



LTCC SURFACE MOUNT

Bandpass Filter

BFCQ-12600+

50Ω

10.7 to 14.2 GHz

THE BIG DEAL

- Low Insertion Loss, Typ. 1.5 dB
- Stopband Rejection, Typ. 34 dB
- Passband Return Loss, Typ. 15 dB
- Standard Small 1008 (2.5mm x 2.0mm) Case Style
- Power Handling: 4 W

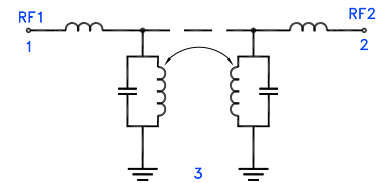


Generic photo used for illustration purposes only

APPLICATIONS

- Satellite Communication
- Test and Measurement
- Aerospace and Defense

FUNCTIONAL DIAGRAM



PRODUCT OVERVIEW

The BFCQ-12600+ LTCC Bandpass Filter achieves a miniature size and highly repeatable performance by utilizing a proprietary LTCC material system and distributed filter topology. The typical passband loss at 10.7-14.2 GHz is as low as 1.5 dB, with typical stopband rejection of 42 dB up to 26 GHz. This model handles up to 4 W of RF input power and has a wide operating temperature range from -55°C to +125°C.

KEY FEATURES

| Features | Advantages |
|-----------------------|---|
| Small Size, 1008 | Allows for highly dense circuit board layouts, while minimizing the effects of parasitics. |
| LTCC Construction | Provides a rugged package that is well suited for tough environments including high humidity and high temperature extremes. |
| Rugged Power Handling | Handles up to 4 Watts in a small package. |

REV. OR
 ECO-022142
 BFCQ-12600+
 EDU4746
 URJ
 240611





ELECTRICAL SPECIFICATIONS^{1,2,3} AT +25°C

| Parameter | F# | Frequency (GHz) | Min. | Typ. | Max. | Units | |
|-----------------|-------------------------------|-----------------|-------------|-------|------|-------|----|
| Passband | Center Frequency ⁴ | — | — | 12.45 | — | GHz | |
| | Insertion Loss | F1-F2 | 10.7 - 14.2 | 1.5 | 2.9 | dB | |
| | Return Loss | F1-F2 | 10.7 - 14.2 | — | 15 | dB | |
| Stopband, Lower | Rejection | DC-F3 | DC - 3.5 | 55 | 64 | — | dB |
| | | F3-F4 | 3.5 - 9 | 20 | 34 | — | dB |
| Stopband, Upper | Rejection | F5-F6 | 16.5 - 21 | 20 | 28 | — | dB |
| | | F6-F7 | 21 - 26 | 32 | 42 | — | dB |

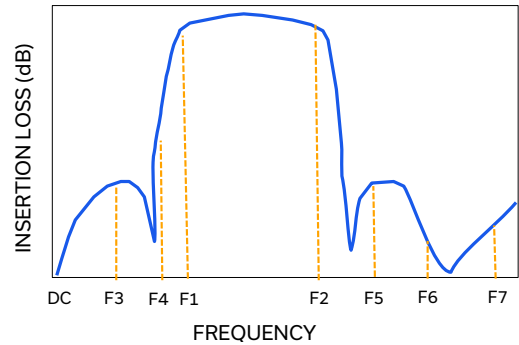
1. Measured on Mini-Circuits Test Board TB-BFCQ-12600+ with connectors and feedline de-embedded with thru-line compensation.
2. Bi-directional, RF1 and RF2 ports can be interchanged.
3. This component should not be used as a DC-block. In applications where DC voltage and/or current is present at either the input or output ports, external DC blocking capacitors are required.
4. Typical variation ±3.5%

ABSOLUTE MAXIMUM RATINGS⁵

| Parameter | Ratings |
|--------------------------|-----------------|
| Operating Temperature | -55°C to +125°C |
| Storage Temperature | -55°C to +125°C |
| Input Power ⁶ | 4 W @ +25°C |

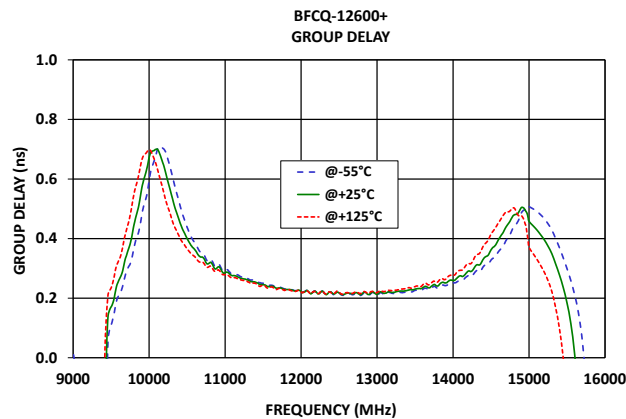
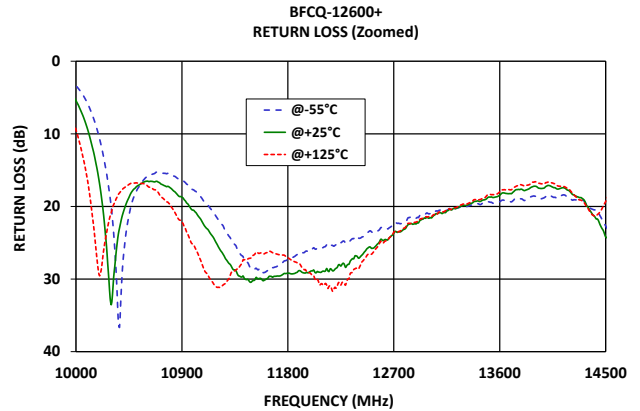
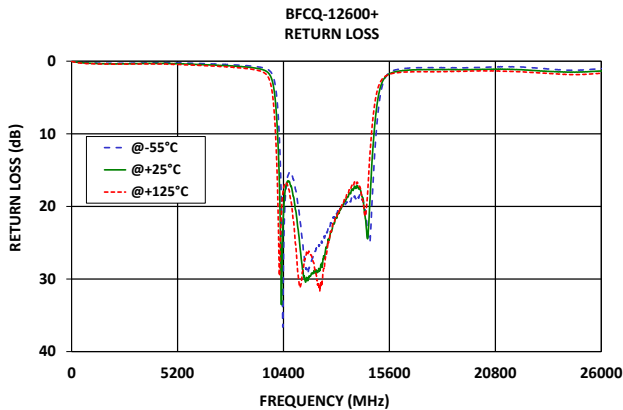
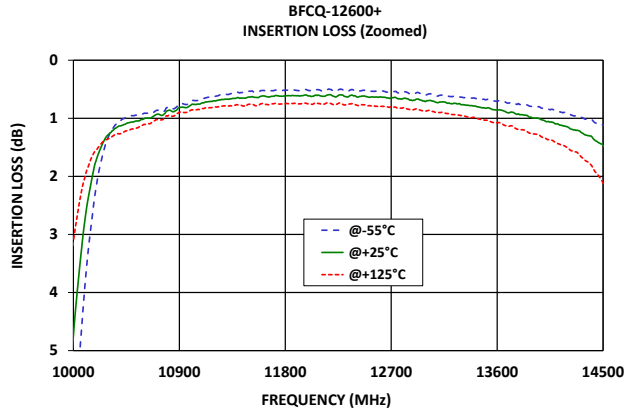
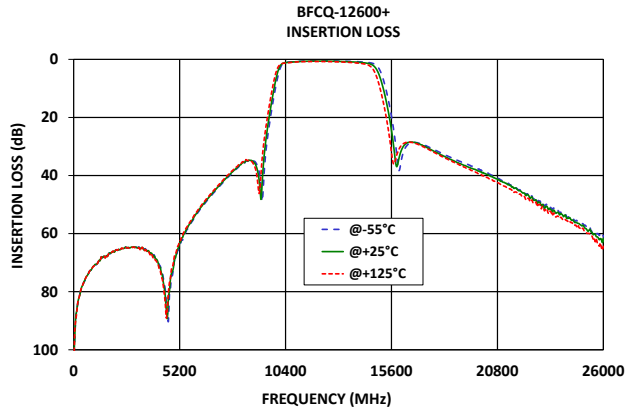
5. Permanent damage may occur if any of these limits are exceeded.
6. Power rating applies only to signals within the passband. Power rating above +25°C operating temperature decreases linearly to 0.8 W at +125°C.

TYPICAL FREQUENCY RESPONSE AT +25°C





TYPICAL PERFORMANCE GRAPHS





FUNCTIONAL DIAGRAM

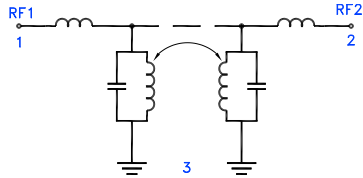
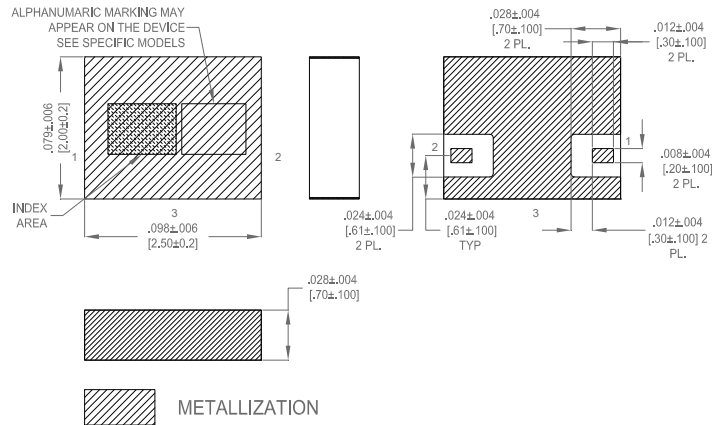


Figure 1. BFCQ-12600+ Functional Diagram

PAD DESCRIPTION

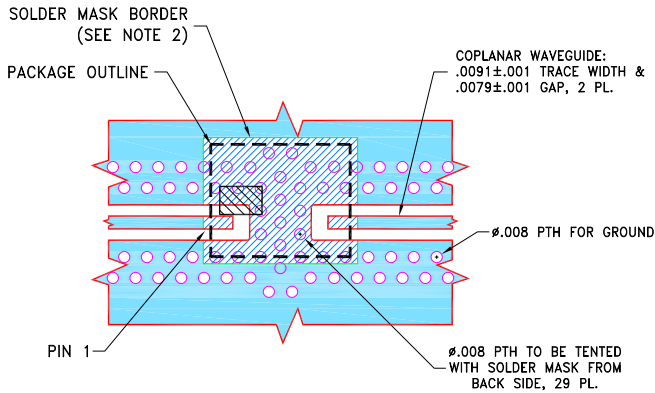
| Function | Pad Number | Description |
|------------------|------------|--|
| RF1 ² | 1 | Connects to RF Input Port |
| RF2 ² | 2 | Connects to RF Output Port |
| GROUND | 3 | Connects to Ground on PCB, (See drawing PL-707) |

CASE STYLE DRAWING



Weight : .019 grams.
Dimensions are in inches (mm). Tolerances: 2Pl. ± .01; 3Pl. ± .005

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.

Figure 2. Suggested PCB Layout PL-707

PRODUCT MARKING*: ZU

*Marking may contain other features or characters for internal lot control.



LTCC SURFACE MOUNT

Bandpass Filter

BFCQ-12600+

Mini-Circuits

50Ω

10.7 to 14.2 GHz

ADDITIONAL DETAILED INFORMATION IS AVAILABLE ON OUR DASHBOARD.

[CLICK HERE](#)

| | |
|---------------------------------|---|
| Performance Data & Graphs | Data Graphs S-Parameter (S2P Files) Data Set (.zip file) De-embedded to device pads |
| Case Style | NL1008C-7 Lead Finish: Nickel-Tin |
| RoHS Status | Compliant |
| Tape and Reel | F75 |
| Suggested Layout for PCB Design | PL-707 |
| Evaluation Board | TB-BFCQ-12600+ Gerber File |
| Environmental Rating | ENV06T10 |

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-Circuits' 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

