



CERAMIC

Bandpass Filter

BFCQ-1932+

Mini-Circuits

50Ω 17.7 to 21 GHz

THE BIG DEAL

- Standard small 1008 (2.5mm x 2.0mm) case style
- Low Insertion Loss – Mid band 1.6 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-1932+ 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 – 21 GHz is as low as 1.6 dB, with typical stopband rejections at 43 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 SPECIFICATIONS¹ AT 25°C

| Parameter | F# | Frequency (MHz) | Min. | Typ. | Max. | Units |
|------------------|------------------|-----------------|-----------|------|------|-------|
| Passband | Center Frequency | — | — | 19.3 | — | GHz |
| | Insertion Loss | F1-F2 | 17.7 - 21 | 1.6 | 3.0 | dB |
| | Return Loss | F1-F2 | 17.7 - 21 | — | 12 | dB |
| Stop Band, Lower | Insertion Loss | DC-F3 | 0.1 - 11 | 40 | 46 | dB |
| | | | 11 - 14.6 | 20 | 30 | |
| Stop Band, Upper | Insertion Loss | F4-F5 | 25.6 - 28 | 30 | 40 | dB |
| | | | 28 - 35 | 40 | 50 | |
| | | | 35 - 40 | 30 | 43 | |

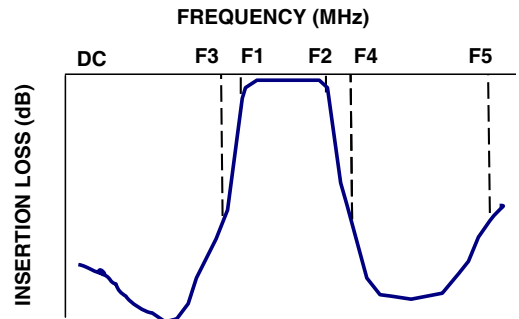
1. Measured on Mini-Circuits Test Board TB-BFCQ-1932C+ with feedline losses removed by normalization of S12 and S21 traces to measurement of the thru-line.

MAXIMUM RATINGS

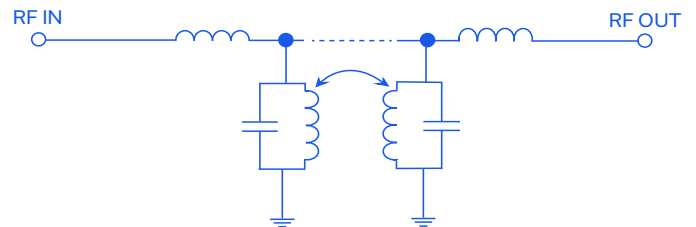
| Parameter | Ratings |
|-----------------------|-----------------|
| Operating temperature | -55°C to +125°C |
| Storage temperature | -55°C to +125°C |
| RF Power Input | 1W |

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

TYPICAL FREQUENCY RESPONSE



FUNCTIONAL SCHEMATIC





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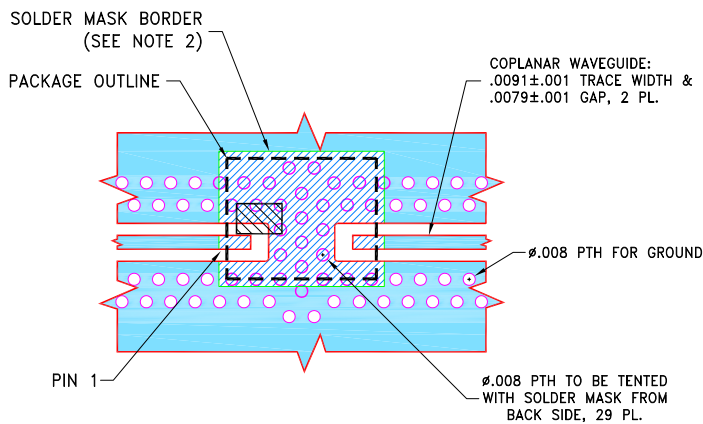
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PAD CONNECTIONS

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

PRODUCT MARKING: UD

DEMO BOARD MCL P/N: TB-BFCQ-1932C+ SUGGESTED PCB LAYOUT (PL-707)

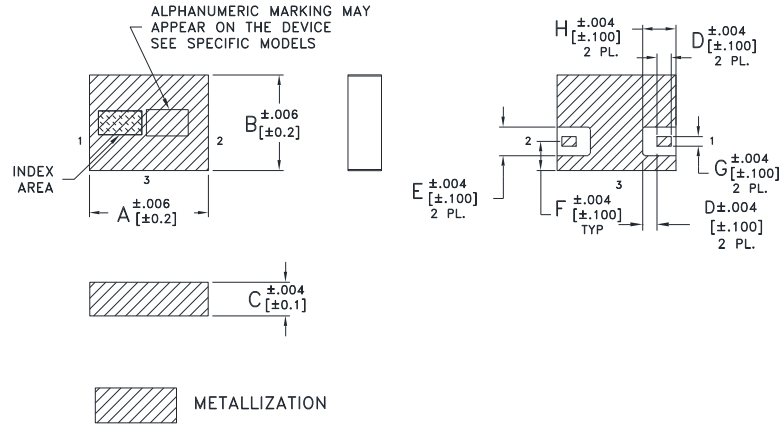


NOTES:

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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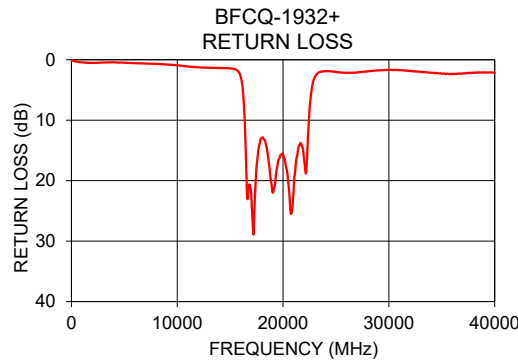
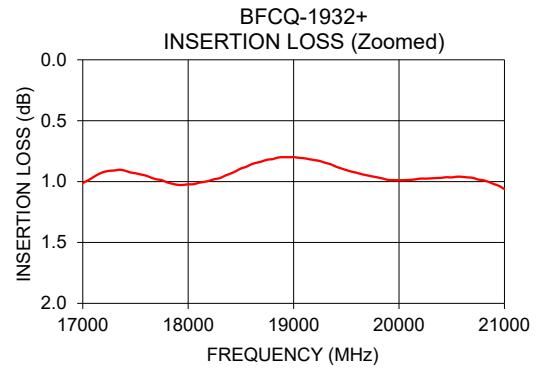
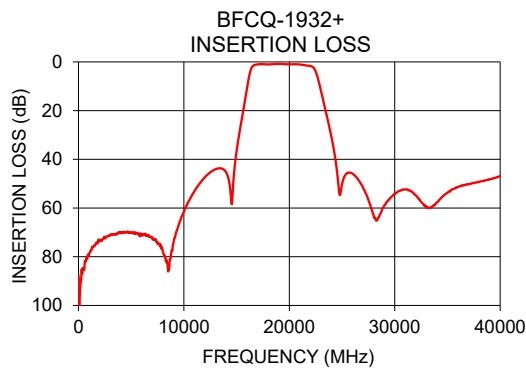
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TYPICAL PERFORMANCE DATA AT 25°C

| Frequency (MHz) | Insertion Loss (dB) | Return Loss (dB) |
|-----------------|---------------------|------------------|
| 10 | 87.66 | 0.06 |
| 1000 | 78.83 | 0.43 |
| 2000 | 73.60 | 0.52 |
| 3000 | 70.89 | 0.45 |
| 4000 | 70.29 | 0.41 |
| 7000 | 72.09 | 0.63 |
| 8800 | 78.39 | 0.76 |
| 9200 | 71.16 | 0.81 |
| 10200 | 59.46 | 0.95 |
| 10700 | 55.29 | 1.06 |
| 14500 | 57.54 | 1.37 |
| 15100 | 33.62 | 1.44 |
| 17700 | 0.98 | 14.54 |
| 19300 | 0.85 | 19.48 |
| 21000 | 1.06 | 21.33 |
| 26000 | 45.91 | 2.15 |
| 30000 | 54.32 | 1.70 |
| 32000 | 54.76 | 1.84 |
| 36000 | 51.33 | 2.38 |
| 40000 | 46.89 | 2.11 |



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



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