

Ceramic Bandpass Filter

BFCO-252+

50Ω 2400 to 2500 MHz

The Big Deal

- Very good rejection
- Rugged, ceramic construction
- Tiny size



CASE STYLE: NK0402C-1

Product Overview

Mini-Circuits' BFCO-252+ is a LTCC Bandpass Filter with a passband from 2400 to 2500 MHz, supporting a variety of applications. This model 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 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
Ultra-wide stopband	The LTCC lowpass filter provides a very good stopband rejection 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.
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



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BFCO-252+



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 (0.039"[1.0mm] x 0.020"[0.5mm] x 0.015"[0.37mm])
- High rejection up to 8.5 GHz
- Low cost
- Aqueous washable

Applications

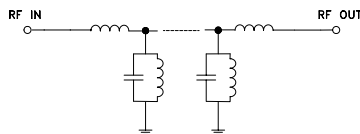
- ISM Band
- WLAN
- Bluetooth

Electrical Specifications¹ at 25°C

Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Center Frequency	—	—	2450	—	dB
	Insertion Loss	F1-F2	2400-2500	—	3.7	dB
	Return Loss	F1-F2	2400-2500	—	12	dB
Stop Band, Lower	Insertion Loss	DC-F3	DC-1500	30	35	dB
		F3-F4	1500-1800	20	25	dB
Stop Band, Upper	Insertion Loss	F4-F5	3200-4500	17	23	dB
		F5-F6	4500-8500	—	16	dB

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

Functional Schematic



Maximum Ratings

Operating Temperature	-55°C to 125°C
Storage Temperature*	-55°C to 125°C
RF Power Input**	2W 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:

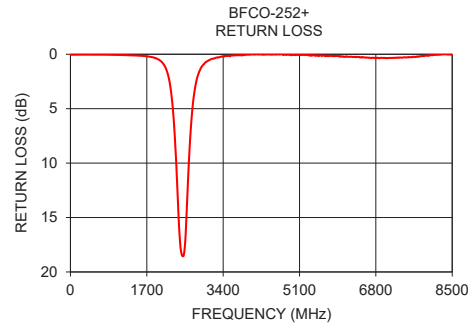
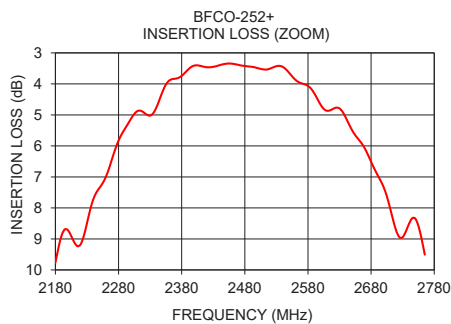
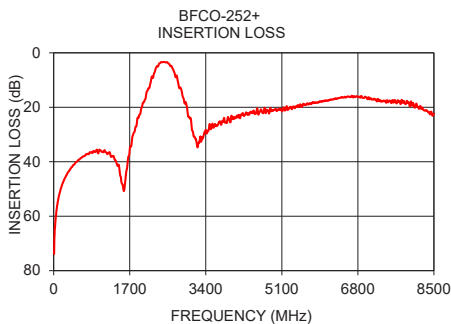
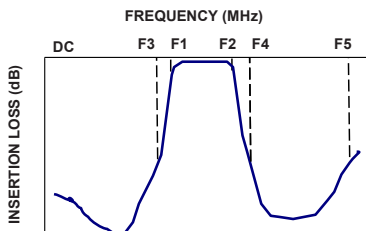
+5 ~ +35 °C, Humidity 45-75%RH, 12 month Max

** Derate linearly to 0.5W at 125°C

Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)
10	73.88	0.05
100	54.11	0.04
500	40.18	0.04
1000	36.83	0.06
1500	45.53	0.13
1800	29.20	0.25
2000	18.21	0.59
2400	3.41	14.21
2500	3.49	18.55
3000	22.70	0.77
3200	33.41	0.39
4500	22.48	0.02
5000	21.04	0.08
6000	18.00	0.21
7000	16.67	0.34
8500	22.37	0.04

Typical Frequency Response



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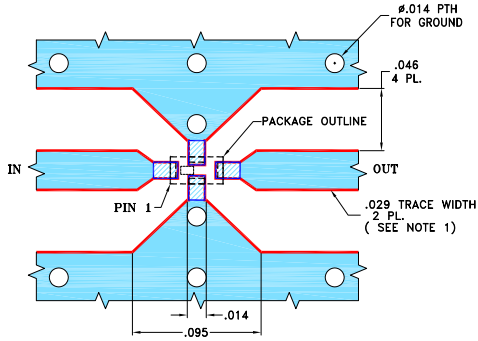
REV. OR
ECO-005329
BFCO-252+
SL/CP/AM
201215
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Pad Connections

INPUT	3
OUTPUT	1
GROUND	2,4

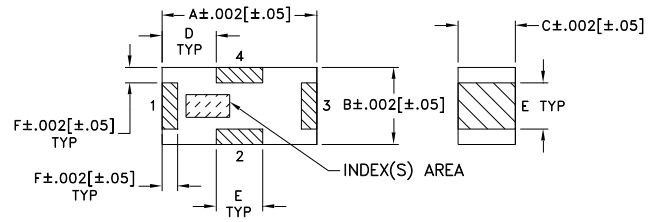
Product Marking: N/A

Evaluation Board MCL P/N: TB-BFCO-252+ Suggested PCB Layout (PL-552)



- 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 ($\frac{\text{inch}}{\text{mm}}$)

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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