

# Ceramic High Pass Filter

## HFCW-422+

50Ω 4200 to 9000 MHz

### The Big Deal

- Very good rejection, 17.8 dB typical
- Rugged, ceramic construction
- Tiny size, 0.063" x 0.032" x 0.024" (0603)
- Good power handling, 2W



CASE STYLE: JC0603C-7

### Product Overview

Mini-Circuits' HFCW-422+ is a LTCC High Pass Filter with a passband from 4200 to 9000 MHz, supporting a variety of applications. This model provides 1.2 dB typical passband insertion loss and provides a very good stopband rejection due to strategically constructed layout with minimal interaction between components. It provides a wide operating temperature range from -55 to +125°C. Housed in a tiny 0603 ceramic form factor with wrap-around terminations, the filter is ideal for dense PCB layouts and with minimal performance variation due to parasitics.

### Key Features

Feature	Advantages
LTCC Construction	Provides repeatable performance in a rugged, ceramic package well suited for tough environments such as high humidity and temperature extremes.
Tiny size (0.063 x 0.032 x 0.024")	Saves space in dense circuit board layouts and minimizes the effects of parasitics.
Good power handling	Supports a wide range of system power requirements.
Wrap-around terminations	Provides excellent solderability and easy visual inspection

#### 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 4200 to 9000 MHz

## HFCW-422+



Generic photo used for illustration purposes only

CASE STYLE: JC0603C-7

### Features

- Miniature size 0603
- High stop band rejections
- Low cost
- Aqueous washable

### Applications

- ISM Band
- WLAN

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

### Electrical Specifications<sup>1,2</sup> at 25°C

Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit	
Stop Band	Rejection Loss	DC-F1	10 - 2600	17.8	25	—	dB
	Freq. Cut-Off	F2	3800	—	2.5	—	dB
Pass Band	Insertion Loss	F4-F5	4200 - 9000	—	1.2	2.0	dB
	Return Loss	F4-F5	4200 - 9000	—	13.5	—	dB

1. Tested on Evaluation Board TB-HFCW-422+

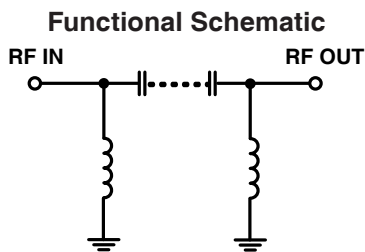
2. In Application where DC voltage is present at either input or output ports, coupling capacitors are required.

### Maximum Ratings

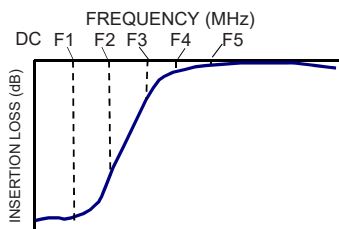
Operating Temperature	-55°C to 125°C
Storage Temperature	-55°C to 125°C
RF Power Input <sup>3</sup>	2W at 25°C

3. Passband rating, derate linearly to 0.5W at 125°C ambient.

Permanent damage may occur if any of these limits exceeded.

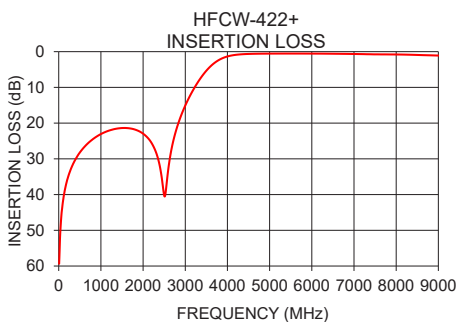
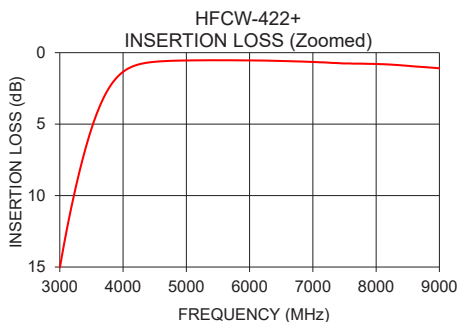


### Typical Frequency Response



### Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)
10	59.36	0.05
500	28.23	0.02
1000	23.06	0.05
1500	21.38	0.08
2000	22.95	0.11
2600	32.66	0.20
3000	15.09	0.51
3800	2.32	6.37
4200	0.88	15.50
4500	0.64	23.44
5000	0.55	21.34
5500	0.53	20.79
6000	0.54	20.52
6500	0.58	19.53
7000	0.65	19.40
7500	0.75	21.66
8000	0.79	28.12
8300	0.85	22.89
8600	0.96	18.39
9000	1.09	15.95



### 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-Circuit's 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-Circuit's website at [www.minicircuits.com/MCLStore/terms.jsp](http://www.minicircuits.com/MCLStore/terms.jsp)

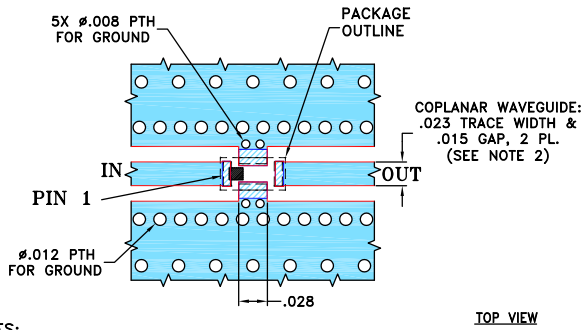


## Pad Connections

INPUT	1
OUTPUT	3
GROUND	2,4


## Product Marking: N/A


Evaluation Board MCL P/N: TB-HFCW-422+  
Suggested PCB Layout (PL-565)



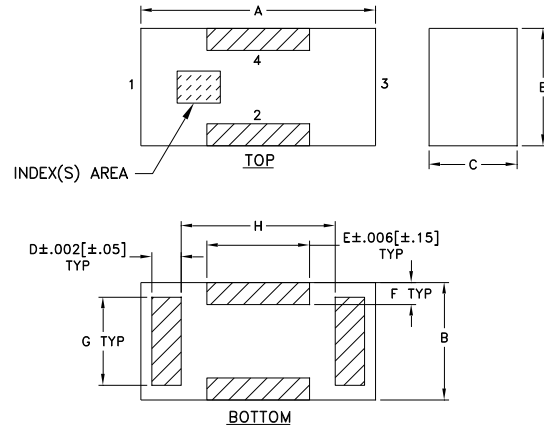
### NOTES:

1. PCB IS MULTILAYER PCB, SEE STACK-UP DIAGRAM.
2. TRACE WIDTH & GAP PARAMETERS ARE SHOWN FOR FR4 WITH DIELECTRIC THICKNESS  $.008 \pm .001$ "; COPPER: 1/2 OZ. FOR OTHER MATERIALS TRACE WIDTH AND GAP MAY NEED TO BE MODIFIED.
3. LAYER 3 AND LAYER 4 OF THE PCB ARE CONTINUOUS GROUND PLANES.

 DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER).

 DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK.

## Outline Drawing



 METALLIZATION

## Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H	wt
.063	.032	.024	.008	.028	.006	.024	.041	grams
1.60	0.81	0.61	0.20	0.71	0.15	0.6096	1.04	.005

### 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)