

# Cavity Bandpass Filters

## ZVBP Model Series

50Ω 24.25 to 43.5 GHz

### The Big Deal

- Very low insertion loss with excellent power handling
- Sharp roll-off with wide stopband
- Passbands from 24.25 to 43.5 GHz covering 5G bands\*.
- Stopbands up to 57 GHz



### Product Overview

Mini-Circuits' cavity filters are designed by implementing resonant structures with very high Q and are ideal for narrow-band, high-selectivity applications. These designs can provide bandwidths as narrow as 3% with very high selectivity and excellent low noise floor. Low insertion loss combined with excellent power handling makes them well-suited for transmitter and receiver front end. Advanced filter design and construction enables stopband width greater than 3x the center frequency.

### Key Features

Feature	Advantages
5G bands	Use in various 5G applications, covering n257, n258, n259, n260, and n261 bands.
Low insertion loss	Low signal loss results in better SNR in receiver front end and better power delivery to antenna in transmitter
Sharp roll-off	Higher selectivity results in better adjacent channel rejection and dynamic range
Wide stopband	Wide spur free band results in better receiver sensitivity
High power handling	Well suited for transmitter application
Protective assembly	Prevents accidental de-tuning of precisely tuned resonant circuit

\*High frequency models operating above 40 GHz are available with 2.4mm connectors.

# Cavity Bandpass Filter

## ZVBP-28000-K+

50Ω 26500 to 29500 MHz



Generic photo used for illustration purposes only

CASE STYLE: UH3128

Connectors	Model
2.92mm-F	ZVBP-28000-K+

### Features

- Low insertion loss, 0.5 dB typical
- Good return loss, 20 dB typical
- High rejection
- Broad stopband performance up to 31 GHz
- Sharp roll-off

### Applications

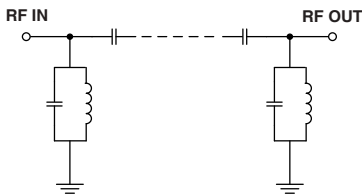
- 5G band n257

### Electrical Specifications<sup>1</sup> at 25°C

Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
<b>Pass Band</b>	Center Frequency	-	-	28000	-	MHz
	Insertion Loss	F1-F2	26500 - 29500	-	0.5	dB
	Return Loss	F1-F2	26500 - 29500	15	27	dB
<b>Stop Band, Lower</b>	Insertion Loss	DC-F3	DC - 25000	30	126	dB
	Return Loss	DC-F3	DC - 25000	-	0.16	dB
<b>Stop Band, Upper</b>	Insertion Loss	F4-F5	31000 - 48000	30	103	dB
	Return Loss	F4-F5	31000 - 48000	-	0.23	dB

1.Data measured after calibrating using 2.92mm cal kit.

### Simplified Functional Schematic



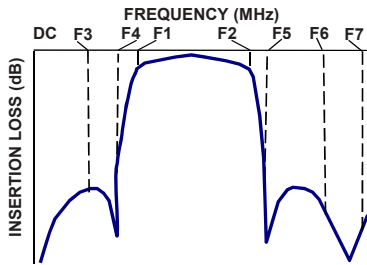
Maximum Ratings	
Operating Temperature	-30°C to 70°C
Storage Temperature	-30°C to 70°C
RF Power Input	2.5 W

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

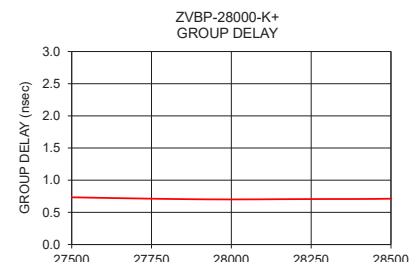
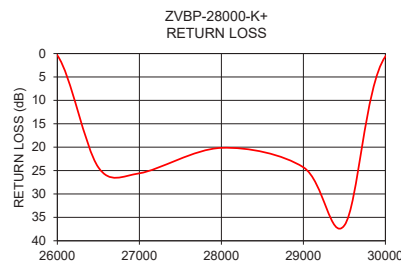
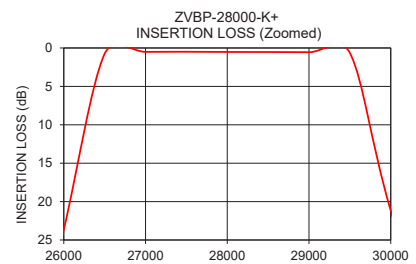
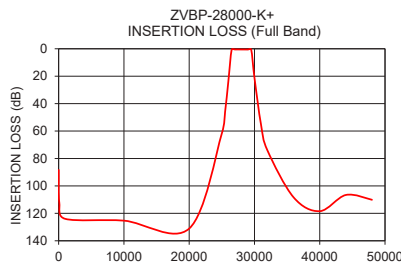
### Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)	Frequency (MHz)	Group Delay (nsec)
10	88.31	0.01	26500	1.24
100	112.16	0.02	26800	0.91
1000	123.99	0.08	26950	0.85
10000	125.32	0.17	27100	0.80
20000	131.08	0.26	27250	0.77
25000	61.74	0.27	27400	0.74
25500	46.01	0.29	27550	0.73
26000	23.66	0.39	27700	0.72
26500	0.75	24.31	27850	0.71
27000	0.51	25.59	28000	0.70
28000	0.52	20.15	28150	0.70
29000	0.55	24.30	28300	0.71
29500	0.65	36.71	28450	0.71
30000	21.18	0.63	28600	0.72
31000	55.17	0.41	28750	0.75
32000	74.25	0.24	28900	0.77
36000	108.36	0.07	29050	0.80
40000	118.41	0.21	29200	0.86
44000	106.59	0.03	29350	0.96
48000	110.11	0.01	29500	1.27

### Typical Frequency Response



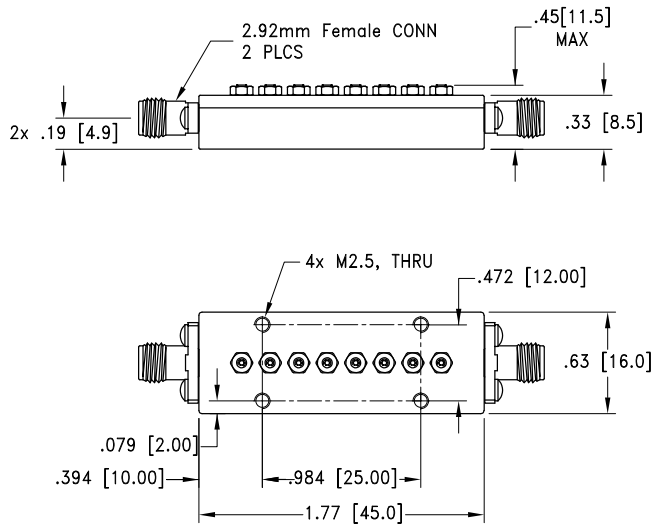
**+RoHS Compliant**  
The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications



## Coaxial Connections

PORT 1	2.92mm-FEMALE
PORT 2	2.92mm-FEMALE

## Outline Drawing



Weight: 75 grams  $\pm$  5 grams;

Dimensions are in inches (mm). Tolerances: 2 Pl.  $\pm$ .03; 3 Pl.  $\pm$ .015

## Additional 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)