

# Ceramic Low Pass Filter

## LFCO-252+

50Ω DC to 2500 MHz

### The Big Deal

- Rugged, ceramic construction
- Tiny size
- Good power handling



CASE STYLE: NK0402C-1

### Product Overview

Mini-Circuits' LFCO-252+ is a LTCC low pass Filter with a passband from DC to 2500 MHz, supporting a variety of applications. This model provides a very good insertion loss 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 0402 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	Saves space in dense circuit board layouts and minimizes the effects of parasitics.
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)



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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

### Features

- Miniature size 0402
- Low Insertion Loss
- Aqueous washable

### Applications

- ISM Band
- WLAN
- Bluetooth

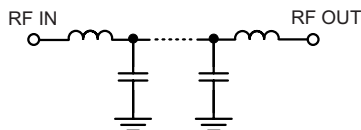
### Electrical Specifications<sup>1,2</sup> at 25°C

Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit	
<b>Pass Band</b>	Insertion Loss	DC-F1	DC - 2500	—	0.88	1.75	dB
	Freq. Cut-Off	F2	3000	—	2	—	dB
	Return Loss	DC-F1	DC - 2500	—	12	—	dB
<b>Stop Band</b>	Rejection Loss	F3-F4	4400 - 8500	—	20	—	dB

1. Tested on Evaluation Board TB-LFCO-252+

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

### Functional Schematic



### Maximum Ratings

Operating Temperature	-55°C to 125°C
Storage Temperature	-55°C to 125°C
RF Power Input	3W at 25°C

Permanent damage may occur if any of these limits exceeded.

\*Refer to product storage temperature after installation

Suggestion for T&R unused product storage condition:

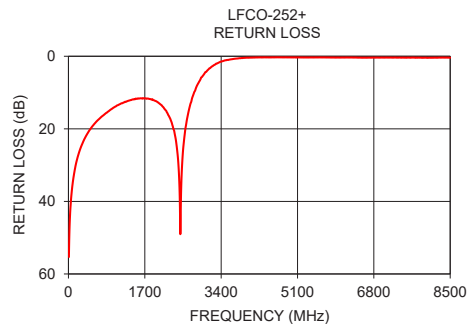
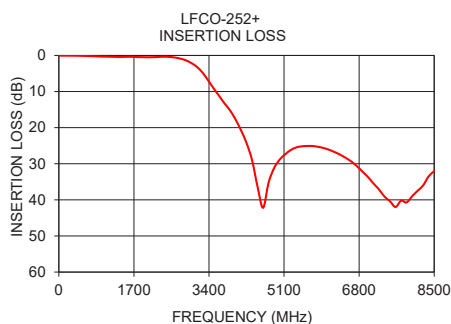
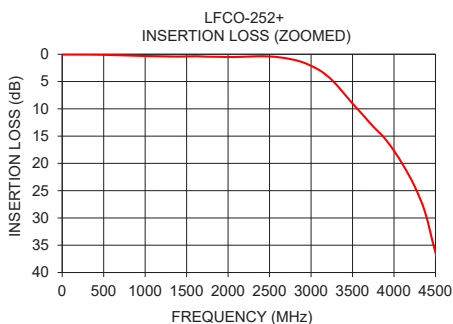
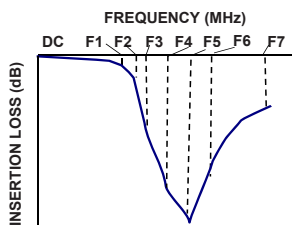
+5 ~ +35 °C, Humidity 45~75%RH, 12 month Max

\*\* Derate linearly to 1W at 125°C

### Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)
10	0.05	55.32
100	0.05	34.45
500	0.11	19.85
1000	0.21	14.18
1500	0.32	11.68
1800	0.58	11.77
2000	0.55	12.78
2400	0.27	23.81
2500	0.41	42.85
3000	2.75	5.27
3200	5.08	2.77
4400	30.18	0.31
5000	28.39	0.32
6000	25.65	0.35
7000	34.02	0.37
8500	31.50	0.39

### Typical Frequency Response



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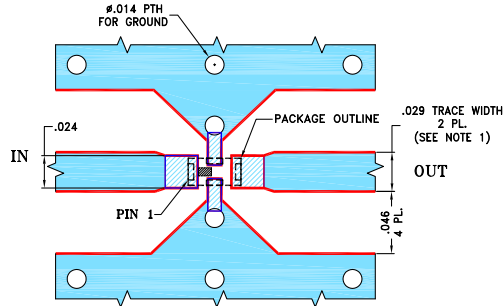


## Pad Connections

INPUT	3
OUTPUT	1
GROUND	2,4

Product Marking: N/A

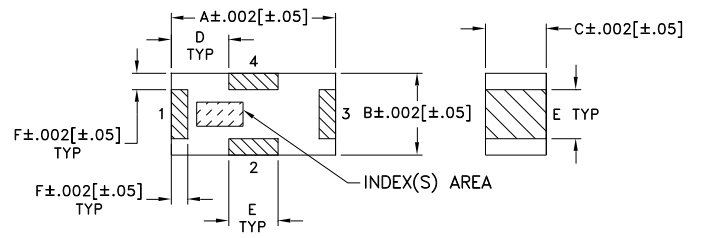
### Evaluation Board MCL P/N: TB-LFCO-252+ Suggested PCB Layout (PL-568)



**NOTES:**

- TRACE WIDTH IS SHOWN FOR FR4, GRADE IT-180TC (ITEQ CORP.) WITH DIELECTRIC THICKNESS .016±.0015. COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH & GAP MAY NEED TO BE MODIFIED.
  - 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 (inch/mm)

A	B	C	D	E	F	wt
.039	.020	.015	.014	.012	.004	grams
0.99	0.51	0.38	0.36	0.30	0.10	.0007

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