

Ceramic

# Bandpass Filter

**BFCG-1902+**

50Ω 17.0 to 20.4 GHz

## The Big Deal

- Low Insertion Loss – Mid band 1.5dB typical
- Pick and place standard case style
- Small size 2.0mm x 1.25mm
- High quality distributed filter topology



CASE STYLE: GE0805C-13

## Product Overview

The BFCG-1902+ LTCC Band Pass Filter achieves a miniature size and high repeatability of performance at mmWave frequencies, by utilizing a proprietary LTCC material system and distributed filter topology. The passband loss at 17-20.4GHz is as low as 1.5dB, with typical stopband rejections at 38dB up to 39GHz. This model handles up to 1W RF input power, and provides a wide operating temperature range from -55 to +125°C.

## Key Features

Feature	Advantages
Proprietary mmWave compatible LTCC material system	Low loss and repeatable performance on a lot to lot basis up to mmWave frequencies.
Cost effective	LTCC is scalable technology that is cost effective due to ease of production in high quantities.
Small size (2.0mm x 1.25mm)	Allows for high layout density of circuit boards, while minimizing effects of parasitics.

### 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)



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50Ω 17.0 to 20.4 GHz

BFCG-1902+



Generic photo used for illustration purposes only

CASE STYLE: GE0805C-13

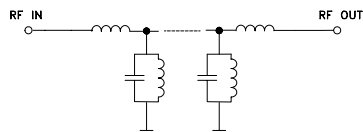
## Features

- Small size
- Temperature stable
- Hermetically sealed
- LTCC construction

## Applications

- Satcom

## Functional Schematic



## Electrical Specifications<sup>1</sup> at 25°C

Parameter	F#	Frequency (GHz)	Min.	Typ.	Max.	Unit
Pass Band	Center Frequency	—		18.6		GHz
	Insertion Loss	F1-F2	17 - 20.4	1.5	2.5	dB
	Return Loss	F1-F2	17 - 20.4	15	—	dB
Stop Band, Lower	Insertion Loss	DC-F3	DC - 10.8	30	38	dB
		F3-F4	10.8 - 13	20	24	dB
Stop Band, Upper	Insertion Loss	F4-F5	24.5 - 26	17	28	dB
		F5-F6	26 - 39	30	38	dB

1. Measured on Mini-Circuits Test Board TB-BFCG-1902C+ with feedline losses removed by normalization of S12 and S21 traces to measurement of TB thru-line.

## Maximum Ratings

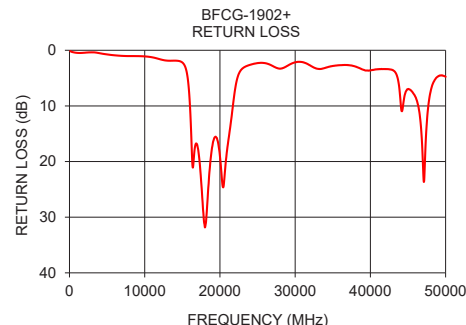
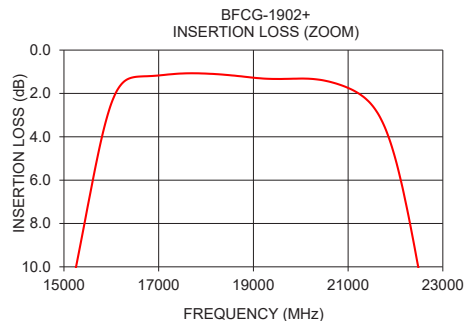
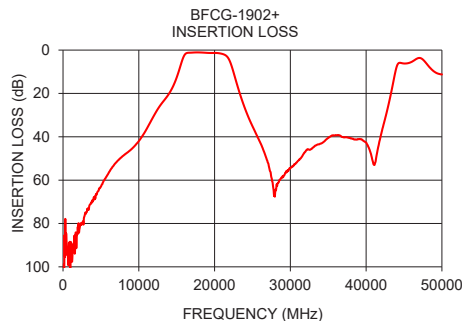
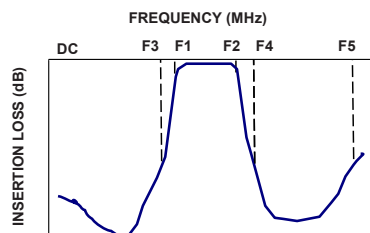
Operating Temperature	-55°C to 125°C
Storage Temperature	-55°C to 125°C
RF Power Input	1W at 25°C

Permanent damage may occur if any of these limits exceeded.

## Typical Performance Data at 25°C

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)
1000	90.70	0.46
5000	63.02	0.74
10800	37.82	1.22
12000	30.23	1.60
14000	20.04	1.87
15000	12.64	2.20
16000	2.46	9.59
17000	1.17	17.12
18000	1.08	31.84
19000	1.27	17.18
20400	1.37	24.61
21000	1.74	17.39
22000	5.03	7.14
23000	16.26	3.26
25000	35.11	2.30
30000	54.37	2.16
35000	40.47	2.83
40000	42.71	3.64
50000	11.24	4.77

## Typical Frequency Response



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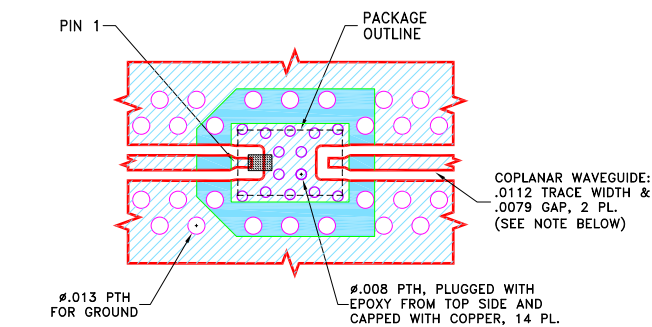
REV. OR  
ECO-004775  
BFCG-1902+  
WY/CP/AM  
201104  
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Pad Connections

INPUT	1
OUTPUT	3
GROUND	2

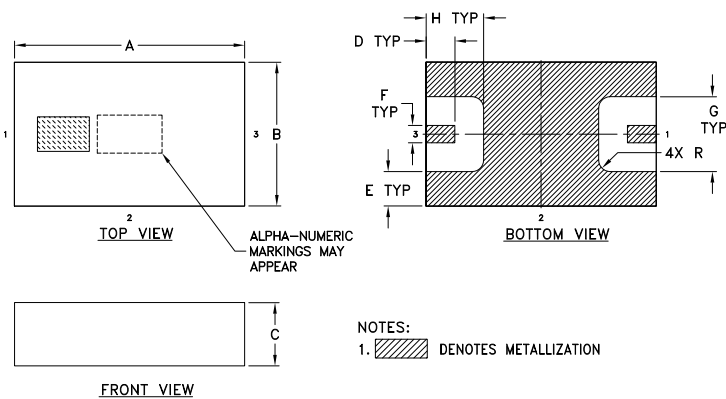
Product Marking: MF

Demo Board MCL P/N: TB-BFCG-1902C+  
Suggested PCB Layout (PL-689)



- NOTES:
1. TRACE WIDTH & GAP PARAMETERS ARE SHOWN FOR ROGERS RO4350B, DIELECTRIC THICKNESS: .0066±.0007; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH AND GAP MAY NEED TO BE MODIFIED.
  2. UNIT FOOT PRINT IS OPTIMIZED FOR PERFORMANCE AND IS DIFFERENT FROM CASE STYLE GE0805C-13 RECOMMENDATIONS.
  3. 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 ( inch mm )

A	B	C	D	E	F	G	H	wt
.079	.049	.022	.010	.012	.006	.026	.020	grams
2.01	1.24	0.56	0.25	0.30	0.15	0.66	0.51	0.011

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