

Ceramic

Bandpass Filter

BFHK-2802+

50Ω 26.50 to 29.50 GHz

The Big Deal

- 5G n257 bandpass filter
- Low Insertion Loss – Mid band 2.0dB typical
- Pick and place standard case style
- Small size 4.5mm x 3.2mm
- High quality distributed filter topology



CASE STYLE: NM1812C-2

Product Overview

The BFHK-2802+ LTCC Bandpass Filter covers the 5G n257 band. This corresponds to a passband of 26.5 to 29.5 GHz, with as low as 2dB passband loss, and up to 50dB 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 n257 band compatible | Designed for 5G Telecommunications, n257 band, 26.5 - 29.5 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 (4.5mm x 3.2mm) | Allows for high layout density of circuit boards, while minimizing effects of parasitics. |



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Features

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

Applications

- 5G Telecommunications



Generic photo used for illustration purposes only

CASE STYLE: NM1812C-2

+RoHS Compliant

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



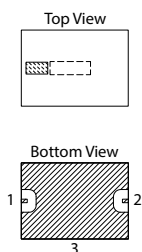
Available Tape and Reel at no extra cost

Reel Size 7" Devices/Reel 20, 50, 100, 200, 500, 1000, 3000

Maximum Ratings

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

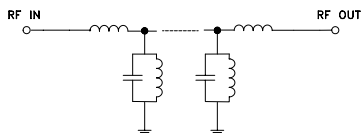
Permanent damage may occur if any of these limits are exceeded.



Pad Connections

| | |
|--------|---|
| Input | 1 |
| Output | 2 |
| Ground | 3 |

Functional Schematic



Electrical Specifications¹ at 25°C

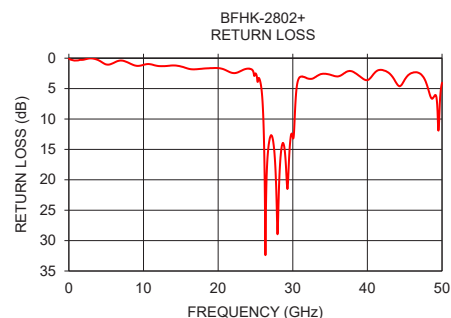
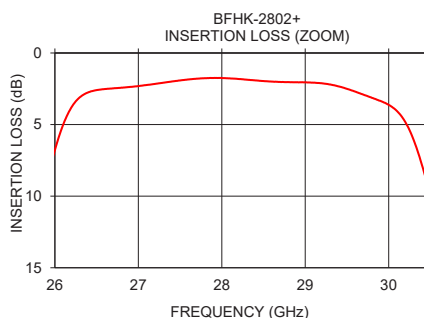
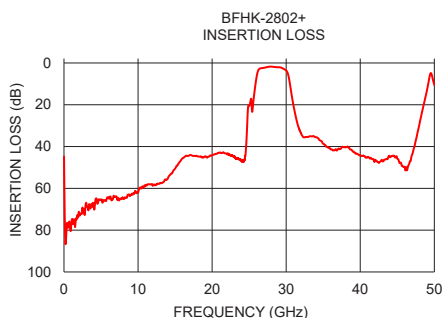
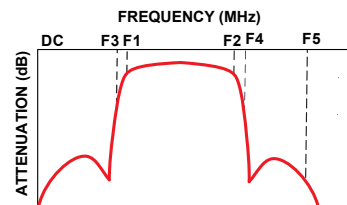
| Parameter | F# | Frequency (GHz) | Min. | Typ. | Max. | Unit |
|------------------|-------|-----------------|------|------|------|------|
| Center Frequency | — | 26.5 - 27.3 | — | 28 | — | GHz |
| Pass Band | F1-F2 | 27.3 - 28.6 | — | 3.7 | — | dB |
| | | 28.6 - 29.5 | — | 2 | 4.5 | |
| | | — | — | 3.7 | — | |
| Return Loss | F1-F2 | 26.5 - 29.5 | — | 10 | — | dB |
| Stop Band, Lower | DC-F3 | DC - 14 | 45 | 50 | — | dB |
| | | 14 - 20 | 39 | 43 | — | |
| | | 20 - 23.39 | 30 | 40 | — | |
| Stop Band, Upper | F4-F5 | 23.39 - 24.5 | — | 25 | — | dB |
| | | 32 - 32.7 | — | 33 | — | |
| | | 32.7 - 37 | 25 | 33 | — | |
| | | 37 - 40 | 31 | 37 | — | |
| | | 40 - 44 | — | 40 | — | |

1. Measured on Mini-Circuits Characterization Test Board TB-BFHK-2802C+ with feedline losses removed by normalization of S12 and S21 traces to measurement of TB thru-line.

Typical Performance Data at 25°C

| Frequency (GHz) | Insertion Loss (dB) | Return Loss (dB) |
|-----------------|---------------------|------------------|
| 1 | 76.86 | 0.37 |
| 5 | 65.70 | 1.02 |
| 10 | 62.05 | 1.09 |
| 15 | 50.54 | 1.36 |
| 20 | 44.17 | 1.63 |
| 25 | 20.54 | 2.50 |
| 26 | 6.78 | 8.29 |
| 27 | 2.31 | 12.88 |
| 28 | 1.75 | 28.00 |
| 29 | 2.05 | 16.16 |
| 30 | 3.62 | 12.95 |
| 31 | 20.66 | 3.07 |
| 35 | 38.68 | 2.71 |
| 40 | 44.14 | 3.61 |
| 45 | 45.79 | 3.52 |
| 50 | 10.55 | 4.05 |

Specification Definition



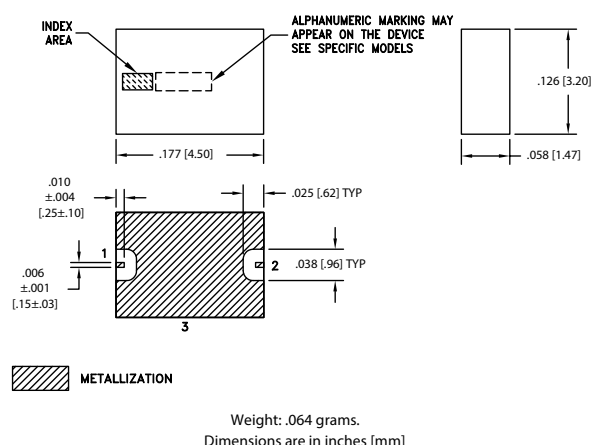
www.minicircuits.com P.O. Box 350166, Brooklyn, NY 11235-0003 (718) 934-4500 sales@minicircuits.com

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Bandpass Filter

BFHK-2802+

Outline Drawing

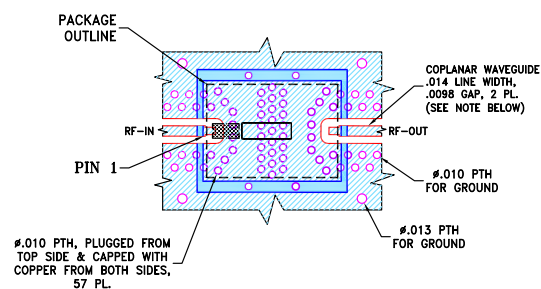


Product Marking: F413

Pad Connections

| | |
|--------|---|
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Demo Board MCL P/N: TB-BFHK-2802C+ Suggested PCB Layout (PL-677)



- NOTES:**
1. TRACE WIDTH AND GAP ARE SHOWN FOR MEGTRON7 WITH DIELECTRIC THICKNESS: .0079±.001"; COPPER: HVLP/HVLP.
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.

Additional 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



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