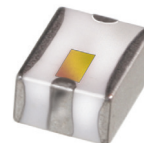


# High Pass Filter

## HFCV-145+

50Ω      140 to 1150 MHz



CASE STYLE: JV1210C

### The Big Deal:

- Small size 3.2mm x 2.5 mm
- High Power handling (8W)
- High rejection (20 dB typ)
- Ceramic construction

### Product Overview:

New High Pass Filter HFCV-145+ is an LTCC based 7 section design, that extends the lower frequency cutoff range of the existing HFCN series to 145 MHz. Systems that previously relied on active or lumped element filtering to support these lower frequencies can save power and system complexity by integrating the HFCV-145+ into new designs. These filters are offered in a EIA 1210 package size and have a typical stop band rejection of 20 dB.

#### Summary Performance

Insertion Loss (Pass band)	1.5 dB Max.	155-1050 MHz
Return Loss (Pass band)	15 dB Typ.	155-1050 MHz
Stop band Rejection	15 dB Min.	115 MHz
Stop band Rejection	20 dB typ.	80 MHz

### Key Features

Feature	Advantages
Small Size (3.2mm x2.5 mm)	Available in the size of typical resistors or capacitors (EIA 1210), the ultra small HFCV series integrates up to 7 low pass sections in a simple SMT chip form factor.
High Power Handling	The HFCV series can withstand up to 8W CW signal without damage making this filter ideal for use in medium power to transmit paths.
Temperature Stability	Over a 155°C operating temperature range (-55°C to +100°C), the HFCV series ceramic filters typically exhibit less than 0.2 dB pass band insertion loss variation.
High Rejection	Achieving 20dB rejection @80 MHz; the HFCV-145+ provides a versatile high pass configuration for many up converter applications.

#### Notes

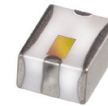
- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.  
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's 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](http://www.minicircuits.com/MCLStore/terms.jsp)



# Ceramic High Pass Filter

50Ω 140 to 1150 MHz

## HFCV-145+



Generic photo used for illustration purposes only

CASE STYLE: JV1210C

**+RoHS Compliant**

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

**Available Tape and Reel at no extra cost**

Reel Size	Devices/Reel
7"	20, 50, 100, 200, 500, 1000, 3000

### Maximum Ratings

Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power Input*	8.5W max. at 25°C

\* Passband rating, derate linearly to 3.5W at 100°C ambient. Permanent damage may occur if any of these limits are exceeded.

### Pin Connections

RF IN	1
RF OUT	3
GROUND	2,4

### Features

- low cost
- small size
- 7 sections
- temperature stable
- dc block in/out, breakdown voltage, 1kV typ.
- excellent power handling, 8.5W
- hermetically sealed

### Applications

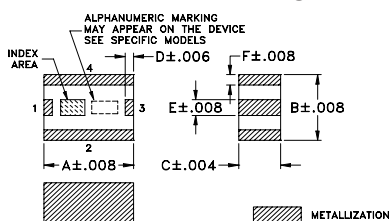
- sub-harmonic rejection and dc blocking
- transmitters/receivers
- lab use

### Electrical Specifications<sup>1</sup> at 25°C

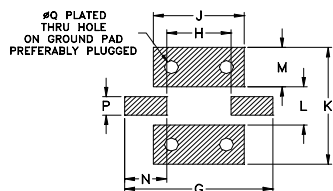
Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Stop Band	Rejection Loss	DC-F1	DC-80	20		dB
		DC-F2	DC-115	15		dB
	Freq. Cut-Off	F3	132	3.0		dB
	VSWR	DC-F2	DC-115	20		:1
Pass Band	Insertion Loss	F5-F6	155-1050		1.5	dB
		F4-F7	140-1150		3.0	dB
	VSWR	F5-F7	155-1150	1.5		:1

1. Measured on Mini-Circuits Characterization Test Board TB-526+.

### Outline Drawing



### PCB Land Pattern

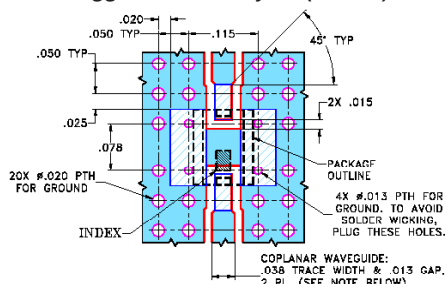


Suggested Layout, Tolerance to be within ±.002

### Outline Dimensions (inch)

A	B	C	D	E	F	G	H
.126	.098	.059	.012	.024	.016	.209	.091
3.20	2.49	1.50	0.30	0.61	0.41	5.31	2.31
J	K	L	M	N	P	Q	wt
.128	.175	.057	.059	.059	.028	.020	grams
3.25	4.45	1.45	1.60	1.60	0.71	0.51	.03

### Demo Board MCL P/N: TB-526+ Suggested PCB Layout (PL-307)

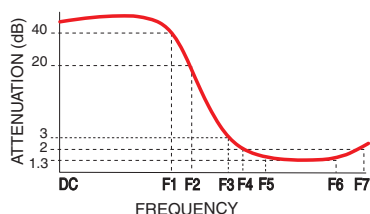


- NOTES:
1. COPLANAR WAVEGUIDE PARAMETERS ARE SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.020" ± 0.0015"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH AND GAP MAY NEED TO BE MODIFIED.
  2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
  - DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

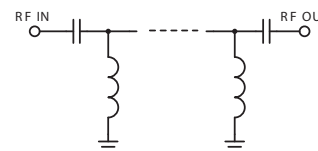
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### Typical Frequency Response



### Electrical Schematic



### Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)
1.0	54.15	354.02
50.0	23.83	154.04
100.0	21.45	26.11
200.0	0.52	1.27
300.0	0.42	1.39
500.0	0.34	1.25
600.0	0.34	1.22
700.0	0.37	1.23
800.0	0.42	1.28
900.0	0.52	1.39
1000.0	0.69	1.58
1100.0	1.00	1.90
1120.0	1.09	1.99
1150.0	1.24	2.14
1200.0	1.55	2.45

