



LTCC SURFACE MOUNT

Band Pass Filter

BFCG-362+

Mini-Circuits

50Ω 3.4 to 3.8 GHz

THE BIG DEAL

- Rugged, high-performance ceramic structure
- Compact 0805 footprint
- Robust 3 W continuous wave (CW) power handling

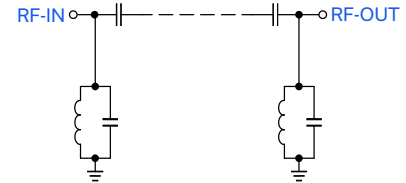


Generic photo used for illustration purposes only

APPLICATIONS

- WiMAX and LTE bands 42/43
- Mobile and fixed broadband access
- Enhanced mobile broadband (eMBB) for 5G

FUNCTIONAL DIAGRAM



PRODUCT OVERVIEW

Mini Circuits' BFCG-362+ band pass filter delivers high selectivity and low insertion loss across the 3.4–3.8 GHz band. A precision multilayer ceramic design ensures excellent stopband suppression and stable performance over $-55\text{ }^{\circ}\text{C}$ to $+105\text{ }^{\circ}\text{C}$. The ultra compact 0805 package minimizes board footprint and parasitics, making it a robust, space-efficient solution for demanding RF applications.

ELECTRICAL SPECIFICATIONS^{1,2,3} AT $+25\text{ }^{\circ}\text{C}$, $Z_0 = 50\Omega$

Parameter	F#	Frequency (GHz)	Min.	Typ.	Max.	Units	
Passband	Center Frequency ⁴	—	—	3.6	—	GHz	
	Insertion Loss	F10-F11	3.4 - 3.8	1.5	1.8	dB	
	Return Loss	F10-F11	3.4 - 3.8	9.5	14.4	dB	
Stopband, Lower	Rejection	F1-F2	0.5 - 2.17	—	38	—	dB
		F3-F4	0.88 - 0.96	—	40	—	
		F5-F6	1.71 - 1.785	—	38	—	
		F7-F8	2.3 - 2.63	—	30	—	
		F8-F9	2.63 - 2.7	—	25	—	
Stopband, Upper	Rejection	F12-F13	4.8 - 4.9	—	25	—	dB
		F13-F14	4.9 - 5.15	—	29	—	
		F14-F15	5.15 - 5.85	—	37	—	
		F16-F17	6.25 - 6.5	—	39	—	
		F18-F19	6.8 - 7.2	—	43	—	
		F19-F20	7.2 - 9	—	35	—	
		F21-F22	10.2 - 10.8	—	32	—	

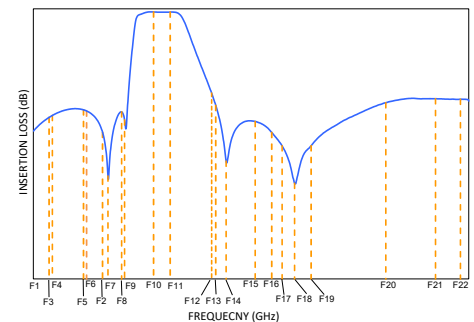
1. Tested in Evaluation Board P/N TB-BFCG-362C+. De-embedded to the device reference plane using TRL.
2. This filter is bi-directional RF1 and RF2 ports may be interchanged, see S-Parameters for actual performance.
3. This component should not be used as a DC-block. In applications where DC voltage and/or current is present at either the input or output ports, external DC blocking capacitors are required.
4. Typical variation $\pm 3\%$

ABSOLUTE MAXIMUM RATINGS⁵

Operating Temperature	$-55\text{ }^{\circ}\text{C}$ to $+105\text{ }^{\circ}\text{C}$
Storage Temperature	$-55\text{ }^{\circ}\text{C}$ to $+105\text{ }^{\circ}\text{C}$
Input Power ⁶	3 W

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 $+25\text{ }^{\circ}\text{C}$ operating temperature decreases linearly to 1.7 W at $+105\text{ }^{\circ}\text{C}$.

TYPICAL FREQUENCY RESPONSE



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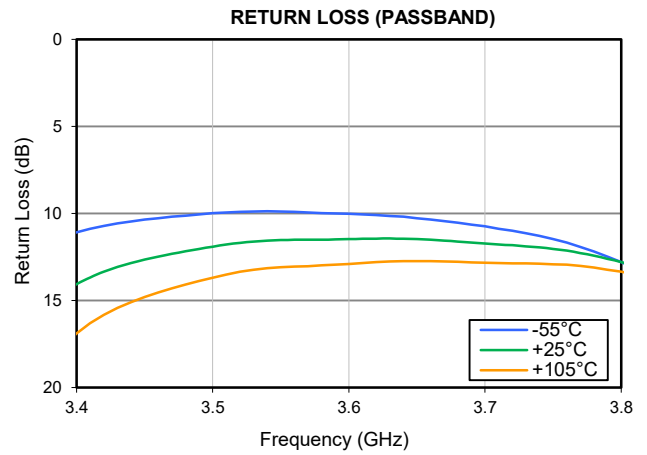
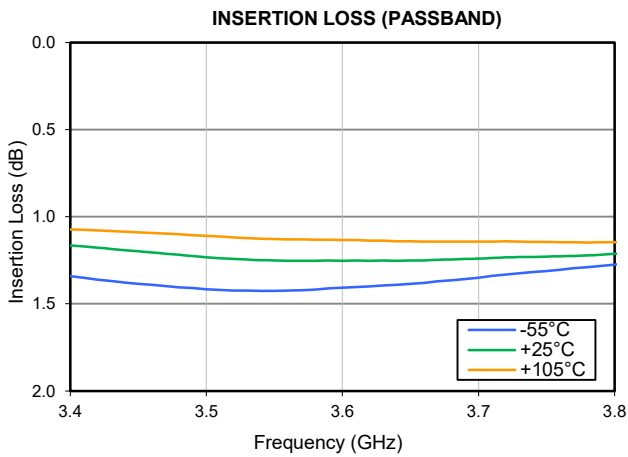
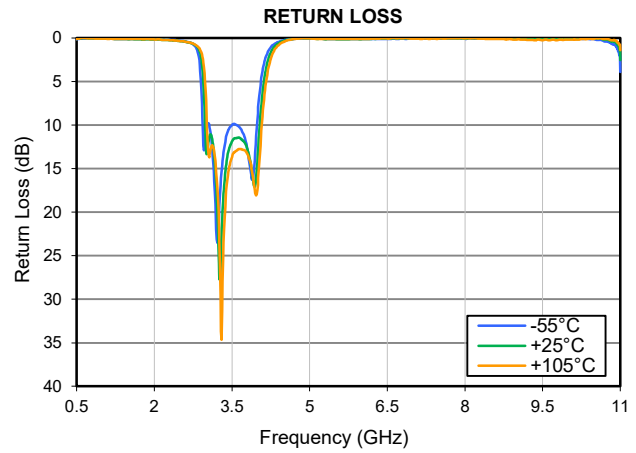
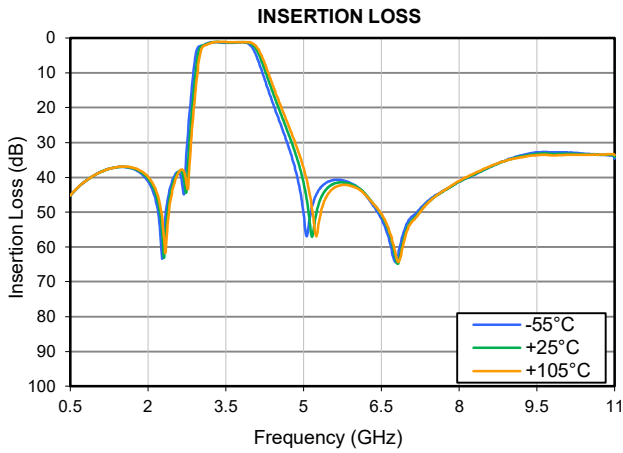
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TYPICAL PERFORMANCE GRAPHS





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FUNCTIONAL DIAGRAM

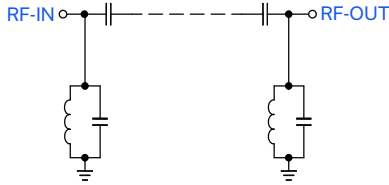
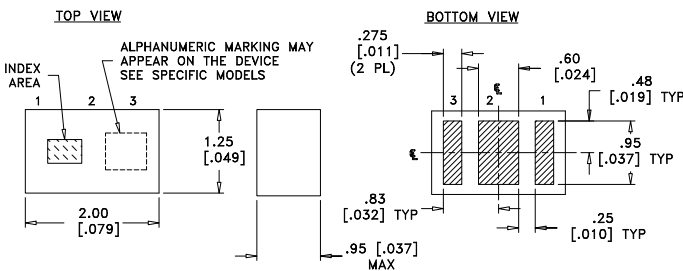


Figure 1. BFCG-362+ Functional Diagram

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-853)

CASE STYLE DRAWING



██████ DENOTES METALLIZATION

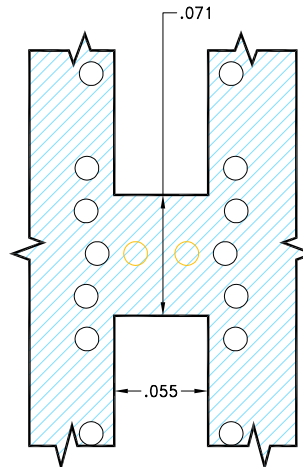
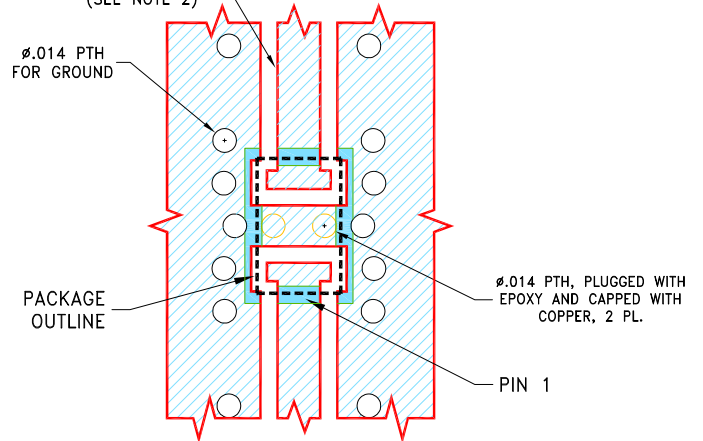
Weight: .010 grams
Dimensions are in mm [inches]. Tolerances: 2 Pl.± 0.05 mm

PRODUCT MARKING*: N/A

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

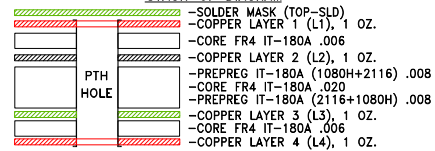
SUGGESTED PCB LAYOUT: PL-853

COPLANAR WAVEGUIDE:
.025±.001 TRACE WIDTH &
.010±.001 GAP, 2 PL.
(SEE NOTE 2)



TOP VIEW TO LAYER 2

STACK-UP DIAGRAM



- TOTAL FINISHED THICKNESS 0.056±10%Φ.
- PTH PRESENT FROM COPPER LAYER 1 TO COPPER LAYER 4.

NOTES:

- PCB IS MULTILAYER PCB, SEE STACK-UP DIAGRAM.
- TRACE WIDTH & GAP PARAMETERS ARE SHOWN FOR FR4 IT-180A WITH COMBINED DIELECTRIC THICKNESS .043"; FOR OTHER MATERIALS TRACE WIDTH AND GAP MAY NEED TO BE MODIFIED.
- COPPER LAYERS 3,4 OF THE PCB ARE CONTINUOUS GROUND PLANES.

- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER).
- DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK.

Figure 2. Suggested PCB Layout



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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	GE0805C-20 Lead Finish: Tin over Nickel Plating
RoHS/REACH Status	Compliant
Tape and Reel	F74
Suggested Layout for PCB Design	PL-853
Evaluation Board	TB-BFCG-362C+ Gerber File
Environmental Rating	ENV-159

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

