CERAMIC

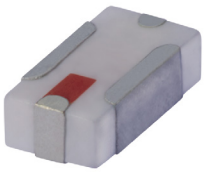
Band Pass Filter

BFCN-3700AT+

50Ω 3000 to 4600 MHz

THE BIG DEAL

- Small Size, 3.2 x 1.6 mm
- Good VSWR, 1.5:1 Typ. at Passband
- Temperature Stable
- Hermetically Sealed
- 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-3700AT+ LTCC bandpass filter covers the 3000 to 4600 MHz passband with 1.9 dB passband insertion loss and 28 dB lower stopband rejection, and 24 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

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. A
ECO-028147
BFCN-3700AT+
MCL NY
260106

Band Pass Filter

BFCN-3700AT+

50Ω 3000 to 4600 MHz

ELECTRICAL SPECIFICATIONS[1,2] AT +25°C

Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Units
Passband	Center Frequency	-	-	-	3700	-	MHz
	Insertion Loss	F1-F2	3000 - 4600	-	1.9	3.5	dB
	VSWR	F1-F2	3000 - 4600	-	2.26	-	:1
Stop Band, Lower	Insertion Loss	DC-F3	2100	21	28	-	dB
	VSWR	DC-F3	2100	-	23	-	:1
Stop Band, Upper	Insertion Loss	F4-F5	5600 - 8000	10	24	-	dB
	VSWR	F4-F5	5600 - 8000	-	16	-	:1

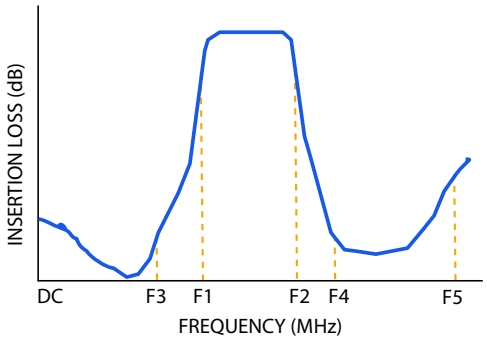
1. Measured on Mini-Circuits Characterization Test Board TB-824+ using BFCN-3700+.
2. This filter is not intended for use as a DC Blocking circuit element. In Application where DC voltage is present at either input or output ports, blocking capacitors are required at the corresponding RF port.

ABSOLUTE MAXIMUM RATINGS

Parameter	Ratings
Operating Temperature	-40°C to +105°C
Storage Temperature	-40°C to +105°C
RF Power Input[3]	2.5 W at +25°C

*Passband rating, derate linearly to 0.7 W at 100°C ambient
Permanent damage may occur if any of these limits are exceeded.

TYPICAL FREQUENCY RESPONSE



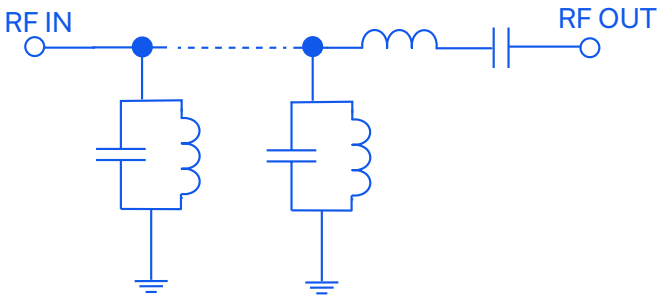
CERAMIC

Band Pass Filter

BFCN-3700AT+

50Ω 3000 to 4600 MHz

FUNCTIONAL SCHEMATIC



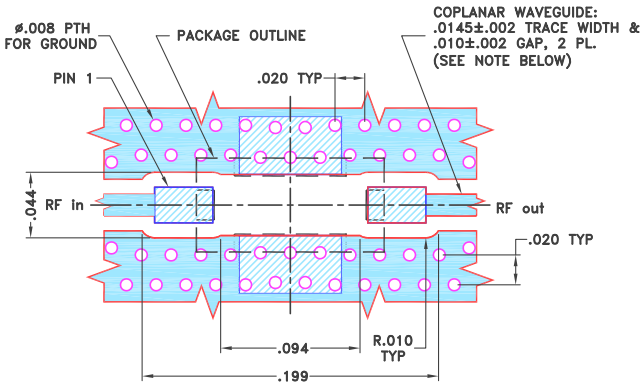
PAD CONNECTIONS

RF IN	1
RF OUT	3
Ground	2,4

PRODUCT MARKING: GP

DEMO BOARD P/N: TB-BFCN-3700+

SUGGESTED PCB LAYOUT (PL-454)

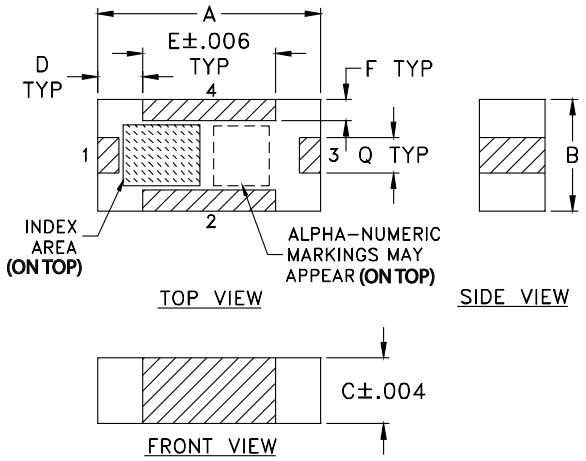


NOTES:
1. TRACE WIDTH PARAMETERS ARE SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .0066"±.0007". COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH AND GAP MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

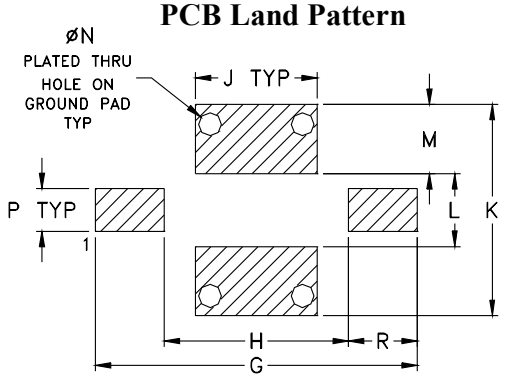
DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER).

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK.

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 & REEL INFORMATION: F75

CERAMIC

Band Pass Filter

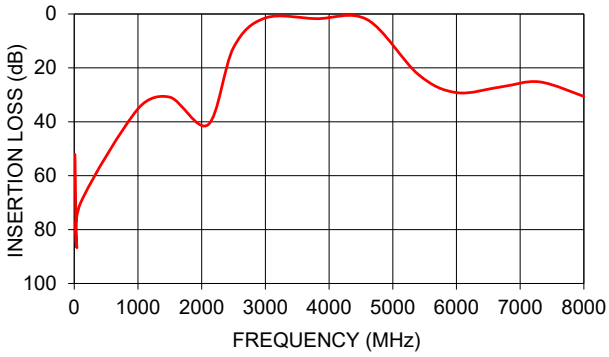
BFCN-3700AT+

50Ω 3000 to 4600 MHz

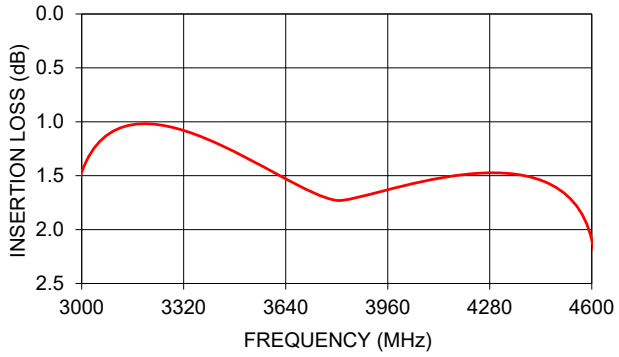
TYPICAL PERFORMANCE DATA AT +25°C

Full Band Performance			Pass Band Performance		
Frequency (MHz)	Insertion Loss (dB)	VSWR (:1)	Frequency (MHz)	Insertion Loss (dB)	Group Delay (nsec)
10	52.11	164.39	3000	1.47	0.61
40	86.34	64.21	3100	1.25	0.53
100	70.07	63.01	3200	1.22	0.47
1000	35.19	45.24	3300	1.26	0.42
1500	30.86	41.09	3400	1.34	0.39
2100	41.10	34.12	3500	1.43	0.36
2500	12.46	15.28	3600	1.53	0.35
3000	1.47	1.47	3700	1.64	0.34
3800	1.73	2.16	3800	1.73	0.33
4600	2.10	2.01	3900	1.84	0.33
5400	22.42	16.29	4000	1.92	0.33
6000	29.18	26.35	4100	2.00	0.33
6700	27.04	24.76	4250	2.08	0.35
7300	25.18	14.98	4400	2.11	0.39
8000	30.58	4.62	4600	2.10	0.46

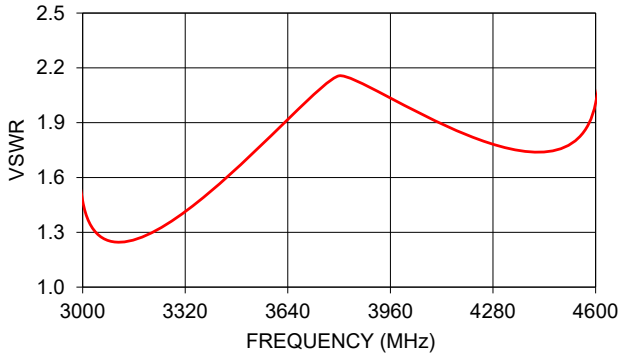
INSERTION LOSS (Full Band)



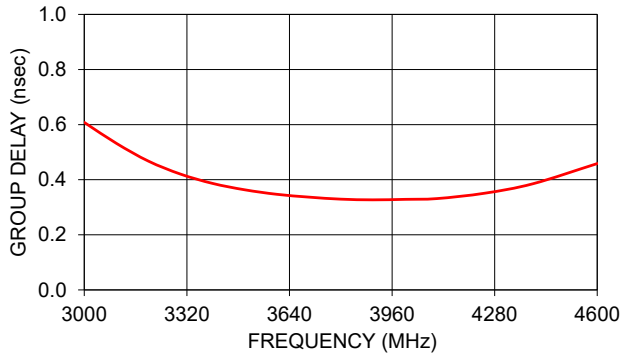
INSERTION LOSS (Pass Band)



VSWR



GROUP DELAY



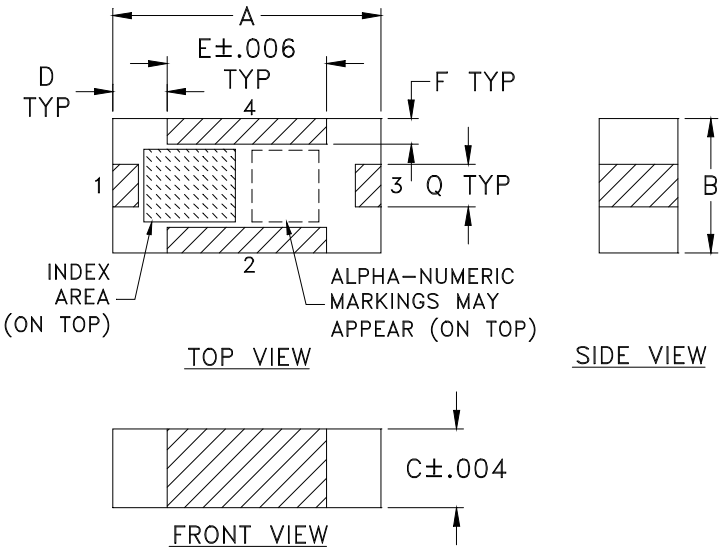
NOTES

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-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/terms/viewterm.html

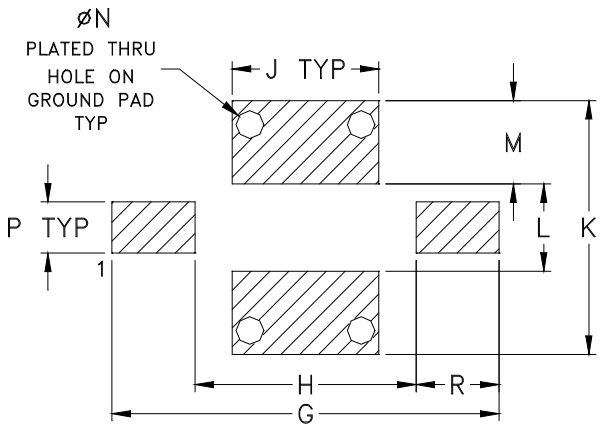
Case Style FV

FV1206-4

Outline Dimensions



PCB Land Pattern



Suggested Layout,
Tolerance to be within ±.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. ± .01; 3 Pl. ± .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.

Tape & Reel Packaging TR-F75

DEVICE ORIENTATION IN T&R

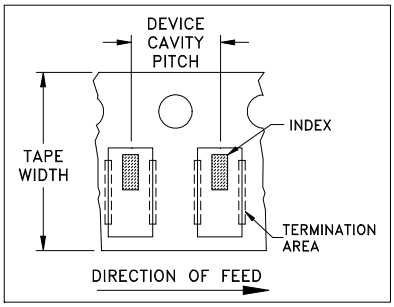


ILLUSTRATION 1

Applicable Case Styles
FV1206-1
FV1206-3

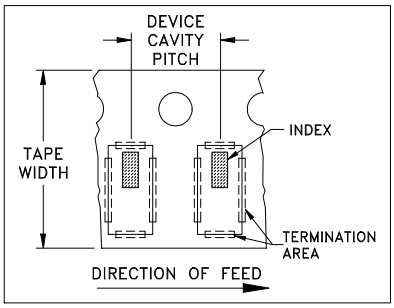


ILLUSTRATION 2

Applicable Case Styles
FV1206-4
FV1206-5
FV1206-6
FV1206-7
FV1206-9

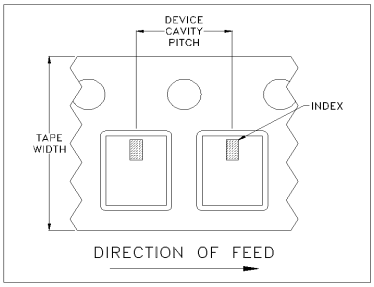


ILLUSTRATION 3

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.

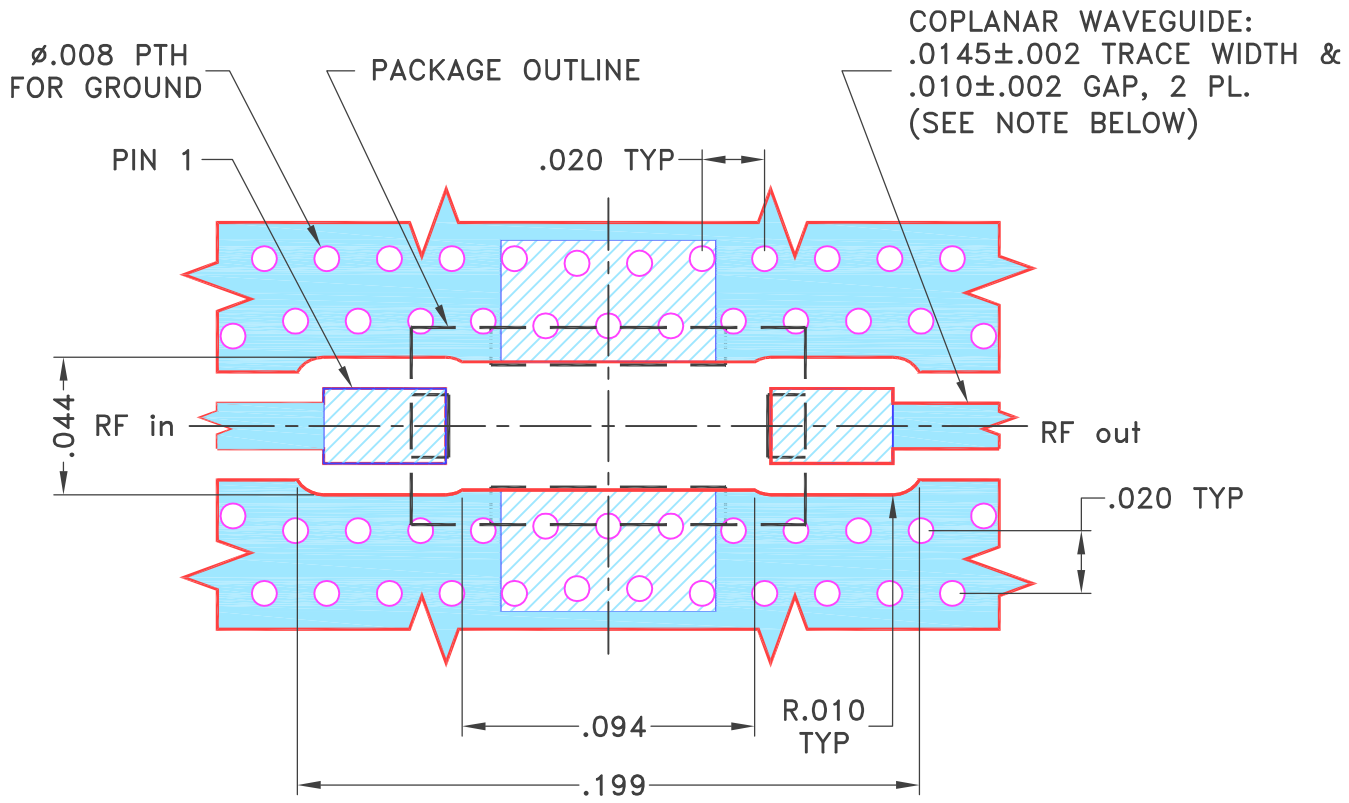
Go to: www.minicircuits.com/pages/pdfs/tape.pdf

Mini-Circuits®
INTERNET http://www.minicircuits.com
P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661
Distribution Centers NORTH AMERICA 800-654-7949 • 417-335-5935 • Fax 417-335-5945 • EUROPE 44-1252-832600 • Fax 44-1252-837010
Mini-Circuits ISO 9001 & ISO 14001 Certified

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 RO4350B WITH DIELECTRIC THICKNESS .0066"±.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		INITIALS	DATE
DIMENSIONS ARE IN INCHES	DRAWN	ITG	07/30/15
TOLERANCES ON:	CHECKED	GF	07/31/15
2 PL DECIMALS ±	APPROVED	AVB	07/31/15
3 PL DECIMALS ± .005			
ANGLES ±			
FRACTIONS ±			

Mini-Circuits®

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

Mini-Circuits®
13 Neptune Avenue
Brooklyn NY 11235

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

SIZE	CODE IDENT	DRAWING NO:	REV:
A	15542	98-PL-454	OR

FILE:	SCALE:	SHEET:
98PL454	16:1	1 OF 1