

Ceramic

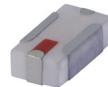
Bandpass Filter

BFCN-5200AT+

50Ω 4250 to 6300 MHz

The Big Deal

- LTCC construction
- Temperature stable from -40 to +105°C
- Small size (0.126 x .063 X .037")
- AEC-Q200 qualified component family



CASE STYLE: FV1206-4

Product Overview

The BFCN-5200AT+ LTCC bandpass filter covers the 4250 to 6300 MHz passband with 1.8 dB passband insertion loss, 23 dB lower stopband rejection, and 21 dB upper stopband rejection. This model handles up to 2.5W RF input power and provides a wide operating temperature range from -40 to +105°C. Utilizing LTCC multi-layer construction, the filter achieves excellent repeatability of performance and comes in a tiny 1206 ceramic package with wraparound terminations, minimizing performance variations due to parasitics and saving space in dense PCB layouts.

Key Features

Feature	Advantages
LTCC Construction	Provides a rugged package well suited for tough environments such as high humidity and temperature extremes.
Tiny size (0.126 x .063 x .037")	Saves space in dense circuit boards and minimizes the effects of parasitics.
Wrap-around terminations	Provides excellent solderability and easy visual inspection
Wide operating temperature range, -40 to +105°C	Enables reliable performance in extreme environments



Ceramic Bandpass Filter

50Ω 4250 to 6300 MHz

Features

- Small size(0.126 x 0.063 x .037)
- Temperature stable
- LTCC construction
- AEC-Q200 qualified component family

Applications

- Automotive

BFCN-5200AT+



Generic photo used for illustration purposes only

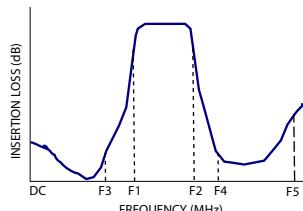
CASE STYLE: FV1206-4

+RoHS Compliant

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

Available Tape and Reel at no extra cost
Reel Size Devices/Reel
7" 20, 50, 100, 200, 500, 1000, 3000

Specification Definition

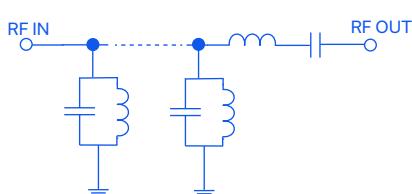


Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Center Frequency	—			5200		MHz
	Insertion Loss	F1 - F2	4250 - 6300	—	1.8	3.5	dB
	VSWR	F1 - F2	4250 - 6300	—	2.3	—	:1
Stop Band, Lower	Insertion Loss	DC - F3	3300	15	23	—	dB
	VSWR	DC - F3	3300	—	23	—	:1
Stop Band, Upper	Insertion Loss	F4 - F5	7500 - 9000	10	21	—	dB
	VSWR	F4 - F5	7500 - 9000	—	16	—	:1

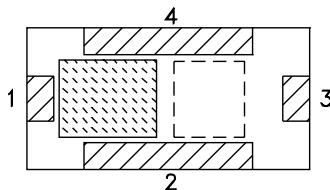
1. Measured on Mini-Circuits Characterization Test Board TB-824+ using BFCN-5200.

2. This filter is not intended for use as a DC Blocking circuit element. In Application where DC voltage is present at either input or output ports, blocking capacitors are required at the corresponding RF port.

Functional Schematic



Top View



Pad Connections

Input	1
Output	3
Ground	2,4

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

Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Center Frequency	—		5200		MHz
	Insertion Loss	F1 - F2	4250 - 6300	1.8	3.5	dB
	VSWR	F1 - F2	4250 - 6300	2.3	—	:1
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	VSWR	DC - F3	3300	—	23	:1
Stop Band, Upper	Insertion Loss	F4 - F5	7500 - 9000	10	21	—
	VSWR	F4 - F5	7500 - 9000	—	16	:1

1. Measured on Mini-Circuits Characterization Test Board TB-824+ using BFCN-5200.

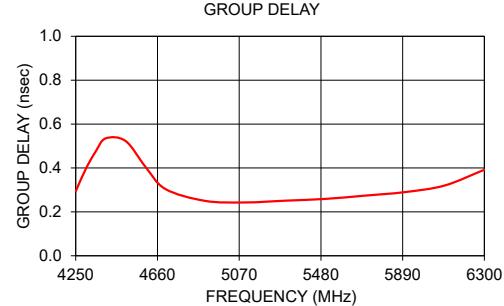
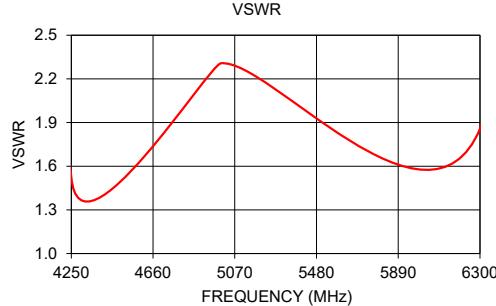
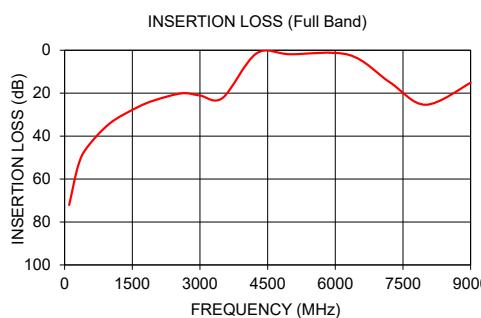
2. This filter is not intended for use as a DC Blocking circuit element. In Application where DC voltage is present at either input or output ports, blocking capacitors are required at the corresponding RF port.

Maximum Ratings

Operating Temperature	-40°C to +105°C
Storage Temperature	-40°C to +105°C
RF Power Input*	2.5 W at +25°C

*Passband rating, derate linearly to 0.7 W at +105°C ambient

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



Bandpass Filter

BFCN-5200AT+

Full Band Performance

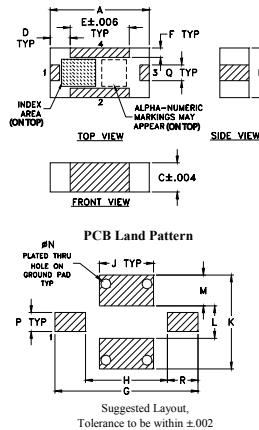
Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)	Frequency (MHz)	Insertion Loss (dB)	Group Delay (nsec)
100	72.07	130.26	4250	1.52	0.29
300	53.80	99.00	4300	1.45	0.40
500	45.22	82.81	4350	1.44	0.48
1000	34.09	67.56	4400	1.47	0.54
1600	26.73	59.04	4500	1.56	0.52
2000	23.26	53.49	4600	1.66	0.41
2600	20.06	44.34	4700	1.75	0.30
3000	21.09	37.90	4900	1.85	0.25
3500	22.24	23.85	5100	1.84	0.24
4250	1.52	1.52	5300	1.81	0.25
5000	1.86	2.31	5500	1.79	0.26
6300	2.14	1.86	5700	1.83	0.27
7200	14.79	9.49	5900	1.90	0.29
8000	25.38	23.09	6100	1.98	0.32
9000	15.15	18.38	6300	2.14	0.39

Pad Connections

Input	1
Output	3
Ground	2,4

Product Marking: GC

Outline Drawing



Outline Dimensions (inch/mm)

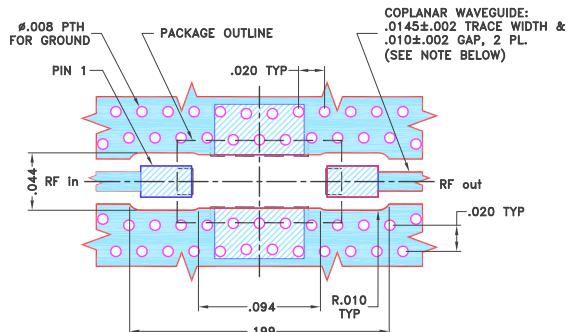
A	B	C	D	E	F	G	H	J
.126	.063	.037	.026	.075	.012	.182	.104	.069
3.20	1.60	0.94	0.66	1.91	0.30	4.62	2.64	1.75

K	L	M	N	P	Q	R	wt
.119	.041	.039	.013	.024	.020	.039	grams
3.02	1.04	0.99	0.33	0.61	0.51	0.99	.020

Additional 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-Circuit's 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

Demo Board MCL P/N: TB-824+
Suggested PCB Layout (PL-454)



NOTES:

- TRACE WIDTH PARAMETERS ARE SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .0066"±.0007". COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH AND GAP MAY NEED TO BE MODIFIED.
- BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
- DENOTES PCB COPPER LAYOUT WITH SMBC (SOLDER MASK OVER BARE COPPER).
- DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK.

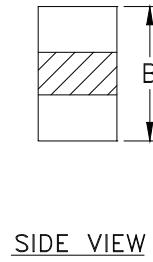
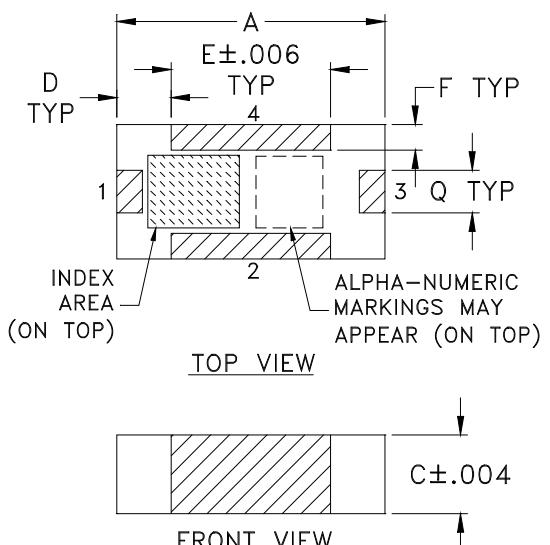


Case Style

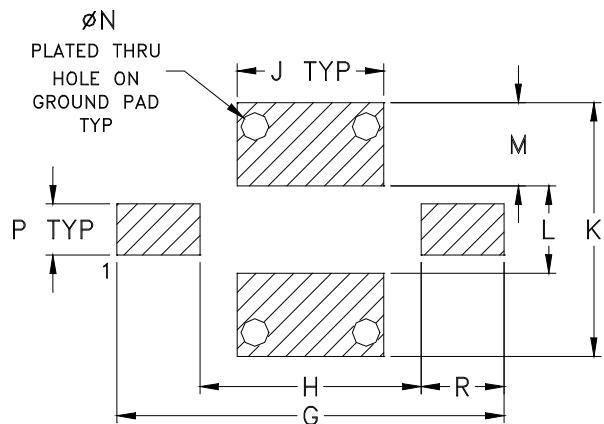
FV

FV1206-4

Outline Dimensions



PCB Land Pattern



Suggested Layout,
Tolerance to be within $\pm .002$

CASE #	A	B	C	D	E	F	G	H	J	K	L	M
FV1206-4	.126 (3.20)	.063 (1.60)	.037 (0.94)	.026 (0.66)	.075 (1.91)	.012 (0.30)	.182 (4.62)	.104 (2.64)	.069 (1.75)	.119 (3.02)	.041 (1.04)	.039 (0.99)

CASE #	N	P	Q	R	WT. GRAM
FV1206-4	.013 (0.33)	.024 (0.61)	.020 (0.51)	.039 (0.99)	.020

Dimensions are in inches (mm). Tolerances: 2 Pl. $\pm .01$; 3 Pl. $\pm .005$

Notes:

1. Open style, ceramic base.
2. Termination finish: as shown below or indicated on Data Sheet.
For RoHS Case Styles: Tin plate over Nickel plate. All models, (+) suffix.
For RoHS-5 Case Styles: Tin-Lead plate. All models, no (+) suffix.

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RF/IF MICROWAVE COMPONENTS

98-FV Rev.: V (12/1118) M171394 File: 98-FV.docx

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Sheet 4 of 8

Tape & Reel Packaging

TR-F75

DEVICE ORIENTATION IN T&R

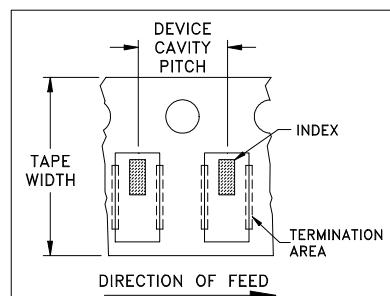


ILLUSTRATION 1

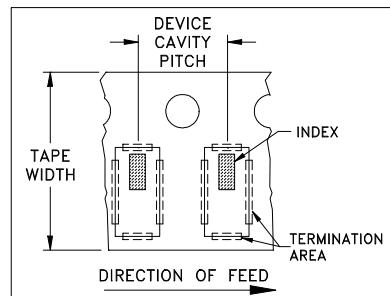


ILLUSTRATION 2

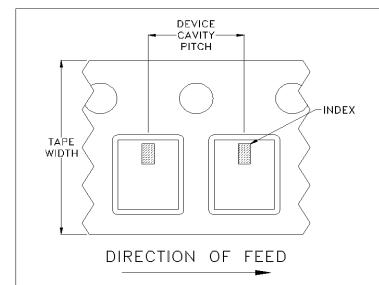


ILLUSTRATION 3

Applicable Case Styles

FV1206-1
FV1206-3

Applicable Case Styles

FV1206-4
FV1206-5
FV1206-6
FV1206-7
FV1206-9

Applicable Case Styles

FV1206-11
FV1206-12
GE0805C-18
NL1008C-6
NL1008C-7
NL1008C-9
NL1008C-10
NL1008C-12

Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel
8	4	7	Small quantity standards (see note)
			20
			50
			100
			200
			500
			1000
		Standard	3000

Note: Please consult individual model data sheet to determine device per reel availability.

Mini-Circuits carrier tape materials provide protection from ESD (Electro-Static Discharge) during handling and transportation. Tapes are static dissipative and comply with industry standards EIA-481/EIA-541.

Go to: www.minicircuits.com/pages/pdfs/tape.pdf



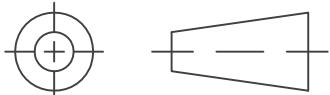
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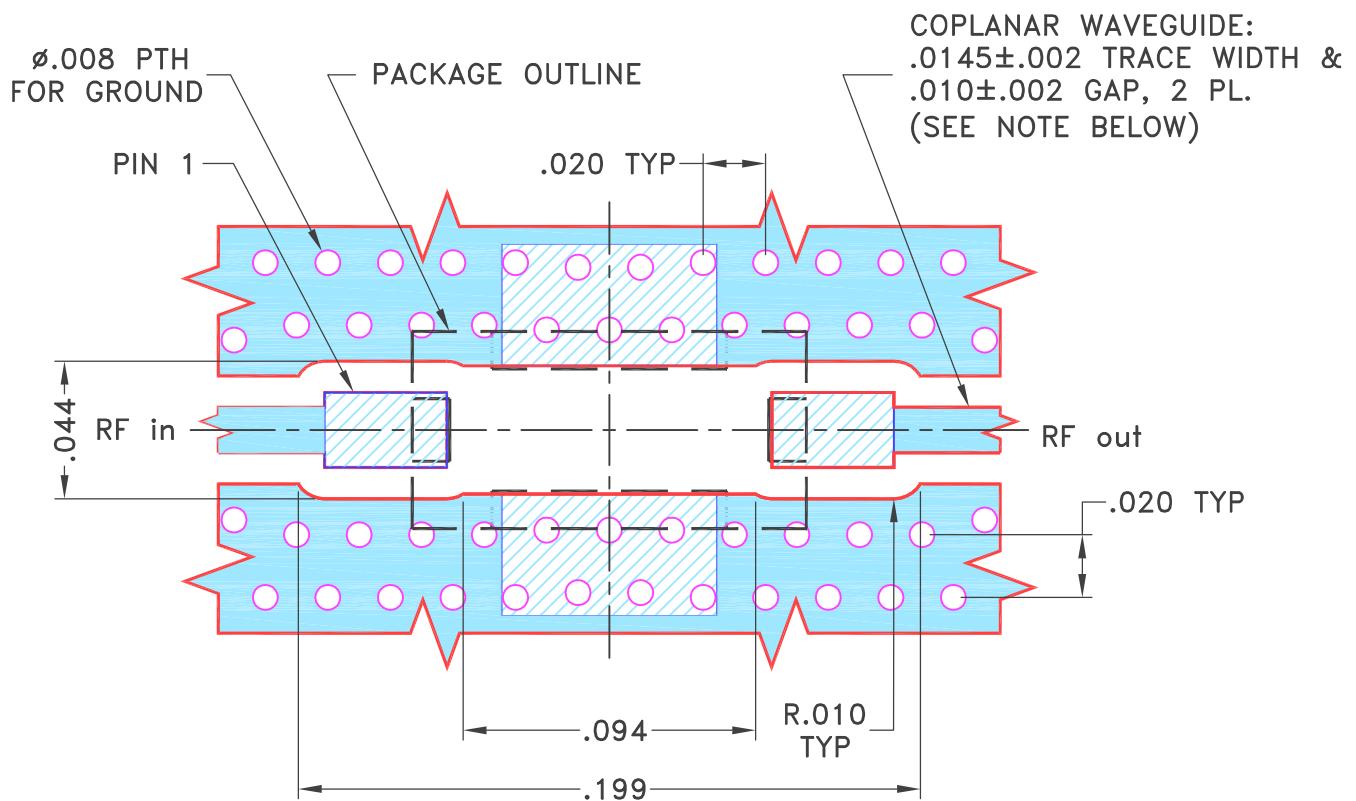
THIRD ANGLE PROJECTION



REVISIONS

REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M152168	NEW RELEASE	07/31/15	ITG	AVB

SUGGESTED MOUNTING CONFIGURATION
FOR FV1206-4 CASE STYLE, "04FL01" PIN CODE

NOTES:

1. TRACE WIDTH PARAMETERS ARE SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS $.0066\pm.0007$ ". 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 LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER).



DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK.

UNLESS OTHERWISE SPECIFIED

DIMENSIONS ARE IN INCHES

TOLERANCES ON:

2 PL DECIMALS \pm 3 PL DECIMALS $\pm .005$ ANGLES \pm FRACTIONS \pm

INITIALS

DRAWN

CHECKED

APPROVED

DATE

07/30/15

07/31/15

07/31/15



Mini-Circuits®

13 Neptune Avenue
Brooklyn NY 11235

PL, 04FL01, FV1206-4, TB-824+

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A	15542	98-PL-454	OR
FILE:	98PL454	SCALE: 16:1	SHEET: 1 OF 1

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