

Surface Mount

Bandpass Filter

BPF-C495+

50Ω 470 to 520 MHz

The Big Deal

- High rejection (70 dB typical)
- Linear phase (± 9 deg typical over $F_c \pm 30$ MHz)
- Miniature shielded case



CASE STYLE: HU1186

Product Overview

The BPF-C495+ is a narrow band pass filter in a metal shielded package (size of 0.87" x 0.80" x .25") fabricated using SMT technology. The BPF-C495+ offers a typical pass band insertion loss of 1.7 dB with sharp roll-off and stopband rejection down to 90 dB typ. In addition, it has repeatable performance across production lots and consistent performance across temperature.

Key Features

Feature	Advantages
Minimal Phase deviation over attenuation range: ± 9 deg typical over $F_c \pm 30$ MHz.	Can provide low signal distortion for high data rate communication systems.
High rejection, 70dB typical	Achieving 90dB rejection at 1200MHz; the BPF-C495+ provides a versatile anti aliasing solution for high data rate receivers.
Good VSWR, 1.3:1 typical over passband	The BPF-C495+ has very good return loss over the operating bandwidth which enables low ripple interface when cascaded with other devices.
Sharp roll off	Provides good rejection of signals close to the passband, for improved system performance.
Metal SMT shielded case	Reduced interference to, and from surrounding components.

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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Features

- High rejection, 70 dB typical
- Linear phase, up to ± 9 deg typical over $F_c \pm 30$ MHz
- Good VSWR, 1.3:1 typical in passband
- Sharp insertion loss roll off
- Shielded case
- Aqueous washable

Applications

- Harmonic rejection
- Transmitters / receivers
- TV broadcasting

Electrical Specifications at 25°C

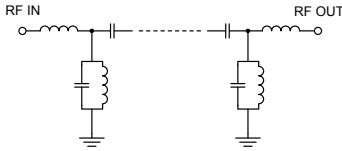
Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Center Frequency	F_c		495		MHz
	Insertion Loss	F1-F2	470-520	2.0	3.0	dB
	VSWR	F1-F2	470-520	1.3	1.8	:1
Stop Band, Lower	Insertion Loss	DC-F3	DC-410	20	27	dB
	VSWR	DC-F3	DC-410	29		:1
Stop Band, Upper	Insertion Loss	F4-F5	625-2600	20	30	dB
	VSWR	F4-F5	625-2600	27		:1
Maximum Deviation from Linear Phase	$F_c \pm 30$ MHz	465-525		± 9	± 18	deg

Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power Input	1W max.

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

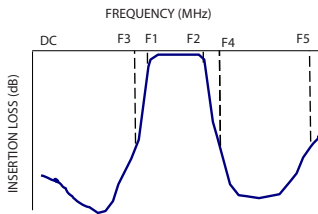
Functional Schematic



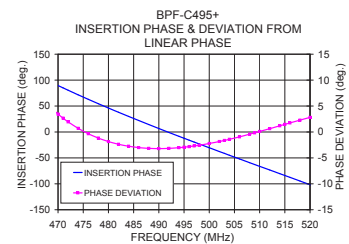
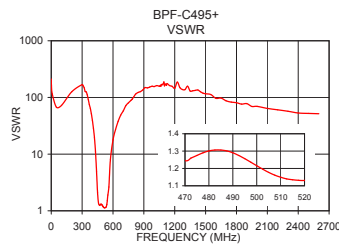
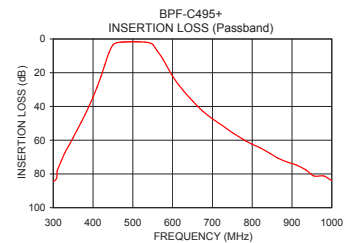
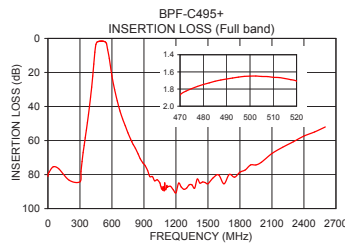
Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)	Frequency (MHz)	Group Delay (nsec)
0.5	87.14	211.87	465.0	8.60
370.0	48.91	74.88	466.0	7.39
410.0	28.18	28.64	470.0	3.46
430.0	14.83	11.27	472.0	1.95
440.0	8.14	4.95	474.0	0.70
450.0	3.85	2.08	476.0	-0.34
460.0	2.45	1.34	478.0	-1.18
470.0	2.06	1.25	480.0	-1.85
480.0	1.90	1.30	484.0	-2.75
495.0	1.79	1.26	490.0	-3.21
510.0	1.76	1.15	495.0	-2.93
520.0	1.78	1.13	500.0	-2.22
550.0	3.17	1.90	503.0	-1.63
560.0	6.57	2.63	504.0	-1.41
575.0	11.67	8.09	506.0	-0.94
600.0	21.88	17.81	510.0	0.10
625.0	29.80	27.07	515.0	1.47
700.0	46.47	57.93	518.0	2.28
1200.0	90.71	145.46	520.0	2.81
2600.0	52.36	51.57	525.0	3.99

Typical Frequency Response



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



Notes

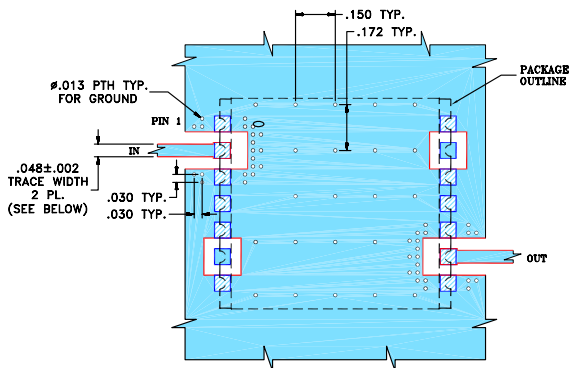
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Pad Connections

INPUT	2
OUTPUT	9
NOT CONNECTED	6,13
GROUND	1,3,4,5,7,8,10,11,12,14

Demo Board MCL P/N: TB-500+
Suggested PCB Layout (PL-294)

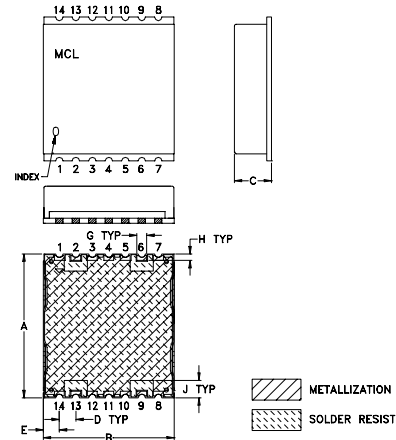


NOTES:

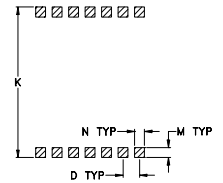
- TRACE WIDTH IS SHOWN FOR ROGERS R04350B.
 DIELECTRIC THICKNESS: .030" ± .002";
 COPPER: 1/2 OZ ON EACH SIDE.
 FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
- BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
- DENOTES COPPER LAND PATTERN FREE OF SOLDERMASK

Outline Drawing



PCB Land Pattern



Suggested Layout,
 Tolerance to be within ±.002

Outline Dimensions (inch / mm)

A	B	C	D	E	F	G	H
.870	.800	.25	.100	.097	--	.060	.040
22.10	20.32	6.35	2.54	2.46	--	1.52	1.02
J	K	L	M	N	P	wt	
.105	.910	--	.060	.060	--	grams	
2.67	23.11	--	1.52	1.52	--	2.85	

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