



CERAMIC

# Low Pass Filter

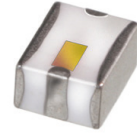
## LFCV-52+

Mini-Circuits

50Ω DC to 52 MHz

### THE BIG DEAL

- Small size 3.2mm x 2.5 mm
- High Power handling (7W)
- High Rejection 50 dB typ.
- Hermetically sealed
- Protected by U.S. Patent 6,943,646



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

### APPLICATIONS

- Harmonic rejection
- VHF/UHF transmitters/receivers
- Anti-aliasing for A/D converter

### PRODUCT OVERVIEW

Mini-Circuits' Low Pass Filter LFCV-52+ is an LTCC based 7 section design, that extends the lower frequency cutoff range of the existing LFCN series to 52 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 LFCV-52+ into new designs. These filters are offered in a EIA 1210 package size and have a typical stop band rejection of 50 dB.

### KEY FEATURES

Feature	Advantages
Small Size (3.2mm x 2.5mm)	Available in the size of typical resistors or capacitors (EIA 1210), the ultra small LFCV series integrates up to 7 low pass sections in a simple SMT chip form factor.
High Power Handling	The LFCV series can withstand up to 7W CW signal without damage making this filter ideal for use in medium power to transmit paths.
Temperature Stability	Over a 180°C operating temperature range (-55°C to +125°C), the LFCV series ceramic filters typically exhibit less than 0.2 dB pass band insertion loss variation, and less than 0.4 dB rejection variation at the 20 dB point (as measured on a single unit)
High Rejection	Achieving 50 dB rejection @ 210 MHz; the LFCV-52+ provides a versatile anti aliasing solution for high data rate receivers.

REV. D  
ECO-015193  
LFCV-52+  
EDU4328  
URJ  
220922





CERAMIC

# Low Pass Filter

## LFCV-52+

### ELECTRICAL SPECIFICATIONS<sup>1,2</sup> AT 25°C

Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Units	
Passband	Insertion Loss	DC-F1	DC - 52	—	0.9	1.3	dB
	Freq. Cut-Off	F2*	99	—	3	—	dB
	Return Loss	DC-F1	DC - 52	—	20	—	dB
Stop Band	Rejection Loss	F3	140	20	25	—	dB
		F4-F5	170 - 1100	—	40	—	
		F6	1200	—	13	—	

1 DC de-coupling capacitors are required in Applications where DC voltage and/or current is present at either input or output ports. Please contact Mini-Circuits for alternatives if DC pass from IN-OUT is required.

2 Measured on Mini-Circuits Characterization Test Board TB-LFCV-52+

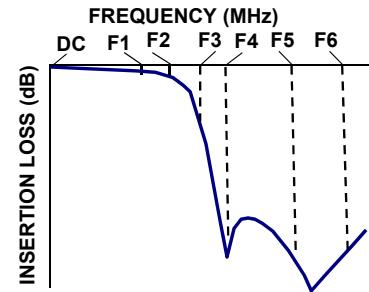
\* Typically, a ±5% frequency deviation from the stated value may occur on a unit-to-unit basis.

### MAXIMUM RATINGS

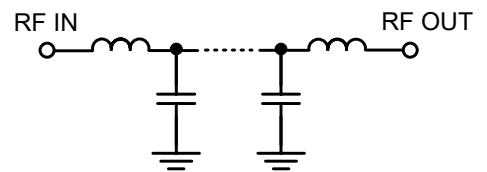
Parameter	Ratings
Operating temperature	-55°C to 125°C
Storage temperature	-55°C to 125°C
RF Power Input*	7W @25°C

\*Passband rating, derate linearly to 0.9W at 125°C ambient  
Permanent damage may occur if any of these limits are exceeded.

### TYPICAL FREQUENCY RESPONSE



### FUNCTIONAL SCHEMATIC



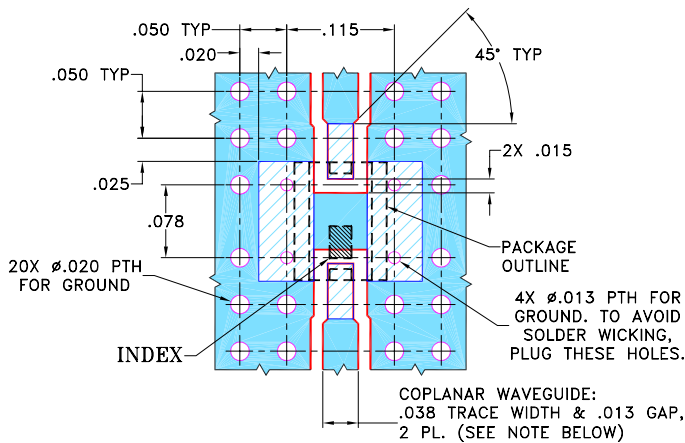


### PAD CONNECTIONS

INPUT	1
OUTPUT	3
GROUND	2,4

PRODUCT MARKING: VH

### DEMO BOARD MCL P/N: TB-LFCV-52+ SUGGESTED PCB LAYOUT (PL-307)

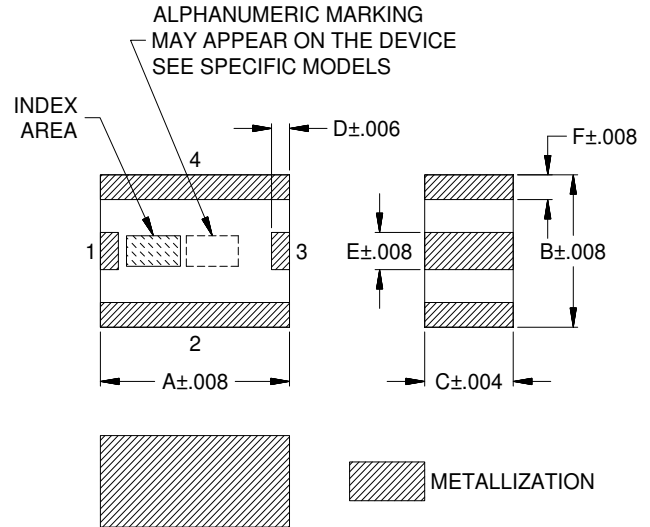


**NOTES:**

1. COPLANAR WAVEGUIDE PARAMETERS ARE SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS  $0.020'' \pm 0.0015''$ ; 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

### OUTLINE DRAWING



### OUTLINE DIMENSIONS (Inches/mm)

A	B	C	D	E	F	Wt.
.126	.098	.059	.012	.024	.016	grams
3.2	2.5	1.5	.3	.6	.4	.03

Note: Please refer to case style drawing for details



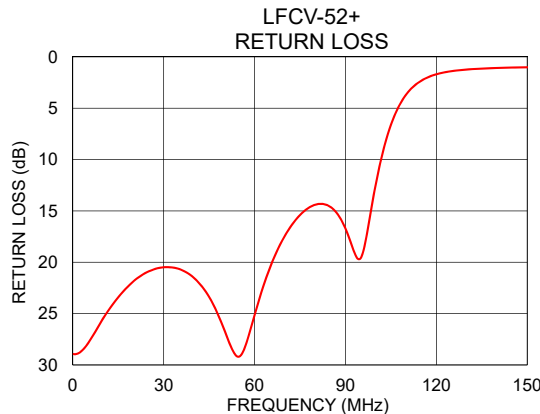
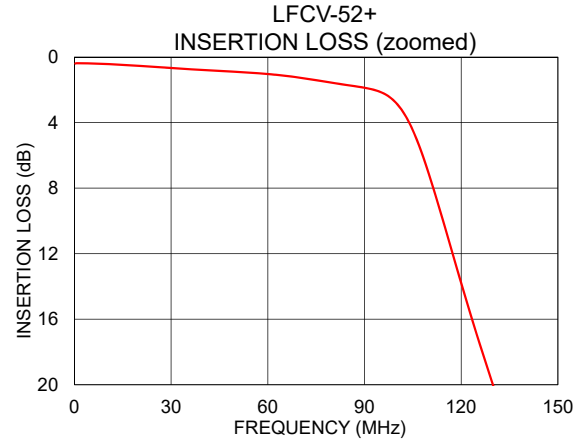
CERAMIC

# Low Pass Filter

LFCV-52+

### TYPICAL PERFORMANCE DATA AT 25°C

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)
10	0.43	25.47
20	0.54	21.86
25	0.60	20.90
40	0.79	21.53
52	0.93	28.10
99	2.64	13.98
130	20.10	1.23
140	25.59	1.08
141	26.10	1.07
150	30.34	1.01
170	38.03	0.93
210	49.66	0.82
300	55.80	0.60
500	49.73	0.33
1100	28.15	0.36
1200	15.60	0.83



#### 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)

