

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-38500-V+

50Ω 37000 to 40000 MHz



Generic photo used for illustration purposes only

CASE STYLE: UH3129

Connectors Model
2.4mm-F ZVBP-38500-V+

Features

- Low insertion loss, 2.1 dB typical
- Good return loss, 25 dB typical
- High rejection
- Broad stopband performance up to 55 GHz
- Sharp roll-off

Applications

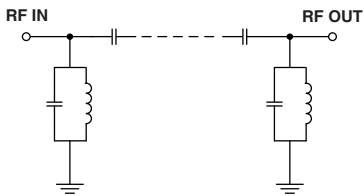
- 5G band n260

Electrical Specifications¹ at 25°C

Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Center Frequency	-	-	38500	-	MHz
	Insertion Loss	F1-F2	37000 - 40000	-	2.0	dB
	Return Loss	F1-F2	37000 - 40000	15	26	dB
Stop Band, Lower	Insertion Loss	DC-F3	DC - 36500	80	114	dB
	Return Loss	DC-F3	DC - 36500	-	0.19	dB
Stop Band, Upper	Insertion Loss	F4-F5	40500 - 55000	80	103	dB
	Return Loss	F4-F5	40500 - 55000	-	1.01	dB

1. Data measured after calibrating using 2.4mm cal kit.

Simplified Functional Schematic



Maximum Ratings

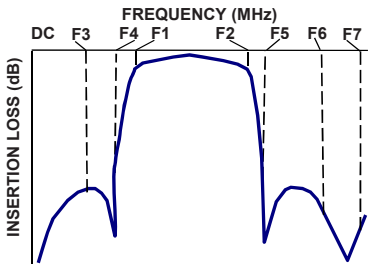
Operating Temperature	-30°C to 70°C
Storage Temperature	-30°C to 70°C
RF Power Input	2.5 W

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

Typical Performance Data at 25°C

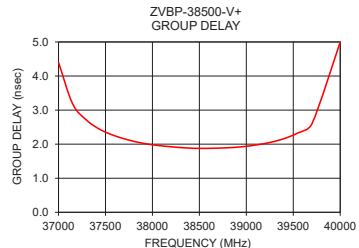
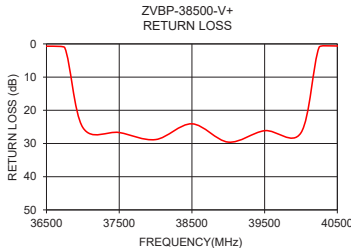
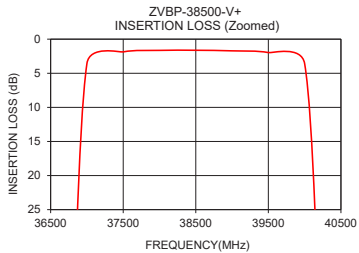
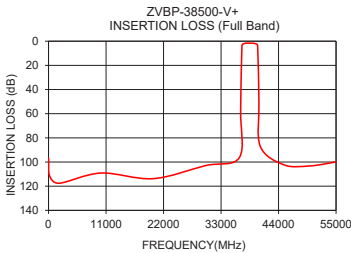
Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)	Frequency (MHz)	Group Delay (nsec)
10	96.9	0.05	37000	4.40
200	111.4	0.00	37150	3.19
2000	117.6	0.08	37300	2.70
10000	109.1	0.11	37450	2.42
20000	113.8	0.10	37600	2.25
30000	103.0	0.17	37750	2.12
36500	96.3	0.70	37900	2.03
36750	57.1	1.09	38050	1.97
37000	3.6	25.20	38200	1.92
37500	1.9	26.69	38350	1.89
38000	1.6	28.82	38500	1.88
38500	1.6	24.08	38650	1.88
39000	1.7	29.59	38800	1.89
39500	2.0	26.14	38950	1.92
40000	3.6	26.77	39100	1.98
40250	50.1	0.99	39250	2.05
40500	86.9	0.63	39400	2.16
45000	102.3	0.36	39550	2.33
50000	103.2	0.74	39700	2.61
55000	99.9	0.51	40000	5.00

Typical Frequency Response



+RoHS Compliant

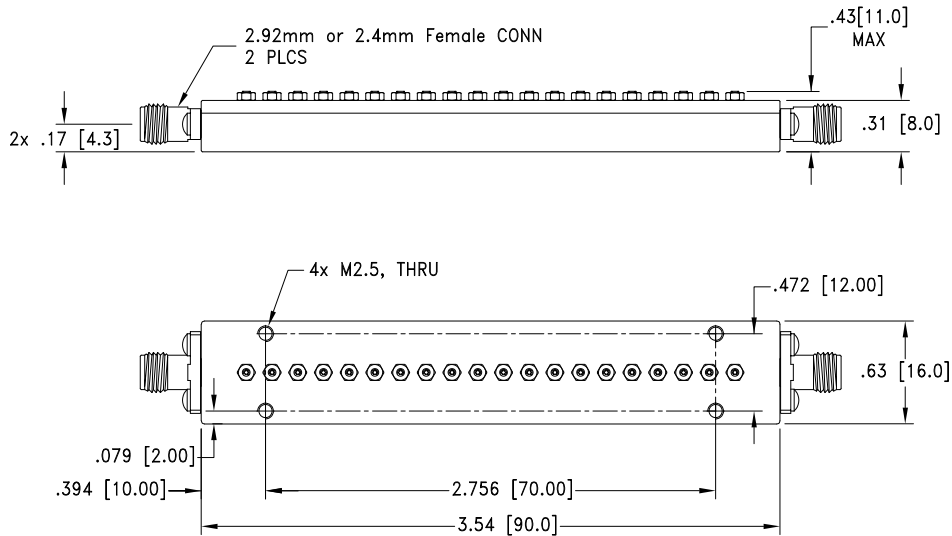
The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications



Coaxial Connections

PORT 1	2.4mm-FEMALE
PORT 2	2.4mm-FEMALE

Outline Drawing



Weight: 85 grams \pm 5 grams ;
Dimensions are in inches [mm]. Tolerances: 2 Pl. \pm .03; 3 Pl. \pm .015

Additional Notes

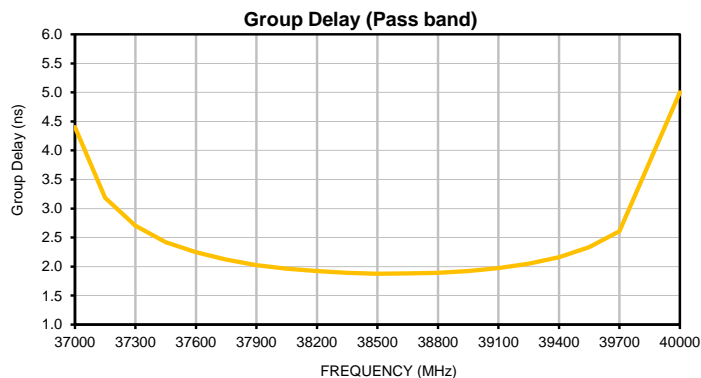
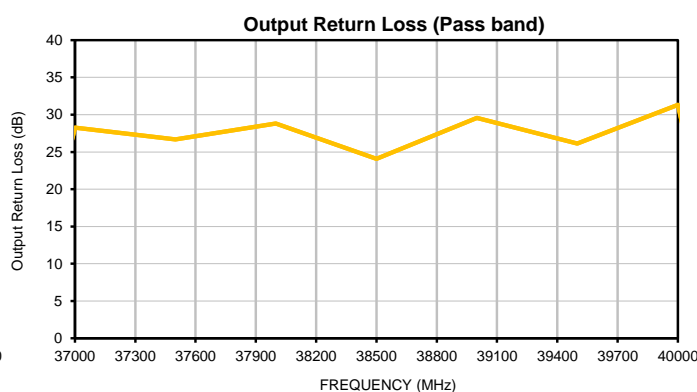
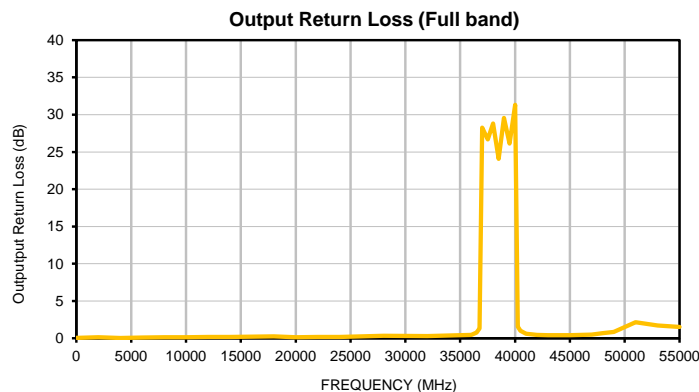
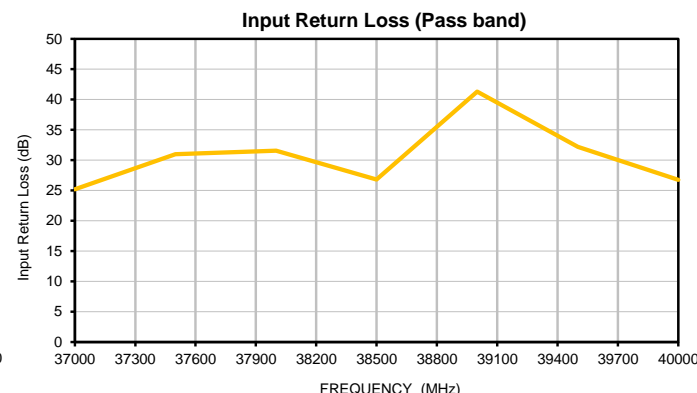
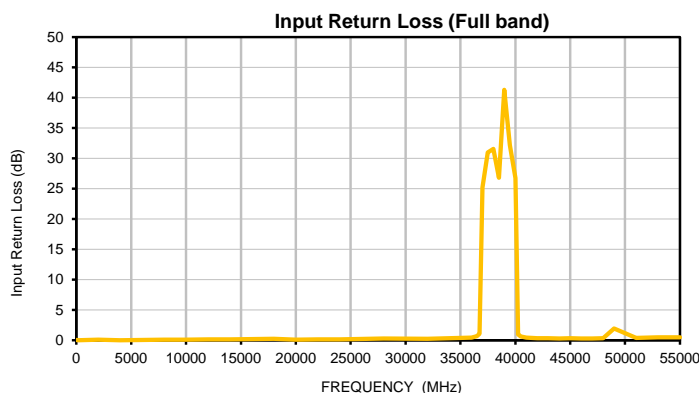
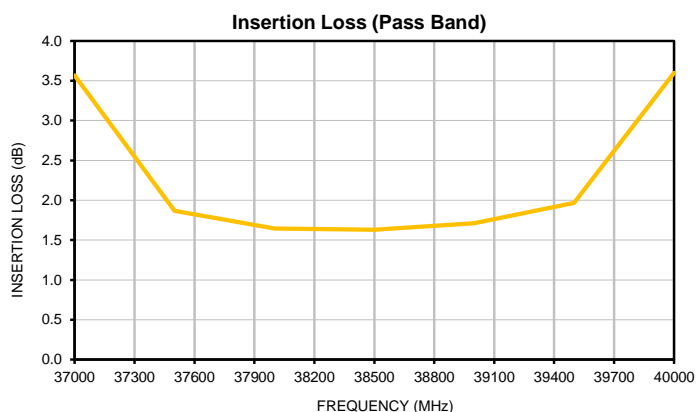
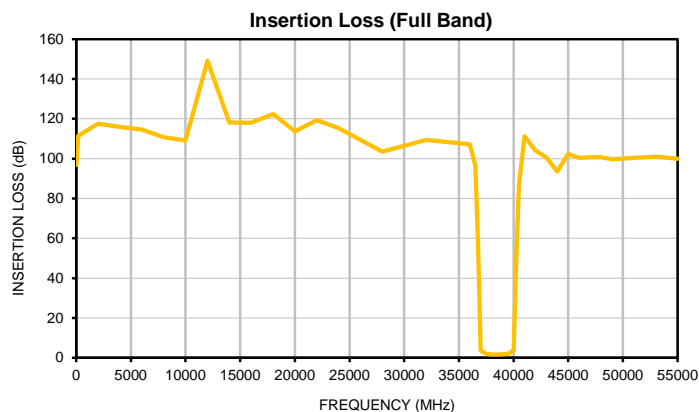
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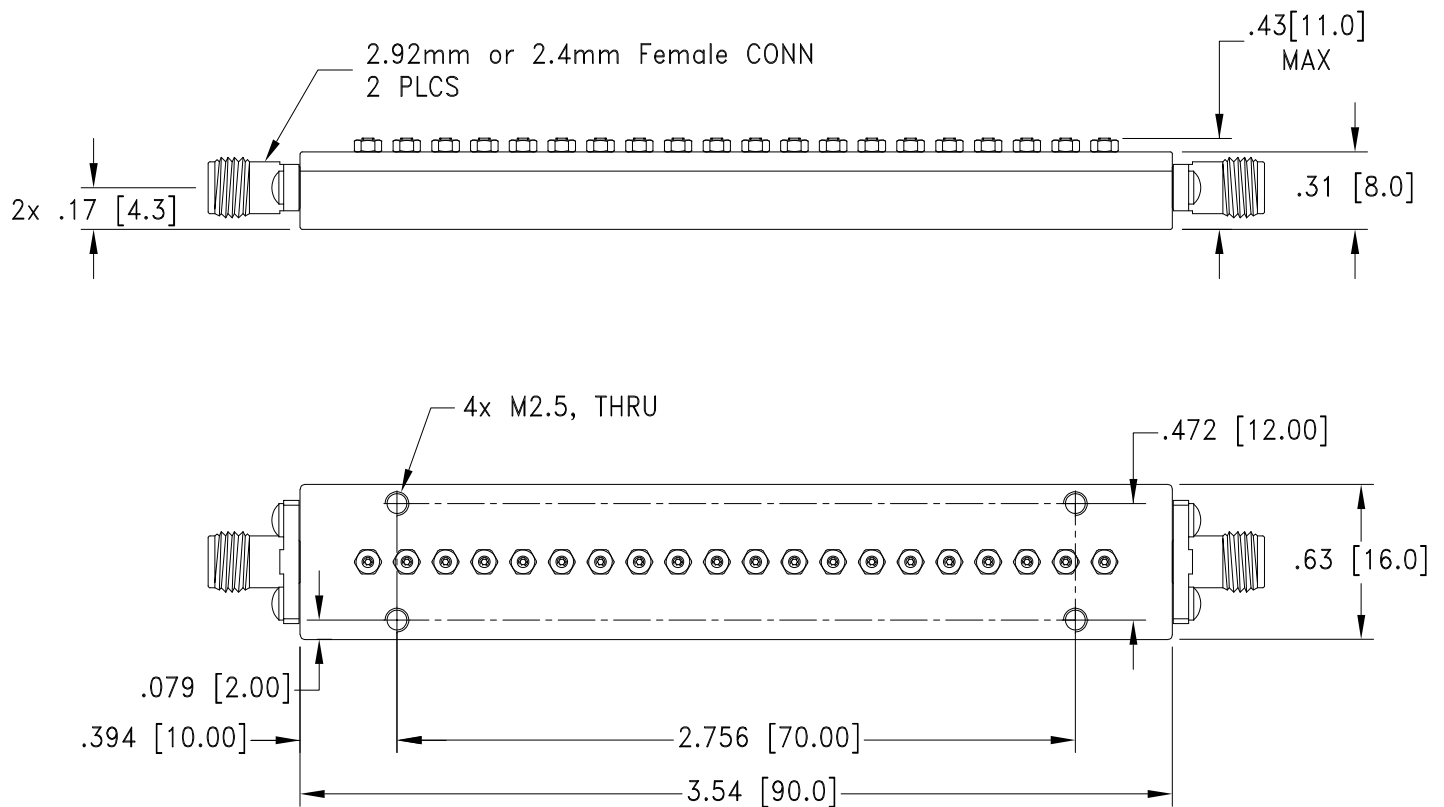
Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	INPUT RETURN LOSS (dB)	OUTPUT RETURN LOSS (dB)	FREQUENCY (MHz)	Group Delay (ns)
10	96.91	0.06	0.05	37000	4.40
200	111.43	0.00	0.06	37150	3.19
2000	117.57	0.08	0.12	37300	2.70
4000	115.93	0.02	0.04	37450	2.42
6000	114.59	0.05	0.08	37600	2.25
8000	110.70	0.10	0.13	37750	2.12
10000	109.12	0.11	0.12	37900	2.03
12000	149.20	0.16	0.19	38050	1.97
14000	118.13	0.15	0.17	38200	1.92
16000	118.06	0.20	0.22	38350	1.89
18000	122.48	0.25	0.27	38500	1.88
20000	113.77	0.10	0.13	38650	1.88
22000	119.34	0.14	0.17	38800	1.89
24000	115.29	0.13	0.18	38950	1.92
28000	103.47	0.27	0.32	39100	1.98
32000	109.40	0.25	0.30	39250	2.05
36000	107.21	0.44	0.44	39400	2.16
36500	96.34	0.70	0.76	39550	2.33
36750	57.09	1.09	1.32	39700	2.61
37000	3.57	25.20	28.27	40000	5.00
37500	1.87	30.97	26.69		
38000	1.65	31.54	28.82		
38500	1.63	26.78	24.08		
39000	1.71	41.30	29.59		
39500	1.97	32.19	26.14		
40000	3.60	26.77	31.32		
40250	50.11	0.99	1.56		
40500	86.95	0.63	1.01		
41000	111.18	0.46	0.61		
42000	104.11	0.34	0.44		
43000	100.53	0.35	0.40		
44000	93.58	0.30	0.40		
45000	102.29	0.36	0.43		
46000	100.37	0.29	0.45		
47000	100.72	0.31	0.49		
48000	100.72	0.33	0.68		
49000	99.60	1.96	0.85		
51000	100.40	0.38	2.15		
53000	100.93	0.49	1.73		
55000	99.90	0.51	1.50		



Typical Performance Curves





Weight: 85 grams \pm 5 grams ;

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

Notes:

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



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



The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

RF/IF MICROWAVE COMPONENTS



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