 - 17	—	25	—	

1. This component should not be used as a DC-block. In applications where DC voltage and/or current is present at either the input or output ports, external DC blocking capacitors are required.

2. Typical variation $\pm 3\%$

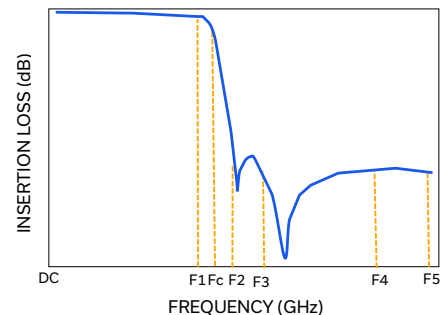
ABSOLUTE MAXIMUM RATINGS³

Parameter	Ratings
Operating Temperature	-55°C to +125°C
Storage Temperature	-55°C to +125°C
Input Power ⁴	5 W at 25°C

3. Permanent damage may occur if any of these limits are exceeded.

4. Power rating applies only to signals within the passband.

TYPICAL FREQUENCY RESPONSE



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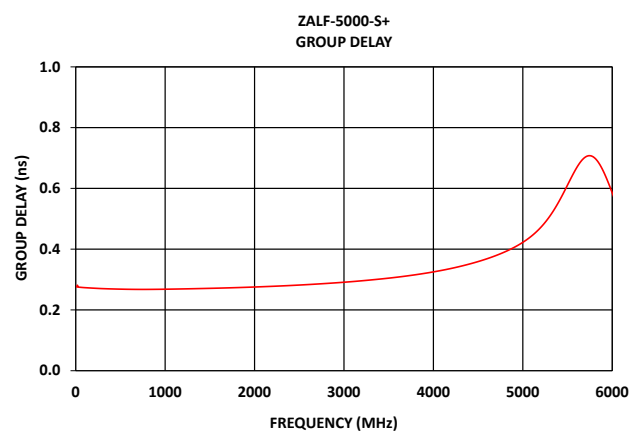
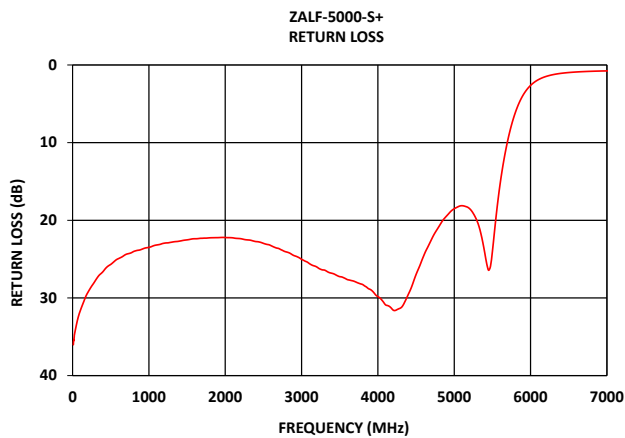
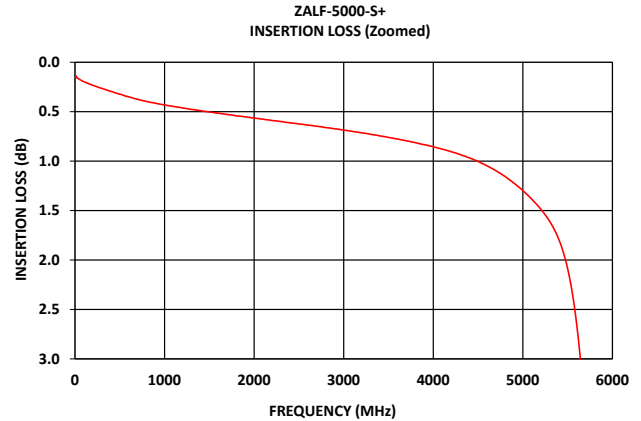
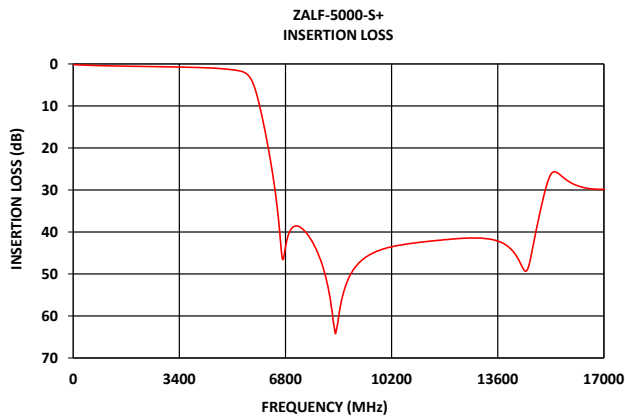
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TYPICAL PERFORMANCE GRAPHS





THIN FILM COAXIAL

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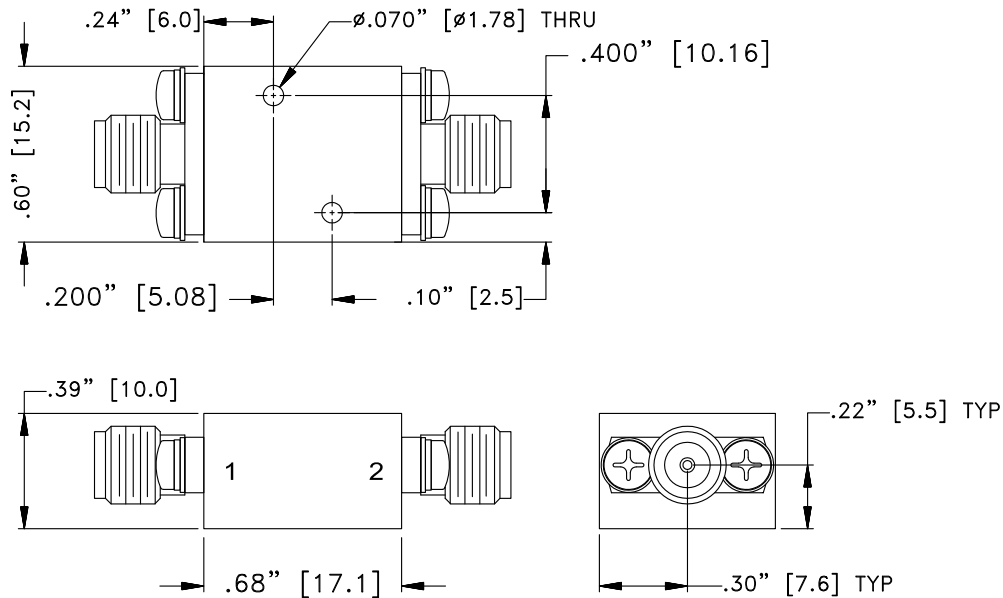
50Ω DC to 5 GHz SMA Male/Female

CONNECTOR DESCRIPTION

Function	Connector
RF1 ⁵	SMA Male
RF2 ⁵	SMA Female

5. This filter is bi-directional RF1 and RF2 ports may be interchanged, see S-Parameters for actual performance.

CASE STYLE DRAWING



Unit weight: 24grams

Dimensions are in inches (mm). Tolerances: 2 Pl.±.050"; 3 Pl.±.015"

PRODUCT MARKING*: ZALF-5000-S+

*Marking may contain other features or characters for internal lot control.





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Low Pass Filter

ZALF-5000-S+

50Ω DC to 5 GHz SMA Male/Female

ADDITIONAL INFORMATION IS AVAILABLE ON OUR DASHBOARD

[CLICK HERE](#)

Performance Data & Graphs	Data
	Graphs
	S-Parameter (S2P Files) Data Set (.zip file)
Case Style	UK3042
RoHs Status	Compliant
Environmental Ratings	ENV144

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-Circuits' 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/terms/viewterm.html



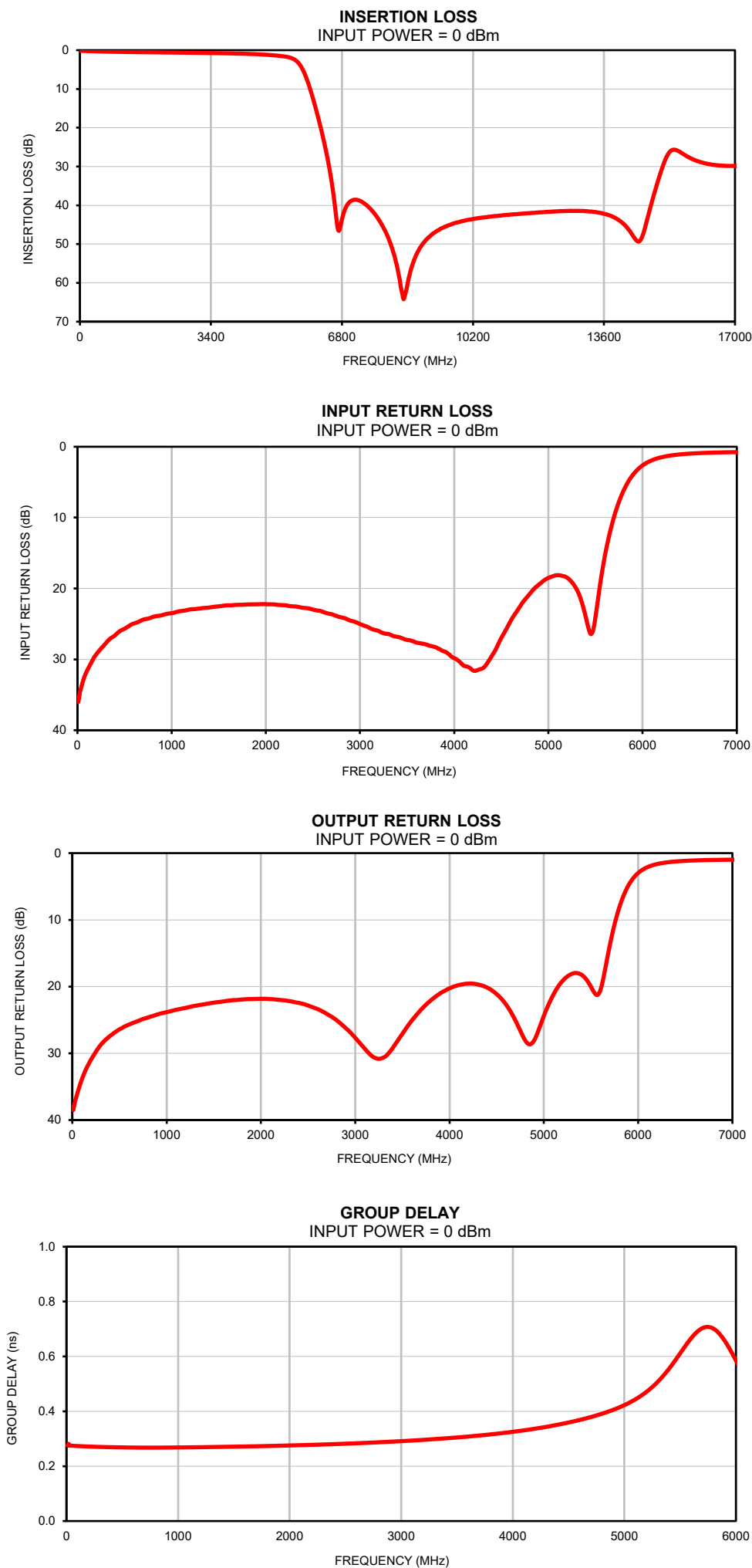
Coaxial Thin-Film Lowpass Filter

ZALF-5000-S+

Typical Performance Data

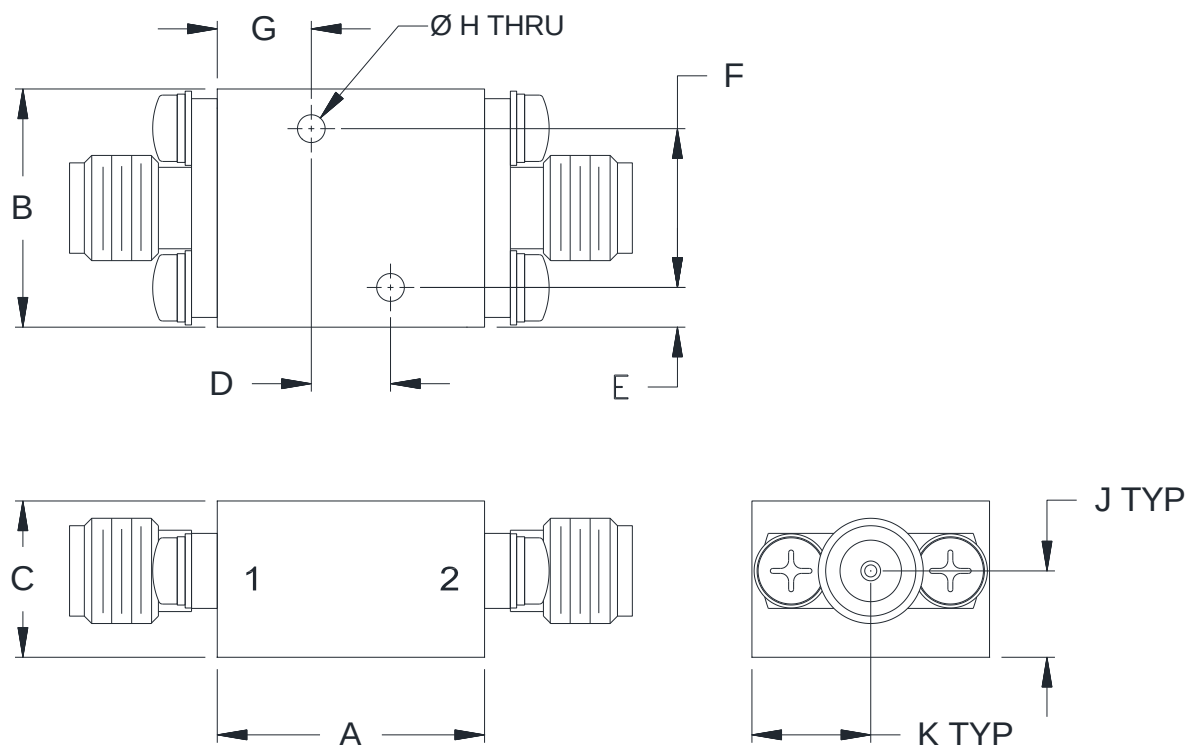
FREQ.	Insertion Loss	Input Return Loss	Output Return Loss	FREQ.	Group Delay
(MHz)	(dB)	(dB)	(dB)	(MHz)	(ns)
10	0.14	36.03	35.22	10	0.28
20	0.15	35.10	34.60	20	0.28
25	0.16	34.68	34.25	25	0.28
50	0.17	33.46	33.11	50	0.27
75	0.19	32.43	32.21	75	0.27
100	0.20	31.67	31.45	100	0.27
125	0.21	31.01	30.70	125	0.27
150	0.22	30.38	30.05	150	0.27
175	0.23	29.76	29.42	175	0.27
200	0.23	29.29	28.92	200	0.27
300	0.26	27.74	27.05	225	0.27
400	0.29	26.59	25.72	250	0.27
500	0.32	25.68	24.67	300	0.27
600	0.35	24.94	23.82	400	0.27
700	0.38	24.39	23.11	500	0.27
800	0.40	24.02	22.60	600	0.27
900	0.41	23.76	22.22	700	0.27
1000	0.43	23.48	21.93	800	0.27
1100	0.45	23.18	21.67	900	0.27
1200	0.46	22.95	21.51	1000	0.27
1300	0.48	22.82	21.46	1100	0.27
1400	0.49	22.68	21.46	1200	0.27
1500	0.50	22.52	21.49	1300	0.27
1600	0.52	22.38	21.59	1400	0.27
1700	0.53	22.32	21.79	1500	0.27
1800	0.54	22.26	22.03	1600	0.27
1900	0.55	22.24	22.30	1700	0.27
2000	0.56	22.22	22.64	1800	0.27
2200	0.59	22.37	23.66	1900	0.27
2500	0.62	22.97	25.86	2000	0.28
2800	0.66	24.07	29.52	2100	0.28
4000	0.85	29.83	34.17	2200	0.28
5000	1.30	18.51	21.00	2300	0.28
5700	3.67	9.75	8.20	2400	0.28
5770	4.79	7.06	6.11	2500	0.28
5800	5.38	6.13	5.36	2600	0.28
6000	10.87	2.63	2.40	2700	0.29
6100	14.32	1.90	1.78	2800	0.29
6300	22.15	1.23	1.21	2900	0.29
6500	32.01	0.97	0.98	3000	0.29
6700	46.38	0.85	0.87	3100	0.29
7500	40.53	0.71	0.67	3200	0.30
8000	48.32	0.69	0.60	3300	0.30
9000	48.75	0.71	0.58	3400	0.30
9500	45.44	0.73	0.58	3500	0.30
10000	43.92	0.75	0.59	3600	0.31
10500	43.09	0.77	0.59	3700	0.31
11000	42.53	0.78	0.62	3800	0.32
11500	42.14	0.77	0.67	3900	0.32
12000	41.80	0.74	0.73	4000	0.33
12500	41.50	0.69	0.77	4100	0.33
13000	41.48	0.64	0.79	4200	0.34
13500	41.94	0.57	0.80	4300	0.34
14000	43.92	0.51	0.82	4400	0.35
14500	49.34	0.47	0.97	4500	0.36
15000	33.76	0.46	2.50	4600	0.37
15500	25.87	0.48	4.79	4700	0.38
16000	28.51	0.49	1.11	4800	0.39
16500	29.63	0.52	0.58	4900	0.41
17000	29.84	0.55	0.41	5000	0.42

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



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	-40° to 100° C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Humidity	90 to 95% RH, 40°C, 96 hours Units may require bake-out after humidity to restore full performance.	MIL-STD-202. method 103. Condition B
Thermal Shock	-40°C to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except -40°C and +100°C