



Mini-Circuits

CERAMIC

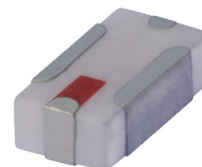
# Band Pass Filter

**BFCN-5540AT+**

50Ω 4620 to 6640 MHz

## THE BIG DEAL

- Small Size, 3.2x1.6 mm
- Temperature Stable
- LTCC Construction
- AEC-Q200 Qualified Component Family



Generic photo used for illustration purposes only

CASE STYLE: FV1206-4

### +RoHS Compliant

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

## APPLICATIONS

- Automotive

## PRODUCT OVERVIEW

The BFCN-5540AT+ LTCC bandpass filter covers the 4620 to 6640 MHz passband with 1.2 dB passband insertion loss, 22 dB lower stopband rejection, and 30 dB upper stopband rejection. This model handles up to 1W RF input power and provides a wide operating temperature range from -40 to +105°C. Utilizing LTCC 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

Features	Advantages
Small Size, 3.2x1.6 mm	Saves space in dense circuit boards and minimizes the effects of parasitics.
LTCC Construction	Provides a rugged package well suited for tough environments such as high humidity and temperature extremes.
Wrap-around terminations	Provides excellent solderability and easy visual inspection
Wide operating temperature range, -40 to +105°C	Enables reliable performance in extreme environments

REV. B  
ECO-028147  
BFCN-5540AT+  
MCL NY  
260105





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## Band Pass Filter

BFCN-5540AT+

50Ω 4620 to 6640 MHz

ELECTRICAL SPECIFICATIONS<sup>1,2</sup> AT +25°C

Parameter	F#	Frequency (MHz)	Min.	Typ.	Max.	Units
Passband	Center Frequency	-	-	5540	-	MHz
	Insertion Loss	F1-F2	-	1.2	4	dB
	VSWR	F1-F2	-	2.1	-	:1
Stop Band, Lower	Insertion Loss	DC-F3	17	22	-	dB
	VSWR	DC-F3	-	25	-	:1
Stop Band, Upper	Insertion Loss	F4-F5	13	30	-	dB
	VSWR	F4-F5	-	17	-	dB
		F4-F6	-	25	-	:1

1. Measured on Mini-Circuits Characterization Test Board TB-824+ using BFCN-5540+.

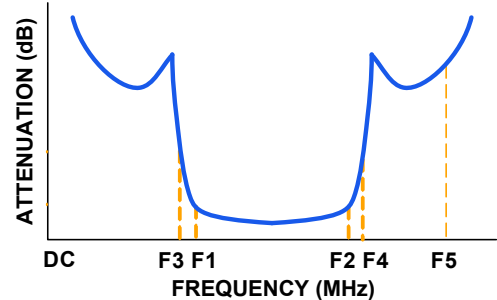
2. This filter is not intended for use as a DC Blocking circuit element. In Application where DC voltage is present at either input or output ports, blocking capacitors are required at the corresponding RF port.

## ABSOLUTE MAXIMUM RATINGS

Parameter	Ratings
Operating Temperature	-40°C to +105°C
Storage Temperature	-40°C to +105°C
RF Power Input <sup>3</sup>	1W at +25°C

\*Passband rating, derate linearly to 0.25 W at +105°C ambient  
Permanent damage may occur if any of these limits are exceeded.

## TYPICAL FREQUENCY RESPONSE





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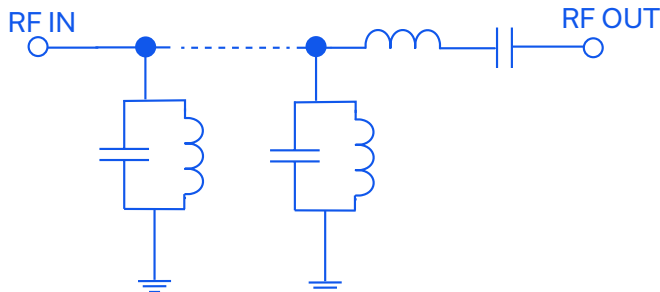
## Band Pass Filter

BFCN-5540AT+

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50Ω 4620 to 6640 MHz

## FUNCTIONAL SCHEMATIC

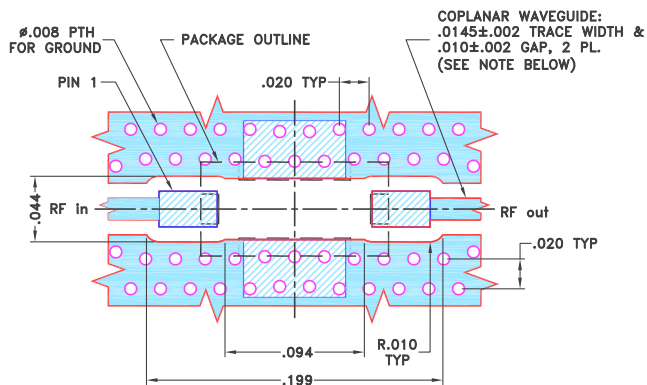


## PAD CONNECTIONS

Input	1
Output	3
Ground	2,4

PRODUCT MARKING: F6

DEMO BOARD P/N: TB-BFCN-5540+  
SUGGESTED PCB LAYOUT (PL-454)

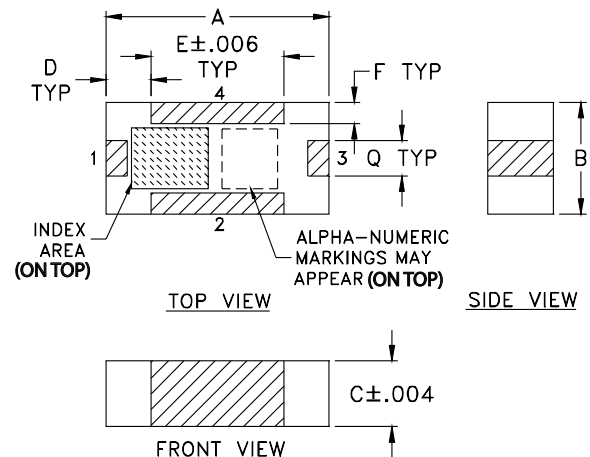


## NOTES:

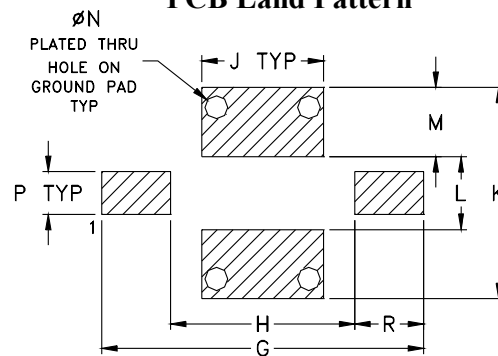
- TRACE WIDTH PARAMETERS ARE SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS .0066"±.0007". COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH AND GAP MAY NEED TO BE MODIFIED.
- BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

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

## CASE STYLE DRAWING



## PCB Land Pattern



Suggested Layout,  
Tolerance to be within ±.002

## OUTLINE DIMENSIONS (Inches 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

TAPE &amp; REEL INFORMATION: F75

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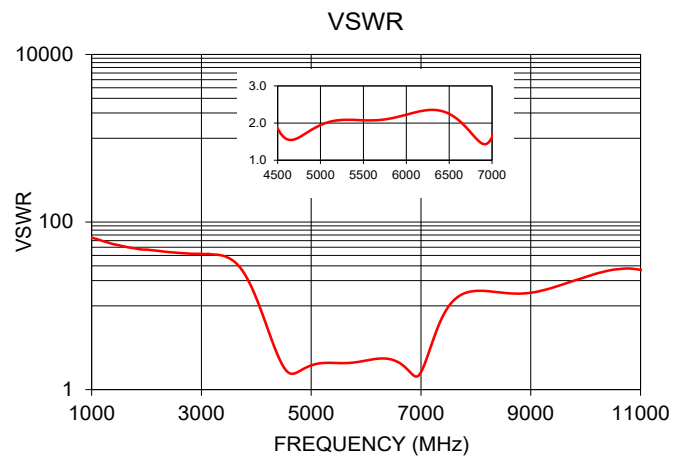
# Band Pass Filter

**BFCN-5540AT+**

50Ω 4620 to 6640 MHz

## TYPICAL PERFORMANCE DATA AT +25°C

Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)
1000	36.33	65.08
2000	25.57	46.87
3400	37.28	39.50
4600	1.39	1.58
5000	1.48	1.95
6600	2.33	2.10
7000	3.54	1.62
7500	16.69	9.78
8000	38.25	15.07
8600	45.83	14.11
9000	35.68	14.34
9500	30.89	17.30
10000	29.47	22.09
10900	40.64	27.46
11000	38.85	26.92



### 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/terms/viewterm.html](http://www.minicircuits.com/terms/viewterm.html)





## DEVICE ORIENTATION IN T&R

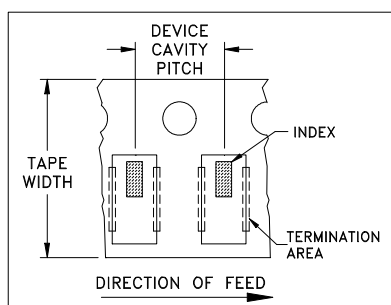


ILLUSTRATION 1

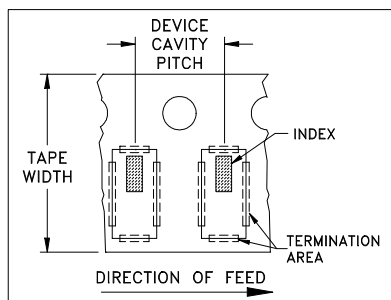


ILLUSTRATION 2

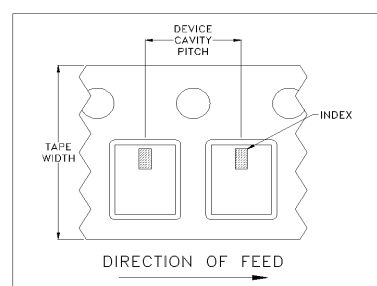


ILLUSTRATION 3

### 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](http://www.minicircuits.com/pages/pdfs/tape.pdf)

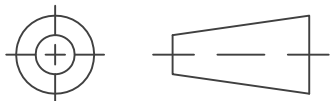


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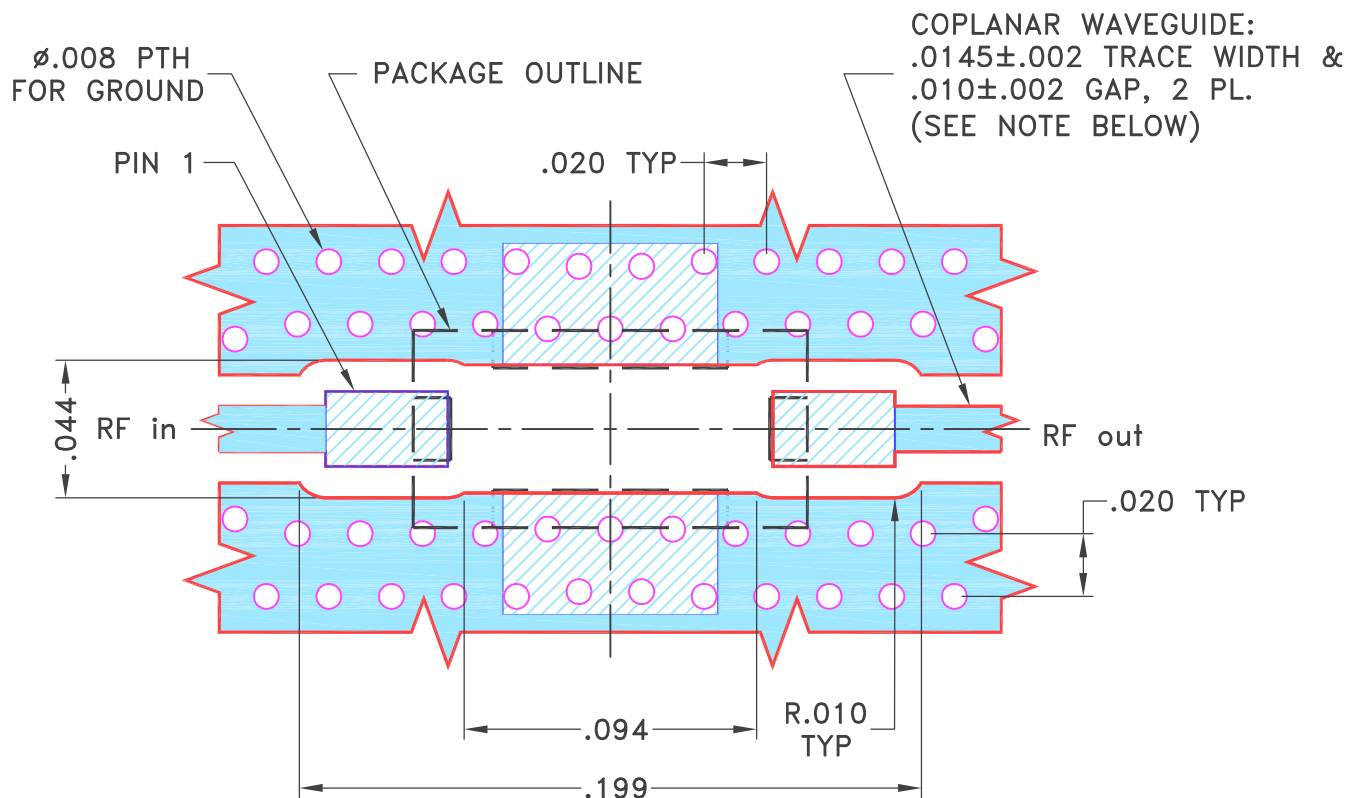
## THIRD ANGLE PROJECTION



## 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:**

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DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER).



DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK.

UNLESS OTHERWISE SPECIFIED

INITIALS

DATE

DIMENSIONS ARE IN INCHES

TOLERANCES ON:

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

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ASHEETA1.DWG REV:A DATE:01/12/95



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13 Neptune Avenue  
Brooklyn NY 11235

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

SIZE  
A

CODE IDENT  
15542

DRAWING NO:

98-PL-454

REV:

OR

FILE: 98PL454

SCALE:

16:1

SHEET:

1 OF 1