

Ceramic Low Pass Filter

LFCV-1652+

50Ω DC to 16500 MHz



Generic photo used for illustration purposes only
CASE STYLE: JV1210C-7

The Big Deal

- Good rejection, 35 dB typical
- Rugged, ceramic construction
- Small size, 0.126" x 0.098" x 0.039" (1210)
- Good power handling, 3.2W

Product Overview

Mini-Circuits' LFCV-1652+ is an LTCC low pass filter with a passband from DC to 16500 MHz, supporting a variety of applications. This model provides 1.3 dB typical passband insertion loss and provides a very good stopband rejection due to strategically constructed layout with minimal interaction between components. It handles up to 3.2W RF input power and provides a wide operating temperature range from -55 to +125°C. Housed in a small 1210 ceramic form factor, the filter is ideal for dense PCB layouts and with minimal performance variation due to parasitics.

Key Features

Feature	Advantages
Ultra-wide stopband	The LTCC lowpass filter provides a very good stopband rejection until 40 GHz suitable for high end applications.
LTCC Construction	Provides repeatable performance in a rugged, ceramic package well suited for tough environments such as high humidity and temperature extremes.
Small size (0.126" x 0.098" x 0.039")	Saves space in dense circuit board layouts and minimizes the effects of parasitics.
Good power handling, 3.2W	Supports a wide range of system power requirements.

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

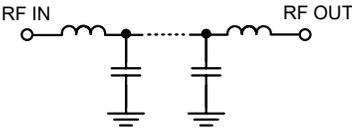
Features

- Low loss, 1.3 dB typical
- Good rejection 35 dB typical
- Good power handling, 3.2W
- Small size 1210 (0.126" x 0.098" x 0.039")
- Temperature stable
- LTCC construction

Applications

- Military radar applications
- Test and measurement
- Telecommunications & broadband wireless applications

Functional Schematic



Electrical Specifications^{1,2} at 25°C

Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit	
Pass Band	Insertion Loss	DC-F1	DC - 16500	—	1.3	1.9	dB
	Frequency Cut-off	F2*	18400	—	3.0	—	dB
	Return Loss	DC-F1	DC - 16500	—	13	—	dB
Stop Band	Rejection Loss	F3-F4	22500 - 25000	20	35	—	dB
		F4-F5	25000 - 26500	25	35	—	dB
		F5-F6	26500 - 40000	—	30	—	dB

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-1652+
* Typically, a ±5% frequency deviation from the stated value may occur on a unit-to-unit basis.

Maximum Ratings

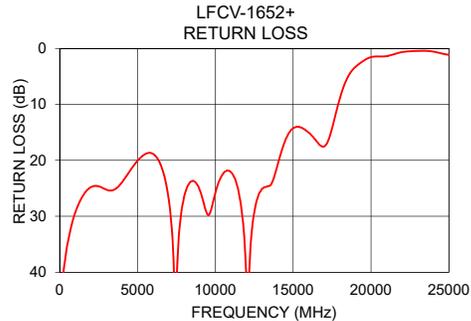
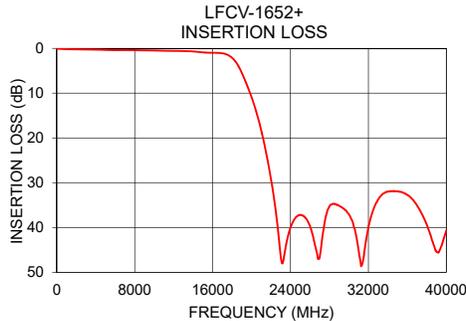
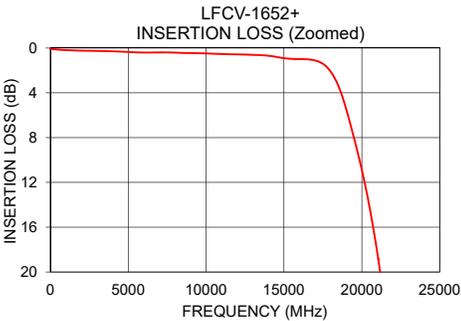
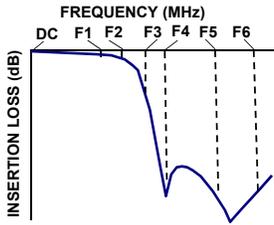
Operating Temperature	-55°C to 125°C
Storage Temperature	-55°C to 125°C
RF Power Input*	3.2W max. @25°C

*Passband rating, derate linearly to 1.6W at 125°C ambient
Permanent damage may occur if any of these limits are exceeded.

Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)
10	0.08	49.48
100	0.08	45.28
300	0.12	38.68
400	0.13	36.78
500	0.14	34.99
1000	0.18	29.34
5000	0.35	20.10
10000	0.48	25.87
16500	1.00	16.59
18400	3.08	5.75
20000	10.87	1.55
21500	23.31	1.02
22500	36.52	0.51
24000	40.02	0.58
25000	37.18	1.15
26000	39.60	1.08
26500	43.91	0.82
30000	37.06	0.55
32000	39.90	1.00
40000	40.69	1.60

Typical Frequency Response



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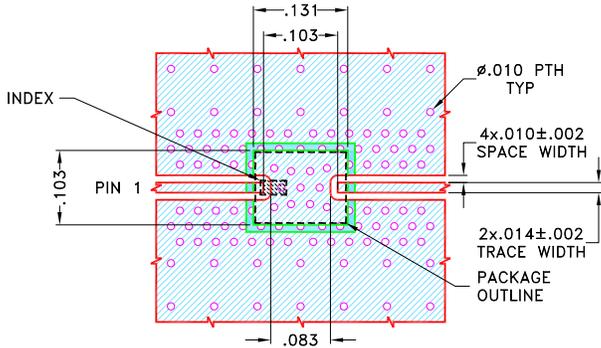


Pad Connections

INPUT	1
OUTPUT	2
GROUND	3

Product Marking: MZ

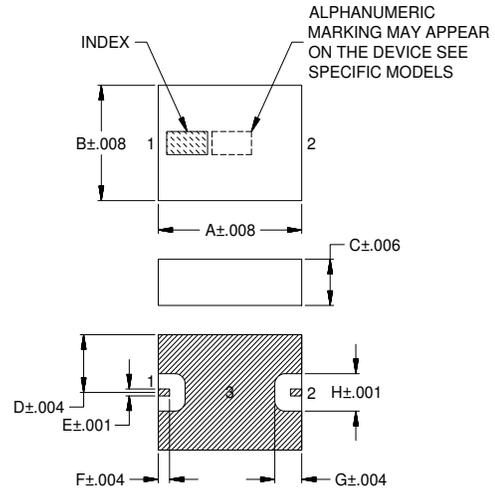
Demo Board MCL P/N: TB-LFCV-1652+
Suggested PCB Layout (PL-679)



NOTES:

1. COPLANAR WAVEGUIDE PARAMETERS ARE SHOWN FOR ROGERS (R04835 Lo Pro) WITH DIELECTRIC THICKNESS .0073±.0007, 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 PATTERN WITH SMOBC (SOLDER MASK OVER BARE COPPER)
 DENOTES PCB COPPER PATTERN FREE OF SOLDERMASK

Outline Drawing



Outline Dimensions (inch / mm)

A	B	C	D	E
.126	.098	.037	.049	.006
3.20	2.50	0.95	1.25	0.15
F	G	H	Wt.	
.010	.024	.032	grams	
0.25	0.60	0.81	0.03	

Note: Please refer to case style drawing for details

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