

Coaxial Bandpass Filter

BBP-140+

50Ω 130 to 150 MHz



Generic photo used for illustration purposes only
CASE STYLE: FF55

The Big Deal

- High rejection, 50 dB typ.
- Good VSWR, 1.3:1 typ.
- Fast roll-off
- Narrow bandwidth
- Connectorized package

Product Overview

BBP-140+ is a 50Ω bandpass filter in a connectorized package. This bandpass filter covers from 130 to 150 MHz, these units offer good matching within the passband and high rejection. This unit uses a 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
High rejection, 50 dB typ.	This enables the filter to attenuate spurious signals and reject harmonics for broad frequency band.
Good VSWR, 1.3:1 typ.	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.

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



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Connectors	Model
BNC	BBP-140+

Features

- High rejection, 50 dB typ.
- Fast roll-off
- Good VSWR, 1.3:1 typ.
- Rugged shielded case
- Connectorized package

Applications

- Receivers/Transmitters
- Wireless communication systems
- Radio link
- Test setup

Electrical Specifications at 25°C

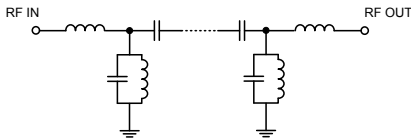
Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Center frequency	-	-	140	-	MHz
	Insertion Loss	F1-F2	130 - 150	2.6	3.5	dB
	VSWR	F1-F2	130 - 150	1.3	1.7	:1
Stop Band, Lower	Insertion Loss	DC-F3	DC - 100	40	47	dB
	VSWR	DC-F4	DC - 110	-	20	:1
Stop Band, Upper	Insertion Loss	F5-F6	185 - 210	20	30	dB
	Insertion Loss	F6-F7	210 - 1000	40	50	dB
	VSWR	F7-F8	185 - 2000	-	20	:1

Maximum Ratings

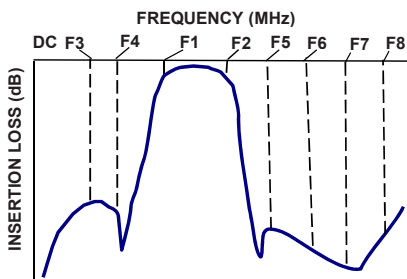
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power Input	0.5 W max.

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

Functional Schematic



Typical Frequency Response

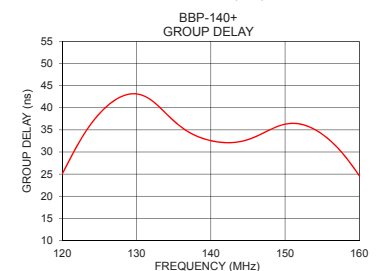
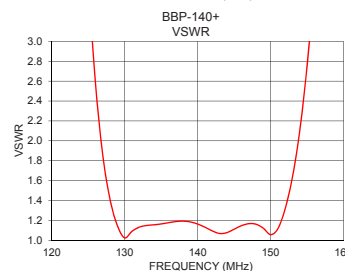
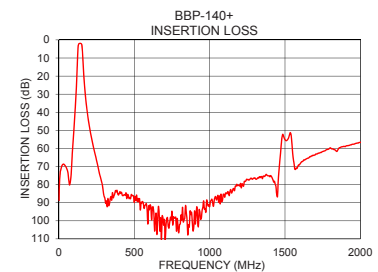
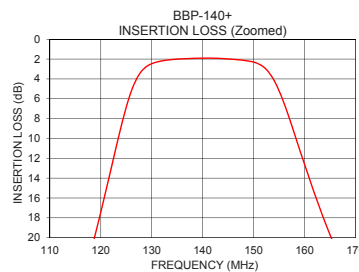


+RoHS Compliant

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	88.73	41.17	130	43.14
10	72.53	36.97	131	42.68
30	68.65	41.88	132	41.70
50	70.79	58.76	133	40.29
100	48.70	94.69	134	38.65
110	35.20	57.90	135	37.05
113	30.47	44.17	136	35.65
118	21.49	22.91	137	34.53
128	3.22	1.41	138	33.66
130	2.46	1.02	139	33.02
140	1.91	1.16	140	32.56
150	2.31	1.06	141	32.25
153	3.35	1.64	142	32.11
166	20.99	16.73	143	32.14
175	30.36	28.23	144	32.36
185	38.10	40.14	145	32.80
210	51.58	68.10	146	33.43
1000	92.21	0.00	147	34.23
1500	55.10	40.67	148	35.06
2000	56.64	31.20	150	36.29



Notes

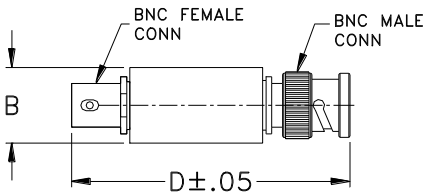
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Coaxial Connections

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

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Typical Performance Data

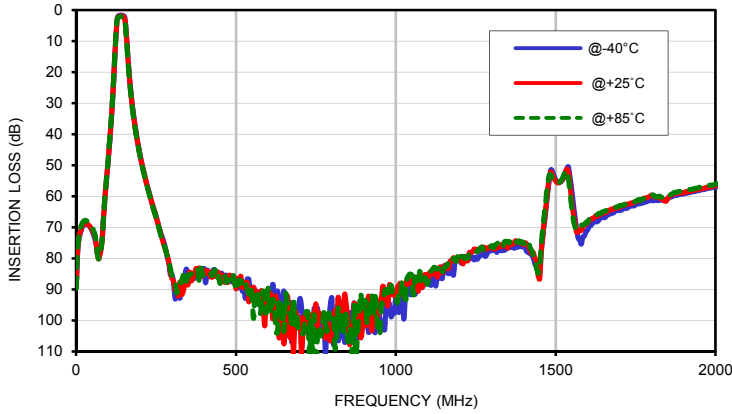
FREQ. (MHz)	INSERTION LOSS			INPUT RETURN LOSS			OUTPUT RETURN LOSS		
	(dB)			(dB)			(dB)		
	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C	@-40°C	@+25°C	@+85°C
1	87.00	88.73	89.63	0.33	0.42	0.51	0.31	0.40	0.48
5	78.34	76.65	76.75	0.36	0.46	0.54	0.35	0.45	0.53
10	73.02	72.53	71.68	0.38	0.47	0.55	0.37	0.46	0.54
20	69.88	69.49	68.43	0.39	0.46	0.52	0.39	0.45	0.52
30	69.00	68.65	67.81	0.36	0.41	0.46	0.36	0.41	0.46
40	69.59	69.42	68.66	0.32	0.35	0.39	0.31	0.35	0.38
50	71.22	70.79	70.15	0.26	0.30	0.32	0.27	0.29	0.32
100	48.95	48.70	48.44	0.15	0.18	0.21	0.15	0.18	0.20
110	35.52	35.20	34.85	0.25	0.30	0.34	0.24	0.29	0.33
112	32.43	32.09	31.72	0.29	0.36	0.41	0.29	0.35	0.39
113	30.82	30.47	30.08	0.33	0.39	0.45	0.32	0.38	0.43
118	21.86	21.49	21.04	0.63	0.76	0.88	0.60	0.72	0.83
119	19.86	19.49	19.03	0.76	0.91	1.05	0.71	0.85	0.98
120	17.77	17.41	16.95	0.93	1.11	1.28	0.87	1.04	1.20
125	6.88	6.84	6.65	4.23	4.83	5.53	3.92	4.49	5.14
128	2.97	3.22	3.35	14.45	15.36	16.76	12.78	13.52	14.69
130	2.19	2.46	2.65	40.78	38.52	37.53	24.02	24.66	26.39
131	2.03	2.30	2.48	26.59	27.37	27.52	27.17	29.28	31.99
135	1.77	2.00	2.18	22.71	22.41	22.50	29.00	27.92	26.31
138	1.70	1.93	2.10	20.47	21.15	21.85	21.67	22.40	22.73
140	1.68	1.91	2.08	20.77	22.45	24.03	21.42	23.09	24.44
145	1.72	1.98	2.19	27.97	25.60	23.53	28.67	25.58	23.70
150	1.98	2.31	2.59	31.90	31.24	29.67	34.10	35.16	34.14
153	2.83	3.35	3.87	13.39	12.33	11.15	13.24	12.28	11.17
160	11.91	12.65	13.41	2.01	2.07	2.06	1.98	2.05	2.06
166	20.45	20.99	21.58	0.96	1.04	1.08	0.94	1.03	1.08
170	25.09	25.54	26.04	0.72	0.79	0.83	0.70	0.78	0.83
173	28.14	28.53	28.98	0.61	0.67	0.72	0.60	0.67	0.72
175	30.01	30.36	30.79	0.55	0.62	0.66	0.54	0.61	0.66
180	34.20	34.49	34.85	0.45	0.51	0.55	0.44	0.50	0.54
185	37.85	38.10	38.44	0.38	0.43	0.47	0.38	0.43	0.47
210	51.48	51.58	51.83	0.21	0.26	0.29	0.22	0.26	0.28
220	55.62	55.80	56.03	0.18	0.22	0.25	0.18	0.22	0.24
230	59.55	59.68	59.88	0.16	0.20	0.22	0.16	0.20	0.22
300	85.21	86.55	85.71	0.09	0.12	0.15	0.09	0.12	0.13
400	83.36	84.83	85.79	0.07	0.10	0.12	0.06	0.09	0.10
500	86.49	89.86	90.09	0.07	0.11	0.13	0.05	0.08	0.10
550	89.55	90.05	91.64	0.08	0.12	0.14	0.05	0.09	0.11
600	95.96	93.91	89.68	0.08	0.12	0.15	0.05	0.09	0.11
650	90.92	107.55	103.60	0.10	0.14	0.17	0.06	0.10	0.12
700	92.92	99.43	104.65	0.10	0.15	0.18	0.06	0.10	0.13
750	100.61	94.74	115.03	0.11	0.16	0.20	0.06	0.10	0.13
800	92.92	102.16	99.73	0.13	0.18	0.22	0.07	0.12	0.14
850	106.85	99.50	106.88	0.14	0.19	0.23	0.07	0.13	0.16
900	97.41	94.51	97.24	0.15	0.21	0.25	0.08	0.13	0.16
950	99.17	94.19	104.45	0.17	0.23	0.27	0.09	0.15	0.17
1000	92.45	92.21	91.50	0.18	0.25	0.29	0.10	0.16	0.19
1050	91.40	87.53	85.47	0.20	0.26	0.31	0.10	0.17	0.20
1100	87.08	86.94	88.28	0.22	0.29	0.33	0.12	0.19	0.22
1150	82.49	83.88	83.23	0.23	0.30	0.35	0.13	0.20	0.23
1200	80.86	80.76	79.96	0.25	0.32	0.37	0.13	0.21	0.24
1250	79.63	77.27	78.08	0.27	0.34	0.39	0.15	0.23	0.26
1300	76.98	76.25	75.96	0.28	0.35	0.40	0.15	0.23	0.26
1350	76.83	76.69	74.65	0.30	0.37	0.43	0.17	0.26	0.28
1400	75.82	75.63	75.28	0.31	0.39	0.45	0.18	0.26	0.29
1500	54.67	55.10	55.55	0.35	0.43	0.49	0.20	0.29	0.32
1600	70.81	68.49	68.42	0.37	0.45	0.52	0.20	0.30	0.33
1700	64.62	63.55	63.03	0.41	0.49	0.56	0.23	0.33	0.36
1800	61.34	59.64	59.68	0.43	0.52	0.59	0.24	0.36	0.38
2000	56.98	56.64	56.12	0.46	0.56	0.63	0.25	0.39	0.40

Typical Performance Data

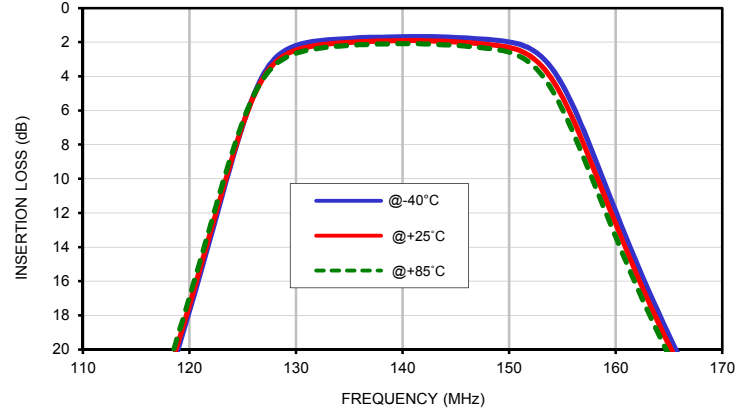
FREQ. (MHz)	GROUP DELAY		
	(nsec)		
	@-40°C	@+25°C	@+85°C
120	24.30	25.09	25.99
121	27.65	28.32	29.13
122	30.93	31.43	32.11
123	33.90	34.24	34.77
124	36.45	36.65	37.04
125	38.59	38.68	38.95
126	40.36	40.34	40.50
127	41.77	41.64	41.68
128	42.80	42.57	42.49
129	43.43	43.09	42.88
130	43.60	43.14	42.80
131	43.24	42.68	42.22
132	42.31	41.70	41.16
133	40.89	40.29	39.74
134	39.16	38.65	38.16
135	37.43	37.05	36.66
136	35.91	35.65	35.36
137	34.70	34.53	34.33
138	33.77	33.66	33.54
139	33.08	33.02	32.95
140	32.59	32.56	32.53
141	32.25	32.25	32.27
142	32.07	32.11	32.18
143	32.06	32.14	32.26
144	32.22	32.36	32.55
145	32.60	32.80	33.05
146	33.20	33.43	33.72
147	34.00	34.23	34.52
148	34.88	35.06	35.29
149	35.71	35.79	35.92
150	36.35	36.29	36.27
151	36.69	36.48	36.31
152	36.68	36.33	36.02
153	36.32	35.85	35.42
154	35.65	35.09	34.54
155	34.69	34.03	33.38
156	33.45	32.70	31.94
157	31.92	31.08	30.22
158	30.11	29.18	28.23
159	28.00	27.02	25.99
160	25.64	24.62	23.57

Typical Performance Curves

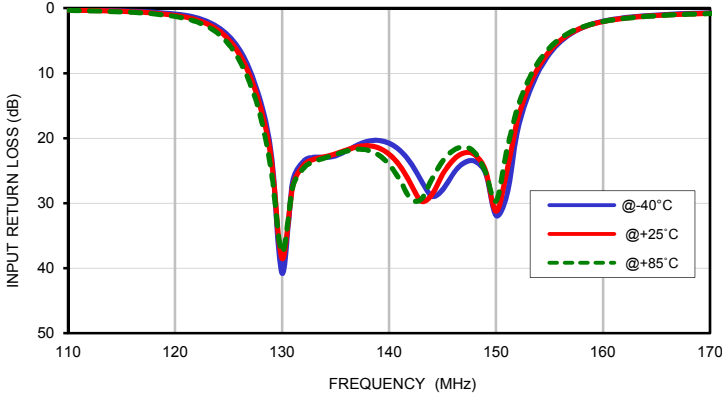
INSERTION LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



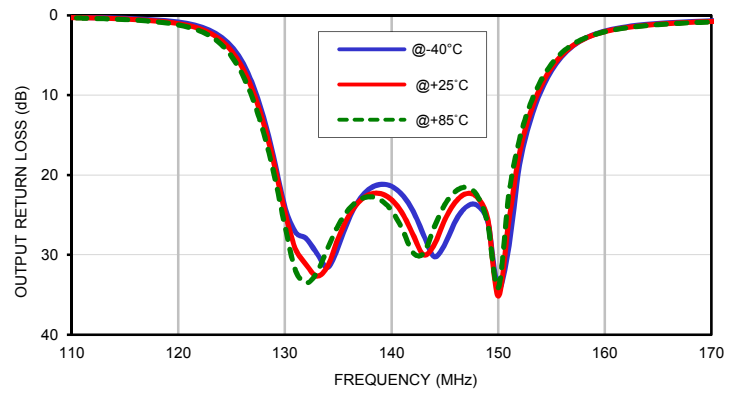
INSERTION LOSS vs. TEMPERATURE (Zoomed)
INPUT POWER = 0 dBm



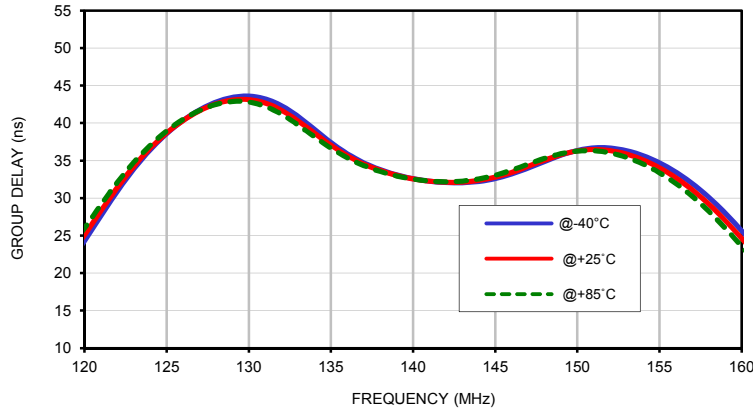
INPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



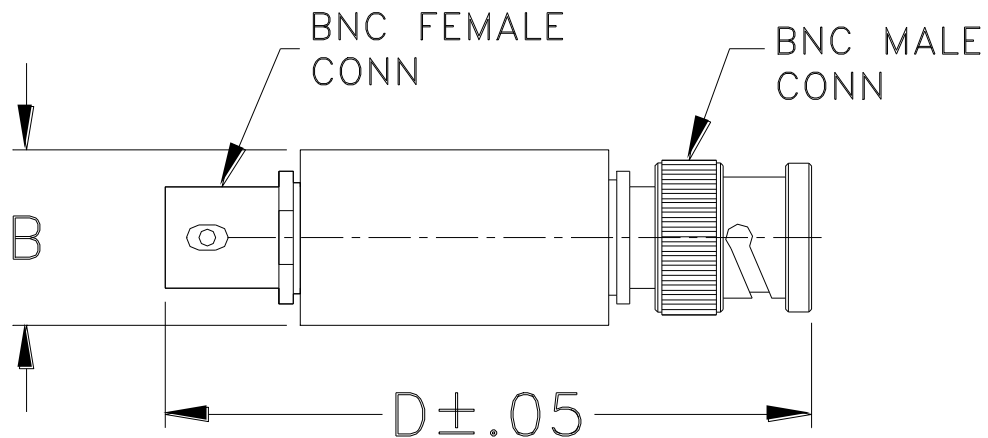
OUTPUT RETURN LOSS vs. TEMPERATURE
INPUT POWER = 0 dBm



GROUP DELAY vs. TEMPERATURE
INPUT POWER = 0 dBm



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.



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