



CERAMIC

Bandpass Filter

BFCQ-2602+

50Ω 25 to 27.5 GHz

THE BIG DEAL

- Innovative and industry leading
- 5G n258 bandpass filter
- Low Insertion Loss – Mid band 2.0dB typical
- Surface mountable pick and place standard case style
- Small size 2.5mm x 2.0mm
- High quality distributed filter topology
- Wide rejection band



Generic photo used for illustration purposes only

CASE STYLE: NL1008C-6

+RoHS Compliant

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

APPLICATIONS

- 5G Telecommunications

PRODUCT OVERVIEW

The BFCQ-2602+ LTCC Bandpass Filter covers the 5G n258 band. This corresponds to a passband of 25 to 27.5 GHz, with as low as 2dB passband loss, and up to 40dB stopband rejection. 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, up to mmWave frequencies.

KEY FEATURES

| Feature | Advantages |
|--|---|
| 5G n258 band compatible | Designed for 5G Telecommunications, n258 band, 25 – 27.5 GHz |
| 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 allows for cost reduction at volume. |
| 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 (GHz) | Min. | Typ. | Max. | Units |
|-------------------|------------------|-----------------|------|------|------|-------|
| Center Frequency | — | — | — | 26.2 | — | GHz |
| Passband | Insertion Loss | 25 - 25.5 | — | 2.4 | — | dB |
| | | 25.5 - 27.1 | — | 2.0 | 2.8 | |
| | Return Loss (In) | 27.1 - 27.5 | — | 2.4 | — | dB |
| | | 25 - 27.5 | — | 13 | — | |
| Return Loss (Out) | F1-F2 | 25 - 27.5 | — | 13 | — | dB |
| Stop Band, Lower | Insertion Loss | 0.1 - 18 | 33 | 50 | — | dB |
| | | 18 - 21.7 | 25 | 37 | — | |
| Stop Band, Upper | Insertion Loss | 31 - 37 | 25 | 36 | — | dB |
| | | 37 - 45 | 33 | 40 | — | |
| | | 45 - 50 | 26 | 40 | — | |

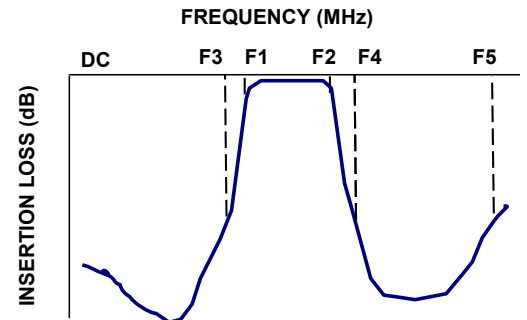
1. Measured on Mini-Circuits Test Board TB-BFCQ-2602C+ with feedline losses removed by normalization of S12 and S21 traces to measurement of TB thru-line.

MAXIMUM RATINGS

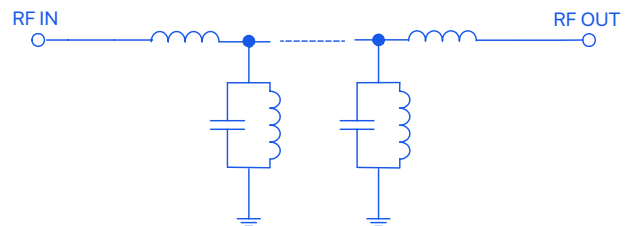
| Parameter | Ratings |
|-----------------------|-----------------|
| Operating Temperature | -55°C to +125°C |
| Storage Temperature | -55°C to +125°C |
| RF Power Input | 1W |

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

TYPICAL FREQUENCY RESPONSE



FUNCTIONAL SCHEMATIC





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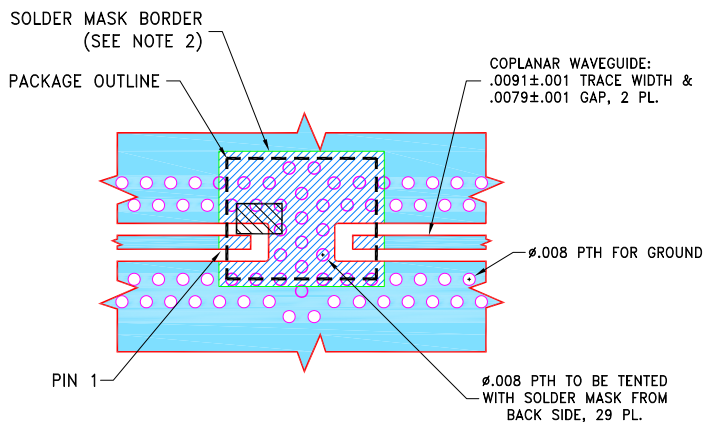
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PAD CONNECTIONS

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

PRODUCT MARKING: NU

EVALUATION BOARD MCL P/N: TB-BFCQ-2602C+ SUGGESTED PCB LAYOUT (PL-707)

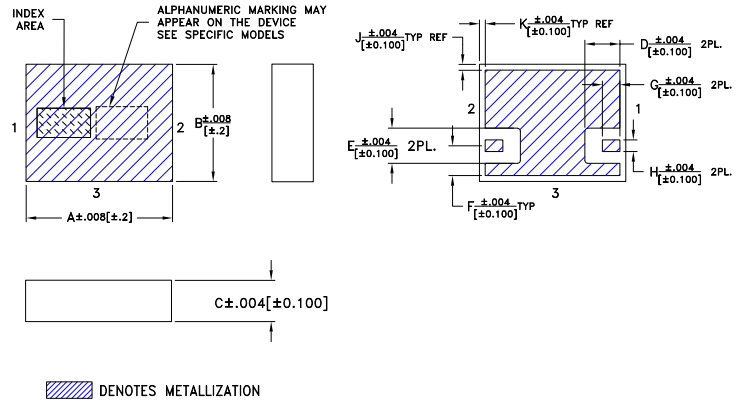


NOTES:

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 | .024 | .024 | .020 | .012 | .008 | .004 | .004 | grams |
| 2.49 | 2.01 | 0.71 | 0.6 | 0.6 | 0.51 | 0.3 | 0.2 | 0.1 | 0.1 | .019 |

TAPE & REEL INFORMATION: F75

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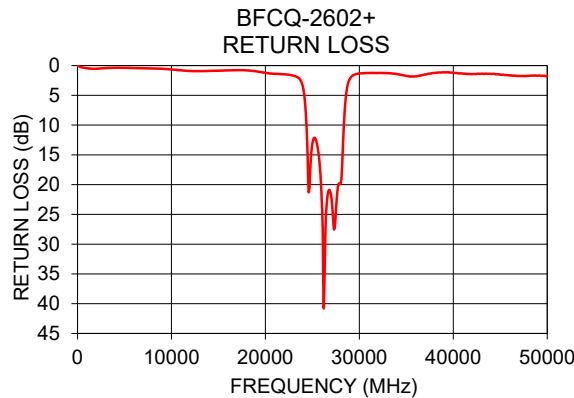
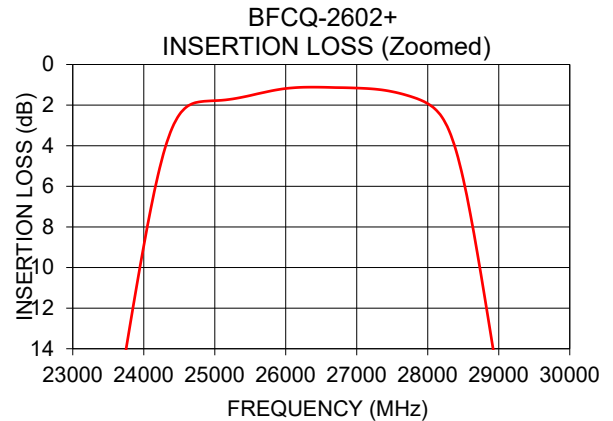
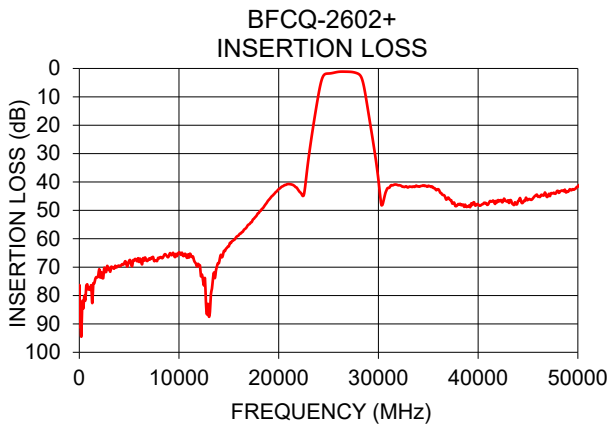
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TYPICAL PERFORMANCE DATA AT 25°C

| Frequency (MHz) | Insertion Loss (dB) | Return Loss (dB) |
|-----------------|---------------------|------------------|
| 10 | 82.48 | 0.05 |
| 3000 | 70.39 | 0.42 |
| 6000 | 68.18 | 0.41 |
| 9000 | 65.89 | 0.54 |
| 15000 | 62.64 | 0.86 |
| 22200 | 43.79 | 1.49 |
| 23300 | 24.02 | 1.87 |
| 25000 | 1.78 | 13.12 |
| 26200 | 1.13 | 40.62 |
| 27500 | 1.34 | 24.51 |
| 29300 | 22.23 | 1.67 |
| 30500 | 46.78 | 1.26 |
| 40000 | 47.89 | 1.20 |
| 45000 | 46.28 | 1.52 |
| 50000 | 41.69 | 1.75 |



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

