Coaxial

Bandpass Filter

ZFBP-13.5-S+

50Ω   12 to 15 MHz

Generic photo used for illustration purposes only
CASE STYLE: H16

The Big Deal

- High rejection, (50dB from 30-1000 MHz)
- Low frequency bandpass filter
- Connectorized package

Product Overview

ZFBP-13.5-S+ is a bandpass filter built in rugged connectorized package, covering 12 to 15 MHz. These units offer good matching within the band pass and high rejection. This will find its application in semiconductor processing equipment. It has repeatable performance across production lots and consistent performance across temperature.

Key Features

Feature	Advantages
Good passband insertion loss and roll-off	Low insertion loss will be used in designs optimized for high performance applications. Good roll-off will attenuate frequencies closer to the passband with good rejection value of >20dB.
Good ultimate rejection	This enables the filters to attenuate spurious signals and reject harmonics for broad band frequency.
Connectorized package	The connectorized packages can easily interface with other devices and well suited for test set-ups.
Good VSWR, 1.3:1 typical in passband	This model has very good return loss for this bandwidth and provides good interface when used with other devices.

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Connectors	Model
SMA-Female	ZFBP-13.5-S+

Features

- High stopband Rejection
- Good VSWR, 1.3:1 typical in passband
- Connectorized package

Applications

- Harmonic Rejection
- Medical Instrumentation
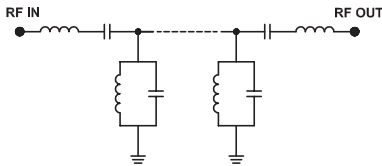- Industrial process equipments
- Lab use

Functional Schematic

RF IN   RF OUT

Typical Frequency Response

FREQUENCY (MHz)

INSERTION LOSS (dB)

DC   F3 F1 F2 F4   F5

Electrical Specifications at 25°C

Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Center Frequency	—	—	—	13.5	—	MHz
	Insertion Loss	F1-F2	12 -15	—	1.5	3.0	dB
	VSWR	F1-F2	12 -15	—	1.3	1.7	:1
Stop Band, Lower	Insertion Loss	DC-F3	DC - 8	20	31	—	dB
	VSWR	DC-F3	DC - 8	—	46	—	:1
Stop Band, Upper	Insertion Loss	F4-F5	22 -1600	20	33	—	dB
	VSWR	F4-F5	22 -1600	—	12	—	:1

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

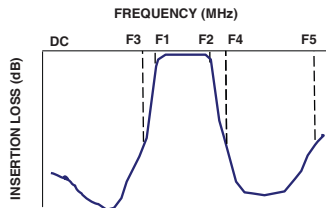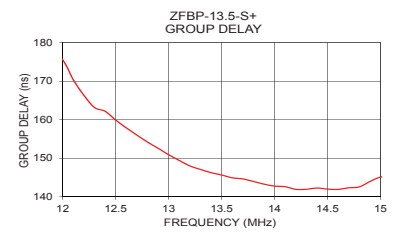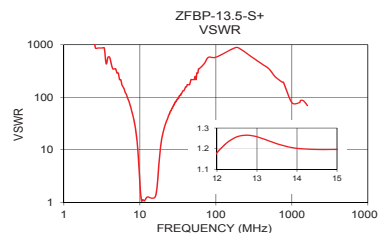Permanent damage may occur if any of these limits are exceeded.

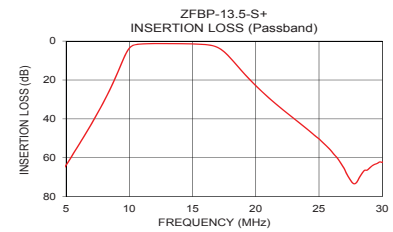## Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)	Frequency (MHz)	Group Delay (nsec)
0.5	102.04	1737.18	12.0	175.55
5.0	63.88	289.53	12.2	166.33
7.0	42.69	91.43	12.4	162.19
8.0	30.99	48.26	12.6	157.87
8.8	20.32	24.14	12.8	154.19
9.2	14.38	14.03	13.0	150.90
9.6	8.31	6.32	13.2	148.00
10.4	1.96	1.16	13.4	146.25
12.0	1.29	1.18	13.5	145.64
13.5	1.31	1.22	13.6	144.92
15.0	1.46	1.20	13.8	143.96
17.0	3.32	2.27	14.0	142.77
17.6	6.10	4.27	14.1	142.59
18.6	13.17	10.50	14.2	141.92
20.0	22.92	20.22	14.3	141.95
22.0	34.52	32.79	14.4	142.26
50.0	61.41	217.15	14.5	141.98
500.0	86.71	347.44	14.6	141.92
1000.0	80.29	78.97	14.8	142.58
1600.0	55.07	69.49	15.0	145.14

ZFBP-13.5-S+
INSERTION LOSS (Full band)

ZFBP-13.5-S+
INSERTION LOSS (Passband)
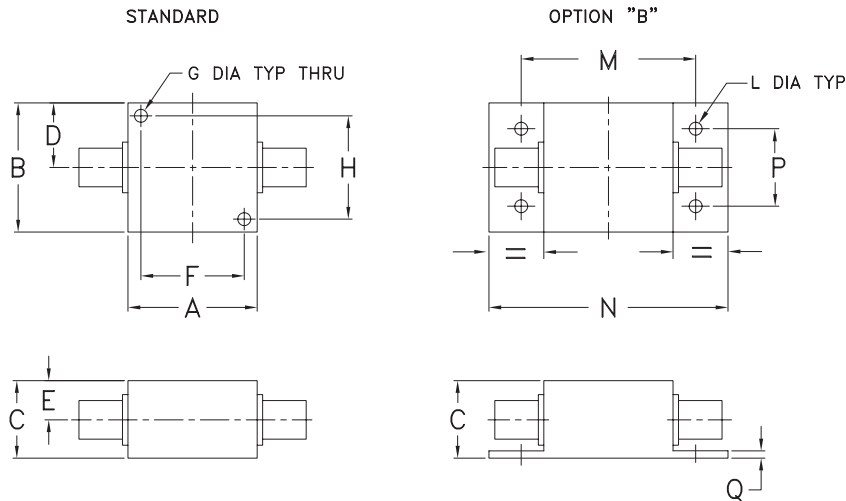
ZFBP-13.5-S+
VSWR

ZFBP-13.5-S+
GROUP DELAY

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.
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Coaxial Connections

PORT - 1	SMA Female
PORT - 2	SMA Female

Outline Drawing

STANDARD

OPTION "B"

Outline Dimensions (inch / mm)

A	B	C	D	E	F	G	H
1.25	1.25	.75	.63	.38	1.000	.125	1.000
31.75	31.75	19.05	16.00	9.65	25.40	3.18	25.40

J	K	L	M	N	P	Q	wt
--	--	.125	1.688	2.18	.750	.06	grams
--	--	3.18	42.88	55.37	19.05	1.52	70.0

Note: Please refer to case style drawing for details