

# Coaxial-Ceramic Resonator Filters and Multiplexers

50Ω

DC to 6 GHz

## The Big Deal

- Low insertion loss with excellent power handling
- Passbands up to 6 GHz
- Fractional bandwidth from <1 to 25%
- Low profile designs with min. height of 0.120"
- Excellent temperature stability
- Rugged construction to handle demanding environmental conditions



## Product Overview

Mini-Circuits' *Coaxial-Ceramic Resonator filters* offer low insertion loss in very small form factors, using ceramic material with high dielectric constant and superior Q factor. Bandpass and bandstop filters, diplexer and multiplexer designs can be constructed using this technology. Low insertion loss combined with excellent power handling makes these filters well suited for transmitter and receiver signal chains. Advanced filter design and construction can achieve stopband width greater than 3x the center frequency as high as 20 GHz.

All our coaxial-ceramic resonator filters are built with rugged construction, qualified to withstand multiple demanding reflow cycles. Custom integrated assembly with LNA in greatly simplifying system integration. They can be realized in small form factors with high-quality, precise machining for applications where size is critical. Excellent repeatability across units is achieved through precise tuning and process control.

## Key Features

Feature	Advantages
Low insertion loss	Low signal loss results in better SNR in signal chain
Fast roll-off	Higher selectivity results in better adjacent channel rejection and dynamic range
Wide stop band	Wide spur-free stopband results in better receiver sensitivity
Excellent power handling	Well suited for transmitter applications
Rugged Construction	These filter assemblies have been qualified over a wide range of thermal, mechanical and environmental conditions including withstanding the stress of extensive solder reflow cycles
Small Size	Very well suited for high performance applications where size is a constraint.
Temperature stability	Very minimal change in electrical performance across temperature makes these filters suitable for a wide range of operating conditions.

**Notes**

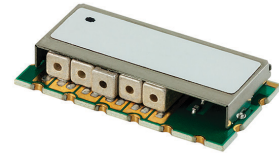
- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.  
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's 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)



# Surface Mount Bandpass Filter

50 $\Omega$  2000 to 2500 MHz

## CBP-2250A+



Generic photo used for illustration purposes only  
CASE STYLE: KU1513

### Features

- Low insertion loss
- Better rejection
- Miniature shielded package

### Applications

- Amateur radio
- Space operation
- ISM

### Electrical Specifications at 25°C

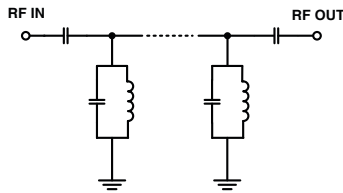
Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Center Frequency	-	-	2250	-	MHz
	Insertion Loss	F1-F2	-	1.1	2.0	dB
	VSWR	F1-F2	-	1.6	2.1	:1
Stop Band, Lower	Insertion Loss	DC-F3	20.0	31.0	-	dB
	VSWR	DC-F3	-	20.0	-	:1
Stop Band, Upper	Insertion Loss	F4-F5	20.0	31.0	-	dB
	VSWR	F4-F5	-	20.0	-	:1

### Maximum Ratings

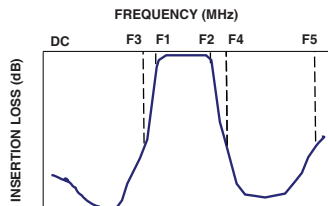
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power Input	2 W Max.

Permanent damage may occur if any of these limits are exceeded.

### Functional Schematic



### Typical Frequency Response

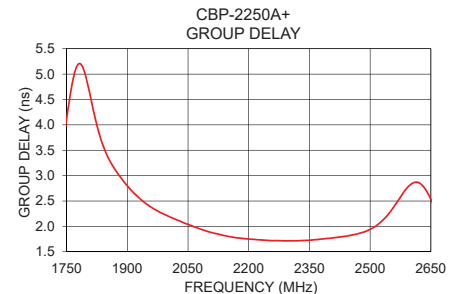
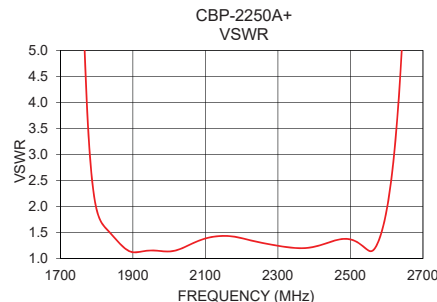
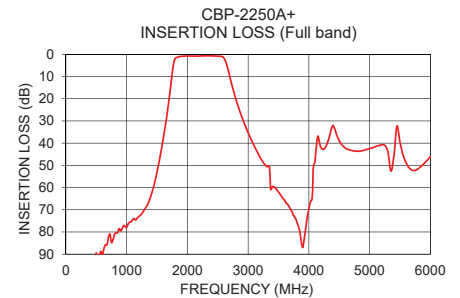
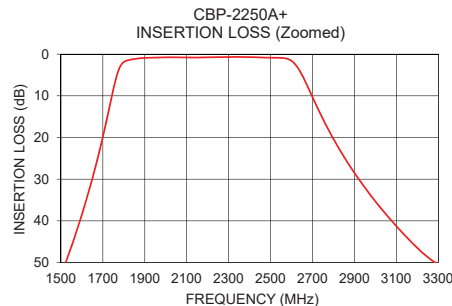


### +RoHS Compliant

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

### Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)	Frequency (MHz)	Group Delay (ns)
1	109.86	408.42	2000	2.21
750	84.77	238.23	2025	2.12
1630	33.42	51.25	2050	2.04
1695	20.93	31.81	2075	1.96
1740	10.73	13.36	2100	1.90
1775	3.84	3.71	2125	1.85
2000	0.76	1.14	2150	1.80
2200	0.76	1.39	2175	1.77
2250	0.71	1.31	2200	1.75
2300	0.69	1.25	2225	1.74
2500	0.85	1.37	2250	1.72
2630	3.26	3.76	2275	1.72
2700	10.31	18.35	2300	1.72
2800	20.37	59.73	2325	1.72
2900	28.51	87.45	2350	1.73
2930	30.67	91.69	2375	1.75
3500	62.12	78.51	2400	1.76
4000	69.58	51.50	2425	1.79
5450	32.34	56.51	2450	1.82
6000	46.17	51.46	2500	1.94



### Notes

- 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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuits' applicable established test performance criteria and measurement instructions.
- 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)





[www.minicircuits.com](http://www.minicircuits.com) P.O. Box 350166, Brooklyn, NY 11235-0003 (718) 934-4500 [sales@minicircuits.com](mailto:sales@minicircuits.com)

REV A  
M174392  
CBP-2250A+  
EDU2918  
URJ  
200921  
Page 2 of 3

INPUT	1
OUTPUT	10
GROUND	2,3,4,5,6,7,8,9,11,12,13,14,15,16

Figure 1: Typical layout of a 16-pin package. The diagram shows a rectangular package with a central shaded area representing the die. The package is surrounded by a blue area representing the substrate. The layout includes 16 pins, with 8 pins on each long side. The pins are labeled 'IN' and 'OUT'. The package outline is indicated by a dashed line. The layout includes dimensions: .030, 2 PL. (pin pitch), 68X .020 PTH FOR GROUND (ground pad dimensions), and COPLANAR WAVEGUIDE: .076 TRACE WIDTH & .013 GAP, 2 PL. (SEE NOTE BELOW) (waveguide dimensions).

 DENOTES PCB COPPER LAYOUT WITH SMOBC  
 (SOLDER MASK OVER BARE COPPER)  
 DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

A	B	C	D	E	F	G	H	J	K	L
.550	1.040	.185	.160	.120	.077	.070	.160	.590	1.080	.100
13.97	26.24	4.70	4.06	3.05	1.96	1.78	4.06	14.99	27.43	2.54
M	N	P	Q	R	S	T	U	V		Wt.
.140	.230	.180	.195	.115	.780	.290	.110	.100		grams
3.56	5.84	4.57	4.95	2.92	19.81	7.36	2.79	2.54		2.6

*Note: Please refer to case style drawing for details.*

**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. Technical specifications and performance data contained in this specification document are based on Mini-Circuits' 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)

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Mini-Circuits:](#)

[CBP-2250A+](#)