LTCC SURFACE MOUNT

Bandpass Filter

BFCQ-12600+

50Ω 10.7 to 14.2 GHz

THE BIG DEAL

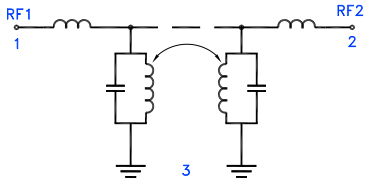
- Low Insertion Loss, Typ. 1.5 dB
- Stopband Rejection, Typ. 34 dB
- Passband Return Loss, Typ. 15 dB
- Standard Small 1008 (2.5mm x 2.0mm) Case Style
- Power Handling: 4 W

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 desnse 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

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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	—	
Stopband, Upper	Rejection	F5-F6	16.5 - 21	20	28	—	dB
		F6-F7	21 - 26	32	42	—	

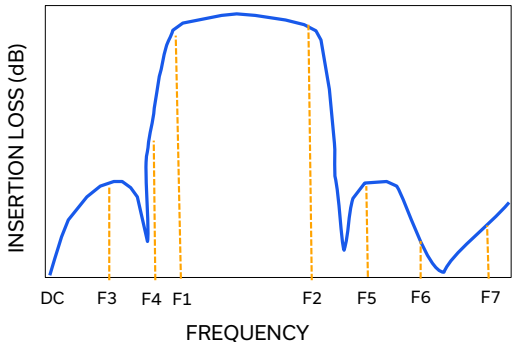
1. Measured on Mini-Circuits Test Board TB-BFCQ-12600+ with connectors and feedline de-embedded with thru-line compensation.
2. Bi-directional, RF1 and RF2 ports can be interchanged.
3. This component should not be used as a DC-block. In applications where DC voltage and/or current is present at either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

ABSOLUTE MAXIMUM RATINGS[5]

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



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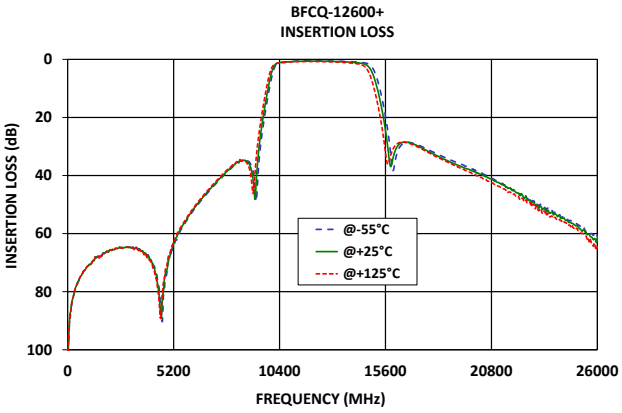
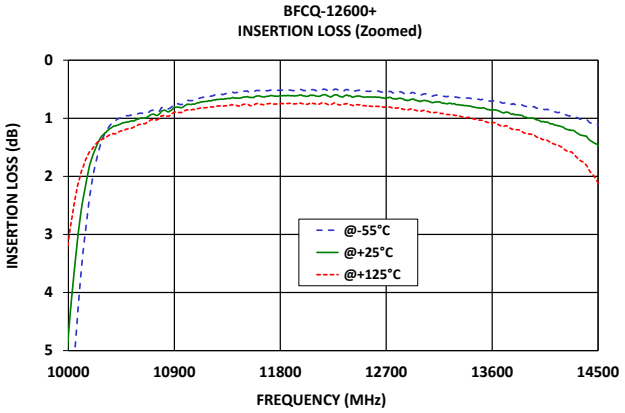
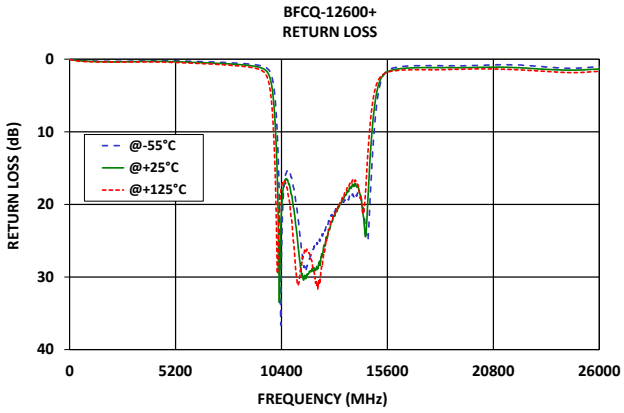
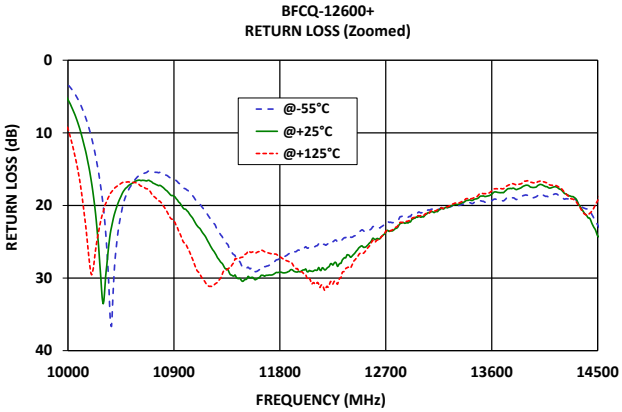
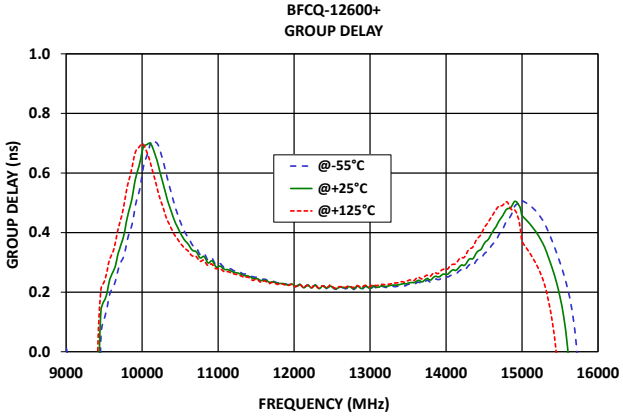
TYPICAL PERFORMANCE GRAPHS











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FUNCTIONAL DIAGRAM

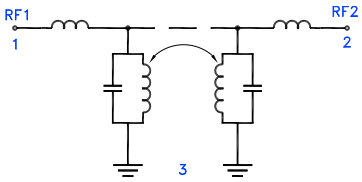
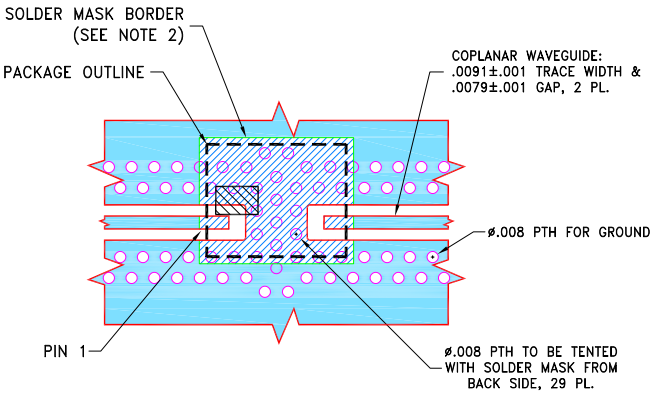


Figure 1. BFCQ-12600+ Functional Diagram

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)

SUGGESTED PCB LAYOUT (PL-707)



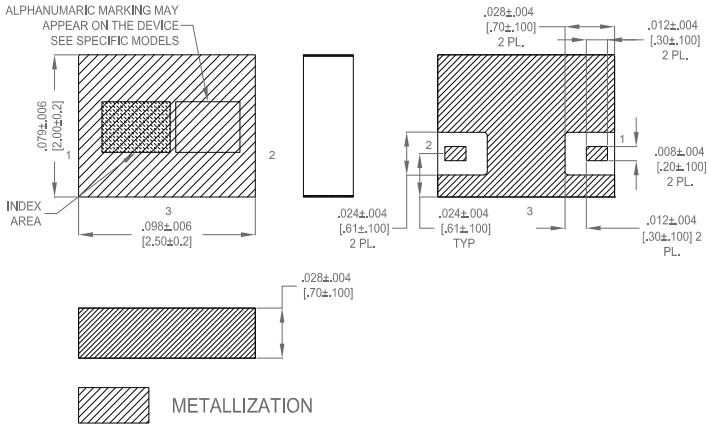
NOTES:
1. COPLANAR WAVEGUIDE PARAMETERS ARE SHOWN FOR MEGTRON-7 R5785(N); DIELECTRIC THICKNESS: .0049±.001; CLOTH STYLE: 2116; COPPER: HVLP/HVLP. FOR OTHER MATERIALS LINE WIDTH & GAP MAY NEED TO BE MODIFIED.
2. SOLDER MASK OPENING FOR COMPONENT SOLDERING HAS BEEN INCREASED AGAINST PCB LAND PATTERN RECOMMENDATIONS 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

CASE STYLE DRAWING



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

PRODUCT MARKING*: ZU

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

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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

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