Coaxial

Bandpass Filter

BBP-35B+

50Ω 24 to 46 MHz

Generic photo used for illustration purposes only

CASE STYLE: FF55

The Big Deal

- Very good rejection
- Very low insertion loss, 0.5 dB typ.
- Good VSWR (1.2:1 typical)
- Sharp roll-off
- Connectorized package

Product Overview

BBP-35B+ is a 50Ω bandpass filter in a connectorized package. The bandpass filter covers from 24 to 46 MHz, offering low insertion loss and good matching within the passband. It uses miniature high Q capacitors and wire welded inductors for high reliability. It has repeatable performance across production lots and consistent performance across temperature.

Key Features

Feature	Advantages
Sharp roll off	Sharp roll off due to elliptic response
Good VSWR, 1.2:1 typical over passband	This provides well matched input and output ports.
Connectorized package	Connectorized package is easy to interface with other devices and well suited for test setups.

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50Ω 24 to 46 MHz

BBP-35B+

Generic photo used for illustration purposes only

CASE STYLE: FF55

Connectors	Model
BNC	BBP-35B+

Features

- Very low insertion loss, 0.5 dB typ.
- Good VSWR, 1.2:1 typical in passband
- Sharp roll off due to elliptic response

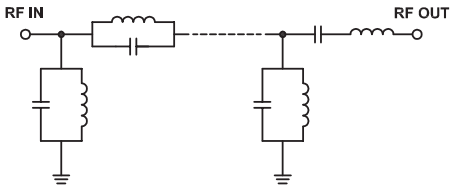
Applications

- Transmitters / Receivers- IF stage
- Harmonic rejection
- Test equipment
- Military communication

Electrical Specifications at 25°C

Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Insertion Loss	F1-F2	24 - 46	-	0.5	1.0	dB
	VSWR	F1-F2	24 - 46	-	1.2	1.5	:1
Stop Band, Lower	Insertion Loss	DC-F3	DC - 5	35	44	-	dB
		F3-F4	5 - 16	20	29	-	dB
	VSWR	DC-F4	DC - 16	-	25	-	:1
Stop Band, Upper	Insertion Loss	F5-F6	73 - 81	20	27	-	dB
		F6-F7	81 - 1000	35	39	-	dB
	VSWR	F5-F7	73 - 1000	-	20	-	:1

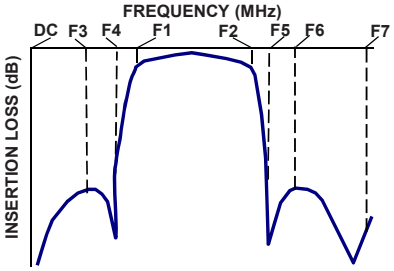
Functional Schematic



Maximum Ratings	
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power Input	0.5 W max.

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

Typical Frequency Response

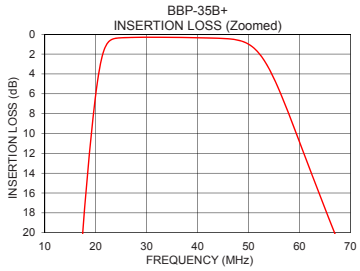


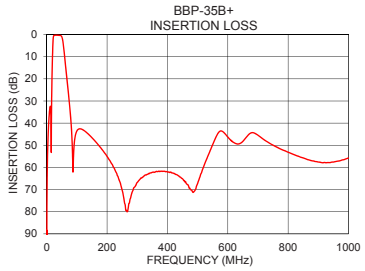
+RoHS Compliant

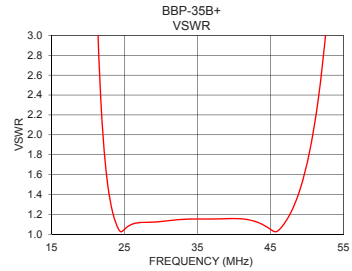
The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

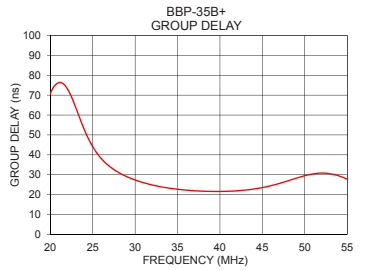
Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)	Frequency (MHz)	Group Delay (ns)
1	71.98	173.53	24	52.73
5	44.44	365.70	25	44.06
8	36.76	177.97	26	38.15
10	33.67	143.50	27	34.14
16	33.00	78.51	28	31.26
20	6.04	9.11	29	29.07
21	2.78	3.91	30	27.37
24	0.40	1.08	31	25.98
28	0.31	1.12	32	24.86
35	0.32	1.15	33	23.98
46	0.46	1.03	34	23.25
54	3.46	4.41	35	22.70
67	20.17	49.98	36	22.26
73	28.01	67.62	37	21.94
81	40.54	77.74	38	21.73
100	43.51	80.76	39	21.63
200	55.03	58.14	40	21.61
300	66.79	49.42	41	21.70
500	67.25	42.70	43	22.28
1000	55.74	46.27	46	24.48









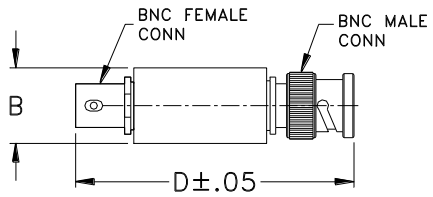
Notes

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	BNC-Male
PORT - 2	BNC-Female

Outline Drawing



Outline Dimensions (inch / mm)

A	B	C	D	E	Wt.
--	**0.57**	**--**	**2.59**	**--**	grams
--	14.47	--	65.79	--	40

Note: Please refer to case style drawing for details

Coaxial Band Pass Filter BBP-35B+

Typical Performance Data

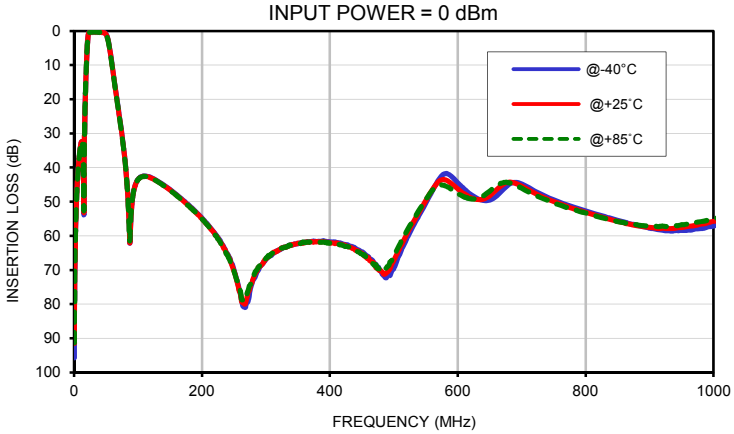
FREQ. (MHz)	INSERTION LOSS (dB)			INPUT RETURN LOSS (dB)			OUTPUT RETURN LOSS (dB)		
	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C
1	72.31	71.98	71.96	0.11	0.10	0.09	0.10	0.10	0.10
2	60.28	60.19	60.25	0.04	0.03	0.03	0.07	0.07	0.07
3	53.25	53.22	53.24	0.02	0.03	0.03	0.05	0.06	0.05
4	48.29	48.29	48.23	0.04	0.05	0.05	0.04	0.04	0.04
5	44.47	44.44	44.42	0.04	0.05	0.05	0.04	0.03	0.03
6	41.40	41.39	41.38	0.06	0.07	0.07	0.02	0.02	0.02
7	38.89	38.87	38.85	0.07	0.09	0.09	0.01	0.01	0.00
8	36.78	36.76	36.74	0.08	0.10	0.10	0.00	0.01	0.01
9	35.05	35.02	35.01	0.10	0.11	0.11	0.01	0.02	0.02
10	33.68	33.67	33.65	0.11	0.12	0.13	0.02	0.03	0.03
11	32.77	32.75	32.73	0.12	0.13	0.14	0.03	0.04	0.04
12	32.40	32.39	32.38	0.13	0.14	0.15	0.04	0.05	0.06
13	32.97	32.96	32.95	0.14	0.16	0.17	0.05	0.06	0.07
14	35.55	35.56	35.56	0.15	0.17	0.18	0.07	0.08	0.09
16	33.12	33.00	32.91	0.20	0.22	0.23	0.12	0.14	0.16
19	10.75	10.70	10.68	0.78	0.81	0.85	0.77	0.81	0.86
20	6.07	6.04	6.03	1.86	1.91	1.97	1.90	1.98	2.05
21	2.78	2.78	2.80	4.47	4.54	4.63	4.58	4.69	4.80
22	1.12	1.15	1.18	9.25	9.34	9.44	9.47	9.62	9.76
23	0.54	0.57	0.60	16.50	16.56	16.66	16.83	17.01	17.17
24	0.38	0.40	0.43	28.71	28.60	28.69	28.20	28.41	28.68
25	0.33	0.36	0.38	31.69	32.03	32.60	29.23	29.24	29.47
27	0.30	0.32	0.35	25.04	25.12	25.37	24.95	24.96	25.12
29	0.29	0.31	0.33	24.97	24.75	24.88	25.16	24.93	25.01
30	0.28	0.30	0.33	24.71	24.38	24.43	24.81	24.49	24.52
31	0.28	0.30	0.33	24.27	23.89	23.90	24.24	23.89	23.90
32	0.29	0.31	0.33	23.80	23.43	23.43	23.70	23.36	23.35
33	0.29	0.31	0.33	23.48	23.13	23.13	23.31	22.99	22.98
35	0.29	0.32	0.34	23.17	22.93	22.96	23.02	22.76	22.74
37	0.31	0.33	0.35	23.05	22.93	23.02	23.10	22.90	22.90
46	0.42	0.46	0.50	38.28	35.39	34.09	29.54	28.04	27.15
54	3.31	3.46	3.60	4.08	4.01	3.97	4.02	3.93	3.88
67	19.98	20.17	20.33	0.33	0.35	0.36	0.36	0.38	0.40
70	23.87	24.06	24.22	0.27	0.29	0.30	0.31	0.32	0.34
73	27.81	28.01	28.18	0.24	0.26	0.26	0.27	0.28	0.30
76	31.97	32.18	32.36	0.22	0.24	0.24	0.24	0.25	0.27
78	35.00	35.23	35.41	0.22	0.23	0.23	0.23	0.24	0.26
81	40.27	40.54	40.77	0.21	0.22	0.22	0.22	0.23	0.24
82	42.37	42.66	42.93	0.21	0.22	0.21	0.21	0.22	0.23
83	44.77	45.09	45.41	0.21	0.22	0.22	0.21	0.22	0.23
84	47.62	48.00	48.37	0.20	0.22	0.21	0.21	0.22	0.23
100	43.45	43.51	43.51	0.21	0.22	0.20	0.17	0.18	0.19
150	46.46	46.59	46.65	0.25	0.25	0.22	0.14	0.15	0.16
200	54.80	55.03	55.06	0.28	0.30	0.26	0.12	0.14	0.16
250	69.96	70.27	70.31	0.29	0.33	0.29	0.11	0.13	0.14
300	66.94	66.79	66.56	0.30	0.35	0.32	0.12	0.15	0.17
350	62.27	62.18	62.27	0.30	0.37	0.34	0.11	0.14	0.16
400	61.81	62.01	62.16	0.31	0.38	0.36	0.12	0.15	0.17
450	64.67	65.13	65.38	0.31	0.39	0.38	0.14	0.17	0.19
500	69.59	67.25	66.12	0.32	0.41	0.41	0.12	0.16	0.19
550	50.44	49.70	49.34	0.44	0.56	0.61	0.15	0.19	0.21
600	44.47	46.26	47.53	0.65	0.68	0.67	0.14	0.20	0.22
650	49.50	48.22	46.90	0.51	0.66	0.74	0.15	0.21	0.23
700	44.83	45.47	46.05	0.49	0.53	0.53	0.17	0.23	0.26
750	49.48	49.96	50.35	0.29	0.37	0.41	0.16	0.23	0.26
800	52.70	53.13	53.31	0.26	0.35	0.39	0.19	0.26	0.29
850	55.46	55.71	55.83	0.25	0.35	0.39	0.20	0.27	0.31
900	57.78	57.58	57.15	0.25	0.34	0.39	0.21	0.29	0.33
950	58.43	57.57	56.75	0.25	0.35	0.41	0.24	0.33	0.36
1000	57.14	55.74	54.98	0.27	0.38	0.44	0.25	0.34	0.39

Typical Performance Data

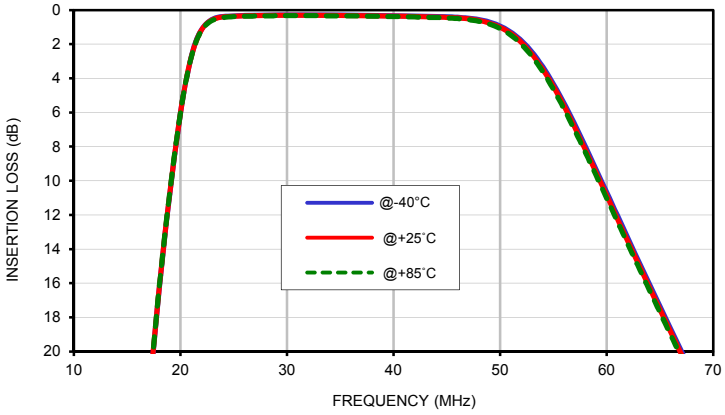
FREQ. (MHz)	GROUP DELAY (nsec)		
	@-40°C	@+25°C	@+85°C
24.00	52.90	52.73	52.57
24.25	50.42	50.27	50.13
24.50	48.12	48.01	47.87
24.75	46.03	45.93	45.83
25.00	44.14	44.06	43.96
25.25	42.43	42.36	42.28
25.50	40.87	40.81	40.75
25.75	39.47	39.41	39.36
26.00	38.19	38.15	38.10
26.25	37.04	37.01	36.97
26.50	35.99	35.96	35.93
26.75	35.04	35.02	34.99
27.00	34.16	34.14	34.12
27.25	33.35	33.34	33.32
27.50	32.60	32.60	32.58
27.75	31.90	31.89	31.88
28.00	31.26	31.26	31.25
28.25	30.67	30.66	30.66
28.50	30.11	30.10	30.09
28.75	29.58	29.58	29.57
29.00	29.08	29.07	29.07
29.25	28.61	28.61	28.60
29.50	28.18	28.19	28.18
29.75	27.75	27.75	27.75
30.00	27.37	27.37	27.37
30.25	27.00	27.00	26.99
30.50	26.64	26.63	26.64
30.75	26.30	26.31	26.30
31.00	25.98	25.98	25.99
31.50	25.39	25.40	25.40
32.00	24.86	24.86	24.86
32.50	24.37	24.39	24.40
33.00	23.96	23.98	23.99
33.50	23.58	23.60	23.61
34.00	23.24	23.25	23.26
34.50	22.93	22.95	22.97
35.00	22.66	22.70	22.71
35.50	22.45	22.47	22.49
36.00	22.23	22.26	22.29
36.50	22.06	22.09	22.12
37.00	21.90	21.94	21.97
37.50	21.79	21.83	21.85
38.00	21.69	21.73	21.76
40.00	21.54	21.61	21.65
40.50	21.57	21.63	21.68
41.00	21.62	21.70	21.76
41.50	21.71	21.79	21.85
42.00	21.85	21.92	21.99
42.50	22.00	22.08	22.15
45.00	23.43	23.55	23.65
46.00	24.35	24.48	24.60

Typical Performance Curves

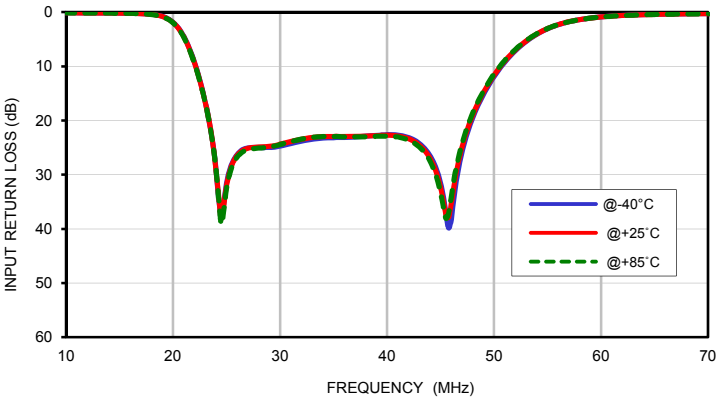
INSERTION LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



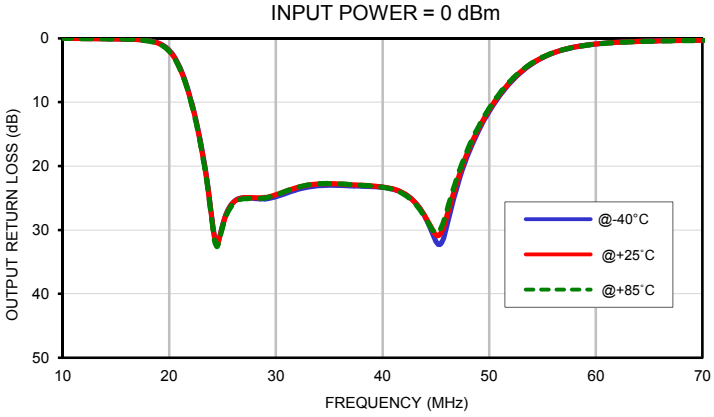
INSERTION LOSS vs. TEMPERATURE (Zoomed)
INPUT POWER = 0 dBm



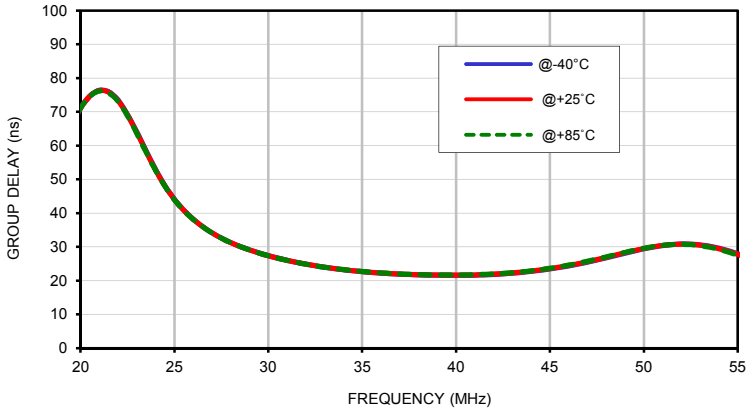
INPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



OUTPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



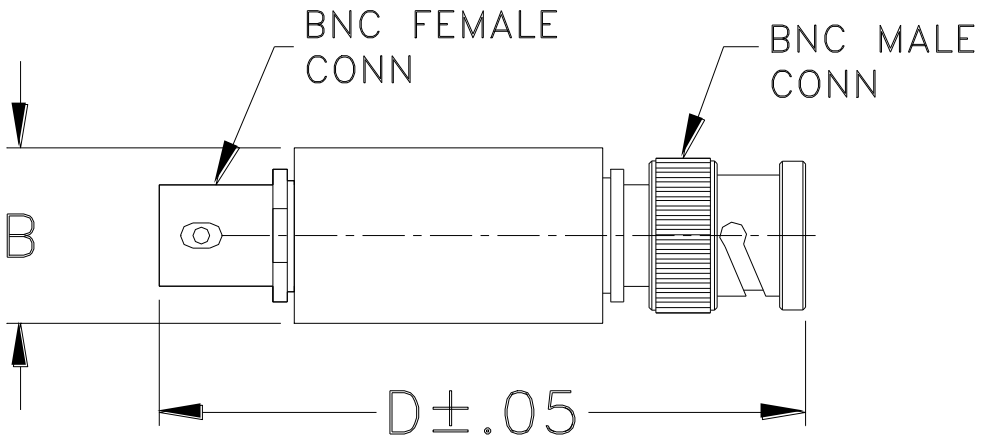
GROUP DELAY vs. TEMPERATURE
INPUT POWER = 0 dBm



Case Style FF

FF55

Outline Dimensions



CASE #.	A	B	C	D	E	WT GRAMS
FF55	-- --	.57 (14.47)	-- --	2.59 (65.79)	-- --	40.0

Dimensions are in inches (mm). Tolerances: 2Pl. +.03/-.04; 3Pl. ± .015

Note:

1. Case material: Stainless steel.

Mini-Circuits

Environmental Specifications **ENV105**

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 85° C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° 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