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-27925-K+

50Ω 27500 to 28350 MHz

Generic photo used for illustration purposes only

CASE STYLE: UH3127

Connectors	Model
2.92mm-F	ZVBP-27925-K+

Features

- Low insertion loss, 1.9 dB typical
- Good return loss, 22 dB typical
- High rejection
- Broad stopband performance up to 45 GHz
- Sharp roll-off

Applications

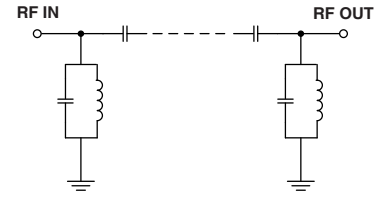
- 5G band n261

Electrical Specifications[1] at 25°C

Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Center Frequency	-	-	-	27925	-	MHz
	Insertion Loss	F1-F2	27500 - 28350	-	1.9	3.5	dB
	Return Loss	F1-F2	27500 - 28350	16	26	-	dB
Stop Band, Lower	Insertion Loss	DC-F3	DC - 27325	50	128	-	dB
	Return Loss	DC-F3	DC - 27325	-	0.17	-	dB
Stop Band, Upper	Insertion Loss	F4-F5	28525 - 45000	50	115	-	dB
	Return Loss	F4-F5	28525 - 45000	-	0.15	-	dB

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

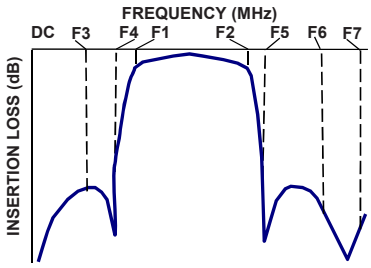
Simplified Functional Schematic



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 Frequency Response

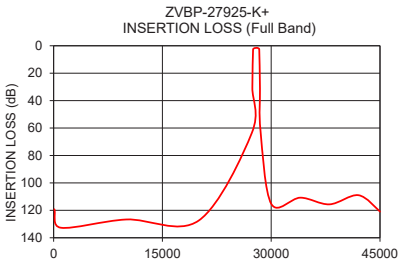


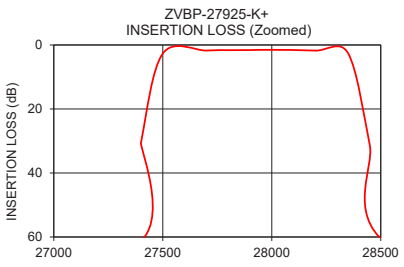
Typical Performance Data at 25°C

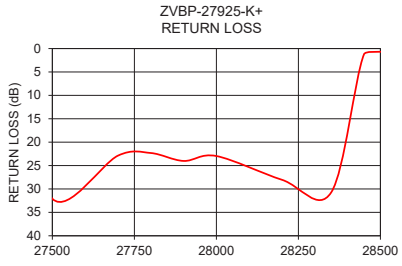
Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)	Frequency (MHz)	Group Delay (nsec)
100	119.21	0.01	27500	7.12
1000	132.68	0.07	27550	6.04
10000	126.67	0.14	27600	5.43
20000	127.47	0.27	27650	5.04
27325	63.59	0.61	27700	4.78
27400	30.53	1.48	27750	4.59
27500	2.69	32.08	27800	4.50
27700	1.74	22.88	27850	4.41
27800	1.62	22.32	27900	4.40
27900	1.59	24.01	27950	4.41
28000	1.52	22.96	28000	4.46
28200	1.76	28.04	28050	4.57
28350	2.56	30.73	28100	4.73
28450	31.41	1.22	28150	4.97
28525	62.00	0.70	28200	5.34
30025	115.44	0.30	28250	5.95
34025	110.76	0.02	28300	7.03
38025	115.63	0.18	28350	9.79
42025	108.95	0.07		
45000	120.90	0.03		

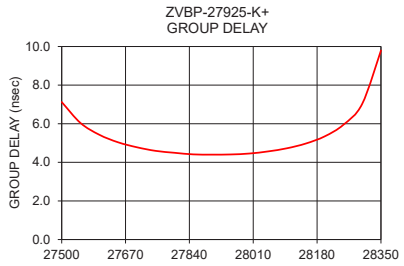
+RoHS Compliant

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





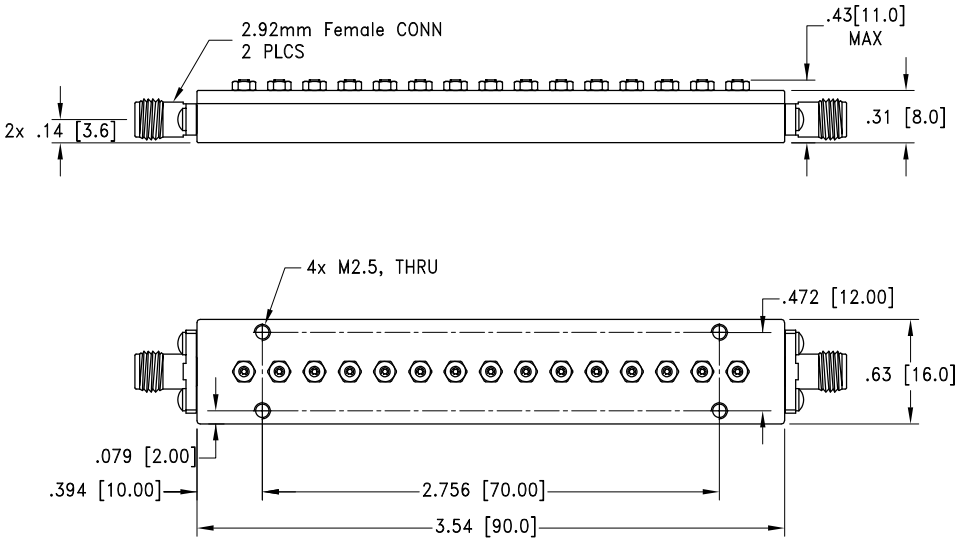




Coaxial Connections

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

Outline Drawing



Weight: 85 grams ± 5 grams;
Dimensions are in inches (mm). Tolerances: 2 Pl.±.03; 3 Pl. ± .015

Additional 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

Cavity Band Pass Filter

ZVBP-27925-K+

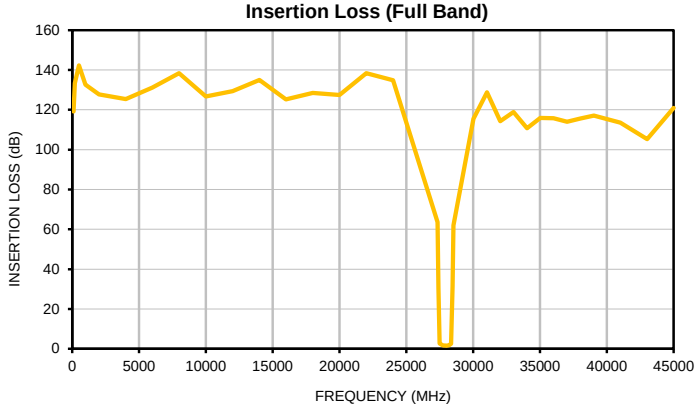
Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	INPUT RETURN LOSS (dB)	OUTPUT RETURN LOSS (dB)
100	119.21	0.01	0.03
200	133.36	0.02	0.04
500	142.31	0.04	0.06
1000	132.68	0.07	0.08
2000	127.81	0.11	0.12
4000	125.43	0.10	0.09
6000	131.22	0.06	0.06
8000	138.38	0.09	0.11
10000	126.67	0.14	0.17
12000	129.42	0.13	0.17
14000	135.07	0.09	0.13
16000	125.20	0.14	0.15
18000	128.48	0.24	0.24
20000	127.47	0.28	0.27
22000	138.43	0.22	0.21
24000	134.90	0.19	0.17
27325	63.59	0.61	0.64
27400	30.53	1.51	1.48
27500	2.69	32.08	33.90
27700	1.74	24.85	22.88
27800	1.62	23.81	22.32
27900	1.59	24.01	24.71
28000	1.52	22.96	30.18
28200	1.76	33.38	28.04
28350	2.56	30.73	31.05
28450	31.41	1.22	1.53
28525	62.00	0.70	0.74
30025	115.44	0.30	0.35
31025	128.72	0.18	0.28
32025	114.34	0.07	0.19
33025	118.95	0.02	0.09
34025	110.76	0.08	0.02
35025	115.89	0.05	0.01
36025	115.78	0.03	0.06
37025	114.00	0.11	0.14
38025	115.63	0.18	0.21
39025	117.09	0.22	0.26
41025	113.55	0.14	0.22
43025	105.34	0.03	0.03
45000	120.90	0.07	0.03

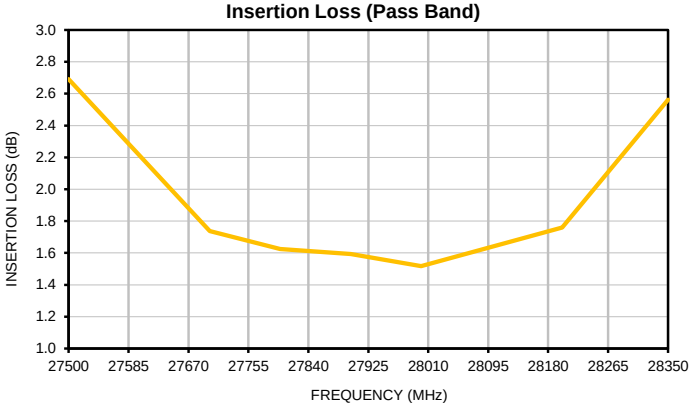
FREQUENCY (MHz)	Group Delay (ns)
27500	7.12
27550	6.04
27600	5.43
27650	5.04
27700	4.78
27750	4.59
27800	4.50
27850	4.41
27900	4.40
27950	4.41
28000	4.46
28050	4.57
28100	4.73
28150	4.97
28200	5.34
28250	5.95
28300	7.03
28350	9.79

Typical Performance Curves

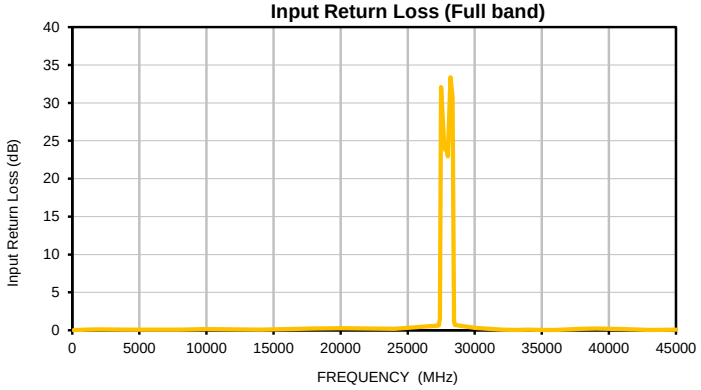
Insertion Loss (Full Band)



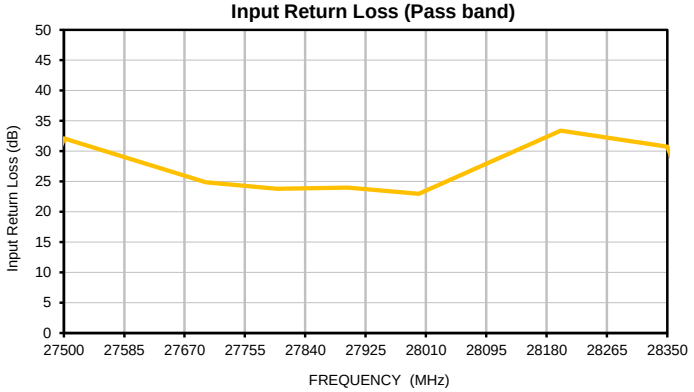
Insertion Loss (Pass Band)



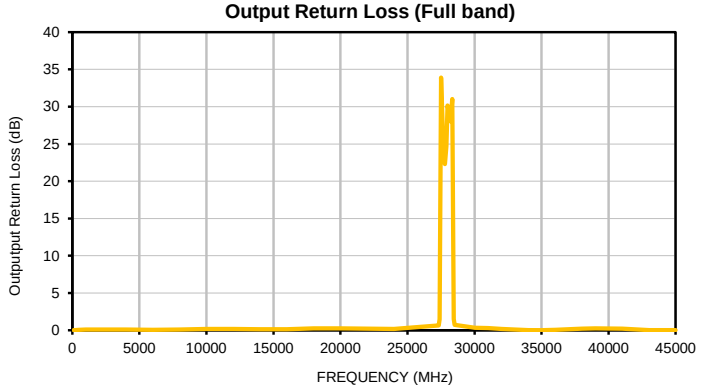
Input Return Loss (Full band)



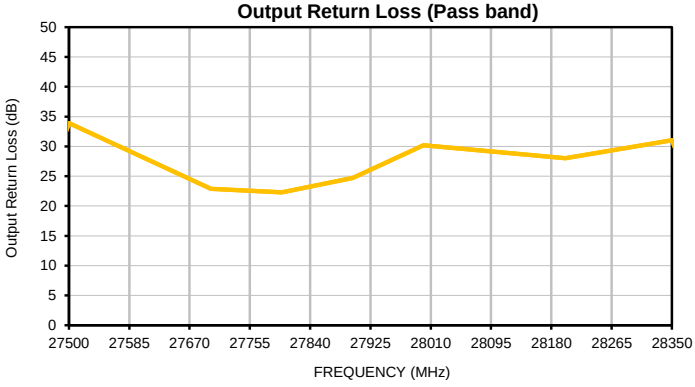
Input Return Loss (Pass band)



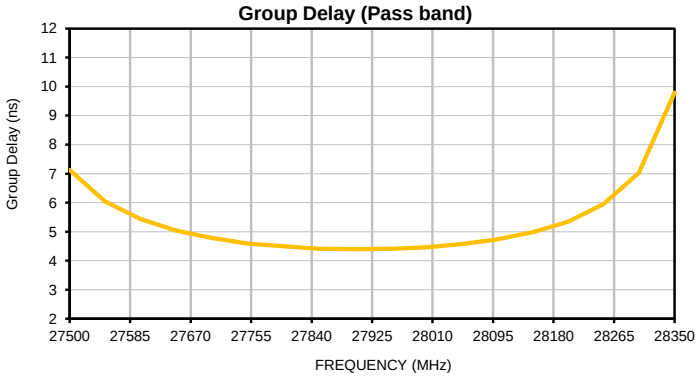
Output Return Loss (Full band)



Output Return Loss (Pass band)

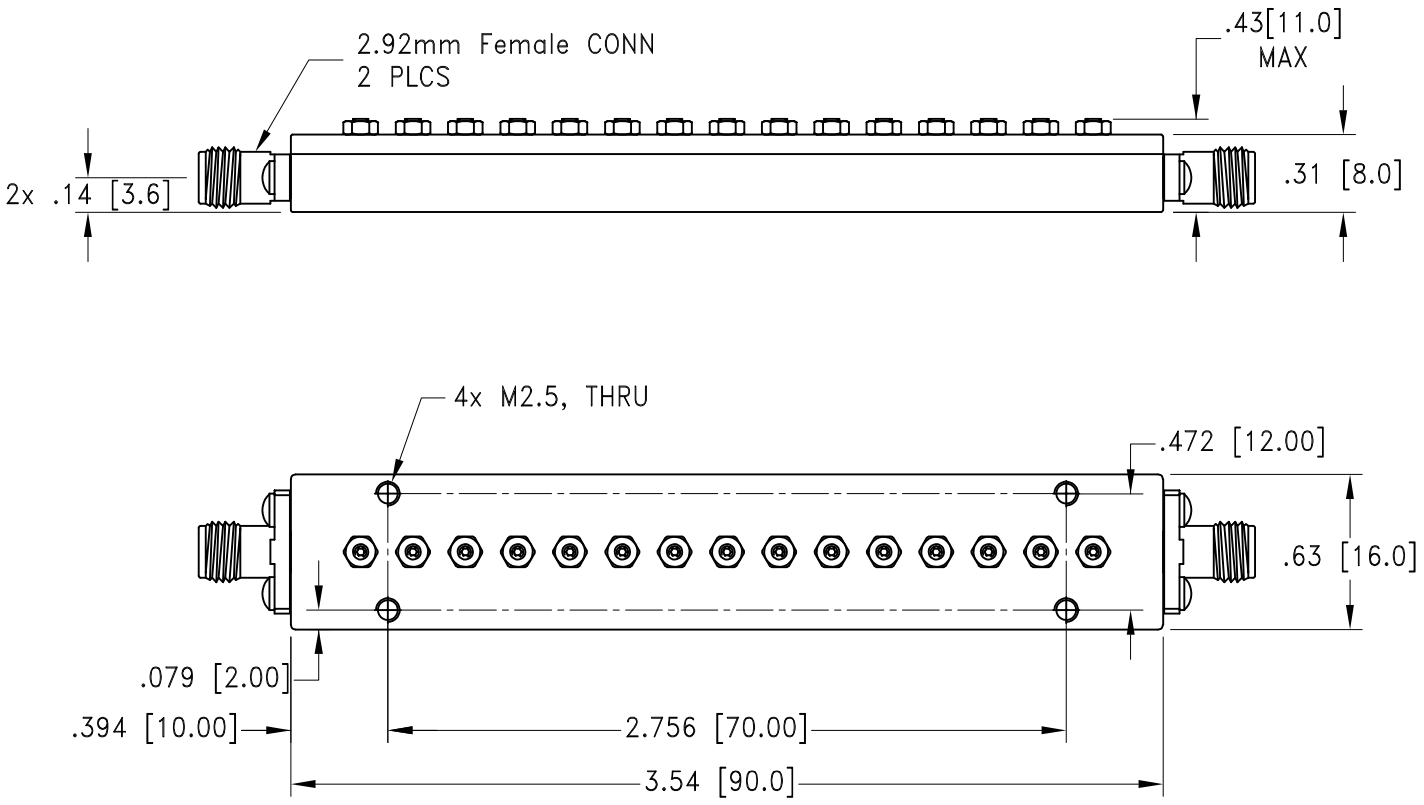


Group Delay (Pass band)



Case Style UH

Outline Dimensions UH3127



Weight: 85 grams ± 5 grams;
Dimensions are in inches (mm). Tolerances: 2 Pl.±.03; 3 Pl. ± .015

Notes:
1. Case material: H62 Copper Alloy
2. Case Finish: Black Painting

Mini-Circuits

Environmental Specifications ENV77T1

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	-30° to 70°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-30° to 70° C Ambient Environment	Individual Model Data Sheet
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C