Low Pass Filter

LFCV-52+

50Ω DC to 52 MHz



CASE STYLE: JV1210C

The Big Deal:

- Small size 3.2mm x 2.5 mm
- High Power handling (8W)
- High rejection (50 dB typ)
- Ceramic construction

Product Overview:

New 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.

Summary Performance		
Insertion Loss (Pass band)	1.2 dB Max.	52 MHz
Return Loss (Pass band)	20 dB Typ.	52 MHz
Stop band Rejection	20 dB Min.	140 MHz
Stop band Rejection	50 dB typ.	180 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 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 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 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 50dB rejection @180 MHz; the LFCV-52+ provides a versatile anti aliasing solution for high data rate receivers.

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

Ceramic

Low Pass Filter

LFCV-52+

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Generic photo used for illustration purposes only

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+RoHS Compliant

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

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 to3.5W 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

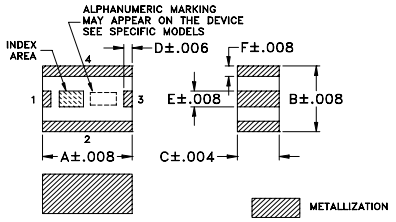
Features

- excellent power handling, 8.5W
- small size
- 7 sections
- temperature stable
- hermetically sealed
- protected by U.S. Patent 6,943,646

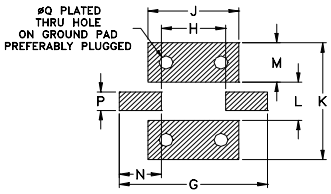
Applications

- harmonic rejection
- VHF/UHF transmitters/receivers
- anti-aliasing for A/D converter

Outline Drawing



PCB Land Pattern



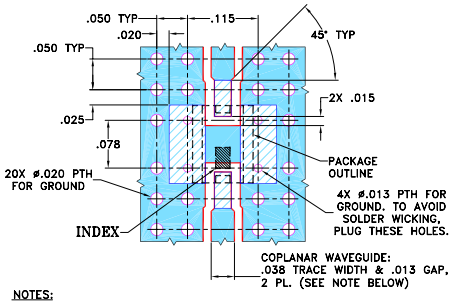
Suggested Layout,
Tolerance to be within ±.002

Outline Dimensions (inch / mm)

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	1.50	1.50	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)

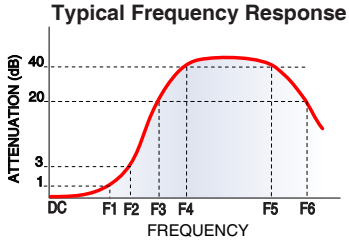
DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Electrical Specifications[1,2] at 25°C

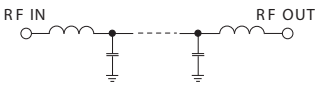
Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Insertion Loss	DC-F1	DC-52	—	—	1.2	dB
	Freq. Cut-Off	F2	93	—	3.0	—	dB
	VSWR	DC-F1	DC-52	—	1.2	—	:1
Stop Band	Rejection Loss	F3	140	20	—	—	dB
		F4-F5	170-1100	—	40	—	dB
		F6	1200	—	20	—	dB
	VSWR	F3-F6	140-1200	—	20	—	:1

1. Coupling capacitors at input and output are recommended for use in applications that require DC isolation of input to output port or either port to ground.
2. Measured on Mini-Circuits Characterization Test Board TB-526+.

Typical Frequency Response



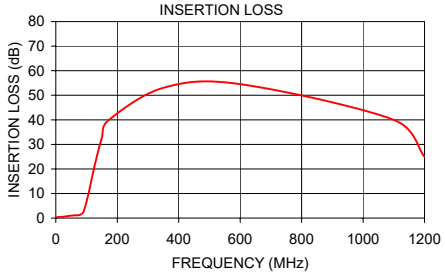
Electrical Schematic



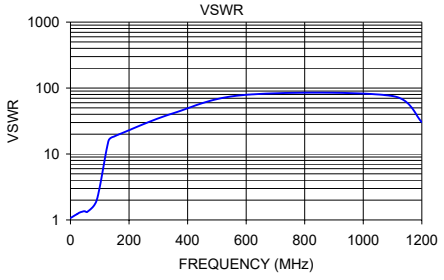
Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)
0.30	0.33	1.07
23.00	0.54	1.23
31.00	0.67	1.29
45.00	0.91	1.35
49.00	0.97	1.35
50.00	0.98	1.35
58.00	1.10	1.33
90.00	2.59	2.01
130.00	23.25	15.81
150.00	32.73	18.50
170.00	39.67	20.22
350.00	53.02	41.37
600.00	54.54	78.97
1100.00	39.99	75.53
1200.00	24.93	30.49

LFCV-52+
INSERTION LOSS



LFCV-52+
VSWR



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