



**THE DATASHEET OF  
BFCQ-1892+**





CERAMIC

# Bandpass Filter

## BFCQ-1892+

50Ω 17.7 to 20.2 GHz

### THE BIG DEAL

- Standard small 1008 (2.5mm x 2.0mm) case style
- Low Insertion Loss – Mid band 1.4 dB typical
- Wide rejection band
- Shielded construction preventing filter from de-tuning
- Reduced footprint area by employing LGA (land grid array)
- Surface mountable pick and place standard case style



Generic photo used for illustration purposes only

CASE STYLE: NL1008C-7

### +RoHS Compliant

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

### APPLICATIONS

- Satellite Communications

### PRODUCT OVERVIEW

The BFCQ-1892+ LTCC Band Pass Filter achieves a miniature size and high repeatability of performance by utilizing a proprietary LTCC material system and distributed filter topology. The typical passband loss at 17.7 – 20.2 GHz is as low as 1.4 dB, with typical stopband rejections at 45 dB up to 40 GHz. This model handles up to 1W RF input power, and provides a wide operating temperature range from -55 to +125°C. Utilizing a proprietary LTCC material system and a distributed filter topology, this filter is able to achieve repeatable performance on a lot-to-lot basis.

### KEY FEATURES

| Feature                    | Advantages   |
|----------------------------|--|
| Cost effective             | LTCC is scalable technology that is cost effective due to ease of production in high quantities. |
| Small size (2.5mm x 2.0mm) | Allows for high layout density of circuit boards, while minimizing effects of parasitics.        |
| Surface Mountable          | Suitable for very high volume automated assembly process.  |





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### ELECTRICAL SPECIFICATIONS<sup>1</sup> AT 25°C

| Parameter        | F#             | Frequency (MHz) | Min.        | Typ.  | Max. | Units |    |
|------------------|----------------|-----------------|-------------|-------|------|-------|----|
| Center Frequency | —              | —               | —           | 18.95 | —    | GHz   |    |
| Passband         | Insertion Loss | F1-F2           | 17.7 - 20.2 | —     | 1.4  | 3.0   | dB |
|                  | Return Loss    | F1-F2           | 17.7 - 20.2 | —     | 13   | —     | dB |
| Stop Band, Lower | Insertion Loss | DC-F3           | 0.1 - 10    | 45    | 55   | —     | dB |
|                  |                |                 | 10 - 14.5   | 30    | 40   | —     |    |
| Stop Band, Upper | Insertion Loss |                 | 24 - 26     | 35    | 45   | —     | dB |
|                  |                | F4-F5           | 26 - 32     | 40    | 50   | —     |    |
|                  |                |                 | 32 - 40     | 35    | 45   | —     |    |

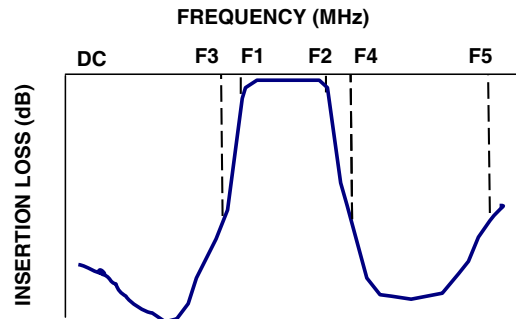
1. Measured on Mini-Circuits Test Board TB-BFCQ-1892C+ with connectors and feedline de-embedded with 2xThru.

### MAXIMUM RATINGS

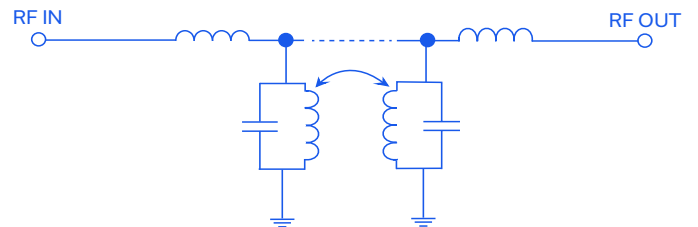
| Parameter             | Ratings         |
|-----------------------|-----------------|
| Operating temperature | -55°C to +125°C |
| Storage temperature   | -55°C to +125°C |
| RF Power Input        | 1W              |

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

### TYPICAL FREQUENCY RESPONSE



### FUNCTIONAL SCHEMATIC





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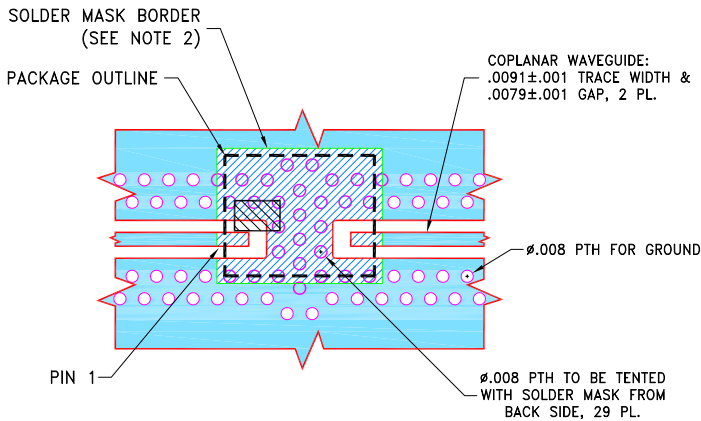
50Ω 17.7 to 20.2 GHz

### PAD CONNECTIONS

|        |   |
|--------|---|
| INPUT  | 1 |
| OUTPUT | 2 |
| GROUND | 3 |

### PRODUCT MARKING: UE

### DEMO BOARD MCL P/N: TB-BFCQ-1892C+ SUGGESTED PCB LAYOUT (PL-707)

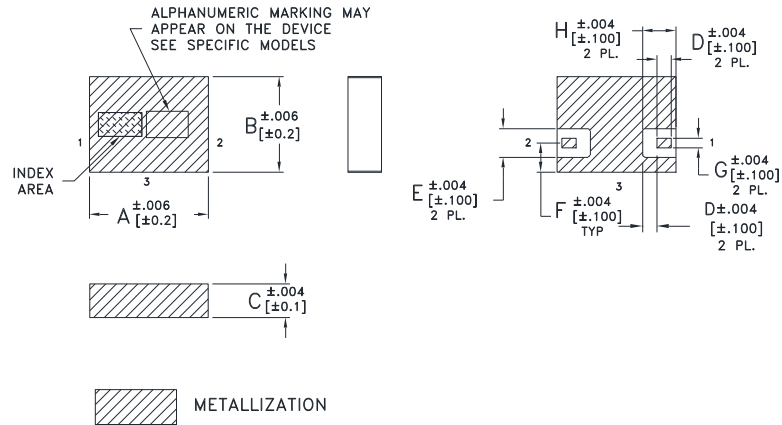


#### NOTES:

1. COPLANAR WAVEGUIDE PARAMETERS ARE SHOWN FOR MEGTRON-7 R5785(N); DIELECTRIC THICKNESS: .0049±.001; CLOTH STYLE: 2116; COPPER: HVLP/HVLP. FOR OTHER MATERIALS LINE WIDTH & GAP MAY NEED TO BE MODIFIED.
2. SOLDER MASK OPENING FOR COMPONENT SOLDERING HAS BEEN INCREASED AGAINST PCB LAND PATTERN RECOMMENDATIONS PER NL1008C-6 AND CAN BE DEVIATED FROM THIS DRAWING TO COMPLY WITH CUSTOMERS' DESIGN RULES.
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 (Inches/mm)

| A    | B    | C    | D    | E    | F    | G    | H    | J    | K    | wt    |
|------|------|------|------|------|------|------|------|------|------|-------|
| .098 | .079 | .028 | .012 | .024 | .024 | .008 | .028 | .043 | .024 | grams |
| 2.49 | 2.01 | 0.71 | 0.30 | 0.61 | 0.61 | 0.20 | 0.71 | 1.09 | 0.61 | .019  |



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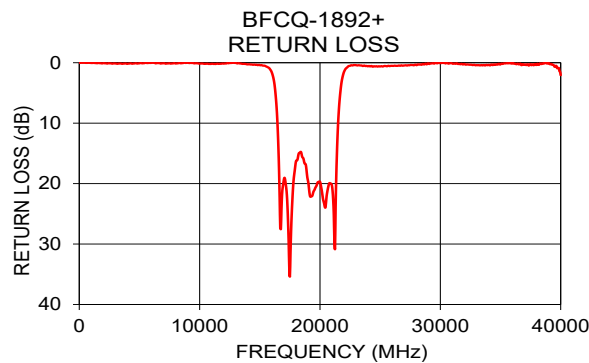
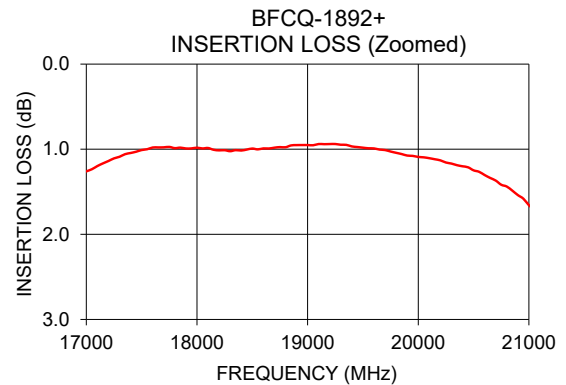
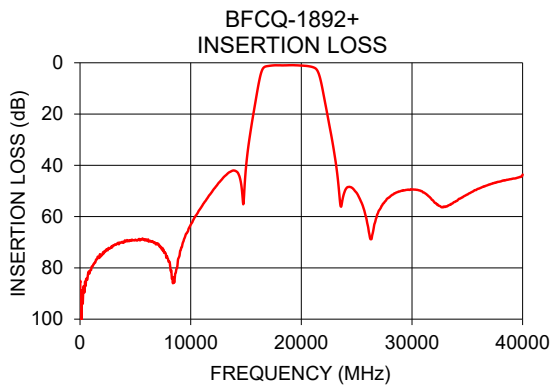
## BFCQ-1892+

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### TYPICAL PERFORMANCE DATA AT 25°C

| Frequency (MHz) | Insertion Loss (dB) | Return Loss (dB) |
|-----------------|---------------------|------------------|
| 10              | 85.67               | 0.01             |
| 1000            | 80.83               | 0.04             |
| 2000            | 74.97               | 0.07             |
| 3000            | 71.27               | 0.13             |
| 4000            | 69.97               | 0.18             |
| 7000            | 70.56               | 0.09             |
| 8800            | 79.27               | 0.02             |
| 9200            | 71.94               | 0.04             |
| 10200           | 61.60               | 0.12             |
| 10700           | 57.97               | 0.18             |
| 14500           | 45.85               | 0.32             |
| 15100           | 36.58               | 0.40             |
| 17700           | 0.98                | 22.97            |
| 18950           | 0.95                | 18.99            |
| 20200           | 1.13                | 21.84            |
| 26000           | 63.35               | 0.51             |
| 30000           | 49.45               | 0.01             |
| 32000           | 54.28               | 0.21             |
| 36000           | 49.10               | 0.05             |
| 40000           | 43.60               | 2.06             |



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



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