CERAMIC

Bandpass Filter

BFCQ-4302+

50Ω 36.5 to 50 GHz

THE BIG DEAL

- Broadband Performance from 36.5 to 50 GHz
- Standard Small 1008 (2.5x2.0 mm) Case Style
- Low Insertion Loss – Mid Band 2.0 dB Typical
- Shielded Construction Preventing Filter from De-Tuning
- Reduced Footprint Area by Employing LGA (Land Grid Array)
- Surface Mountable Pick and Place Standard Case Style
- Patent Pending



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

- Test and Measurement Equipment
- 5G Telecom Bands, n260, n259, n262
- V-Band, Ka-Band Radar and SATCOM

PRODUCT OVERVIEW

The BFCQ-4302+ LTCC (Low Temperature Co-Fired Ceramic) Band Pass Filter achieves a miniature size and high repeatability of performance by utilizing a proprietary LTCC material system and distributed filter topology. The typical passband loss at 36.5-50.0 GHz is as low as 2.0 dB, with typical stopband rejections at 30 dB up to 59 GHz and 16 dB up to 67 GHz. This model handles up to 1 W 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.

KEY FEATURES

Feature	Advantages
Cost Effective	LTCC is scalable technology that is cost effective due to ease of production in high quantities.
Small Size (2.5x2.0 mm)	Allows for high layout density of circuit boards, while minimizing effects of parasitics.
Surface Mountable	Suitable for very high volume automated assembly process.

REV. OR
ECO-012336
BFCQ- 4302+
MCL NY
250714

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ELECTRICAL SPECIFICATIONS[1] AT +25°C

Parameter		F#	Frequency (GHz)	Min.	Typ.	Max.	Units
Passband	Center Frequency				42.7		GHz
	Insertion Loss	F1-F2	36.5-50		2.0	3.0	dB
	Return Loss	F1-F2	36.5-50		10		dB
Stopband, Lower	Insertion Loss	DC-F3	0.1-18	30	40		dB
			18-27	20	26		
Stopband, Upper	Insertion Loss	F4-F5	57.3-59	15	30		dB
			59-67	10	16		

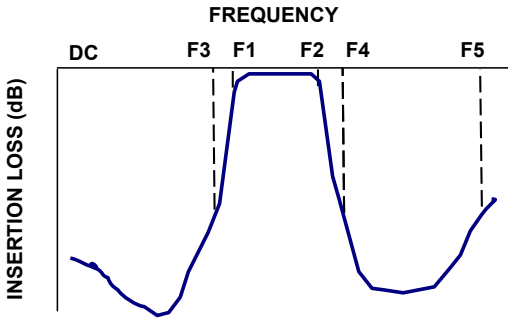
1. Measured on Mini-Circuits Test Board TB-BFCQ-4302C+ with connectors and feedlines de-embedded.

ABSOLUTE MAXIMUM RATINGS

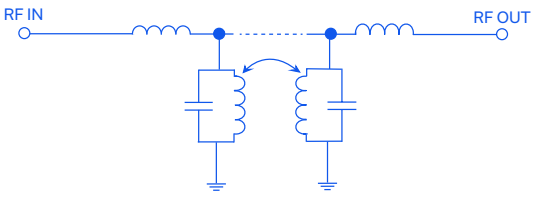
Parameter	Ratings
Operating Temperature	-55°C to +125°C
Storage Temperature	-55°C to +125°C
RF Power Input	1 W at +25°C

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

TYPICAL FREQUENCY RESPONSE



FUNCTIONAL SCHEMATIC



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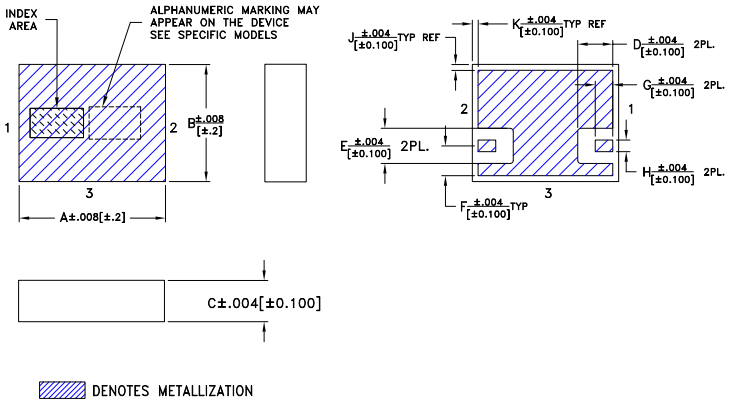
50Ω 36.5 to 50 GHz

PAD CONNECTIONS

INPUT	1
OUTPUT	2
GROUND	3

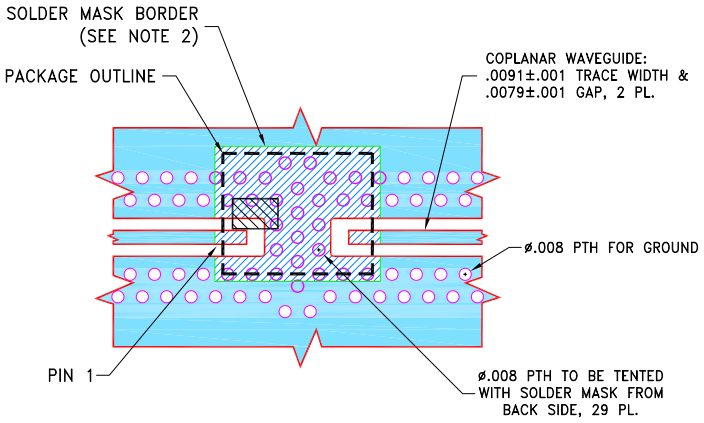
PRODUCT MARKING: UR

OUTLINE DRAWING



DEMO BOARD MCL P/N: TB-BFCQ-4302C+

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 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

CERAMIC

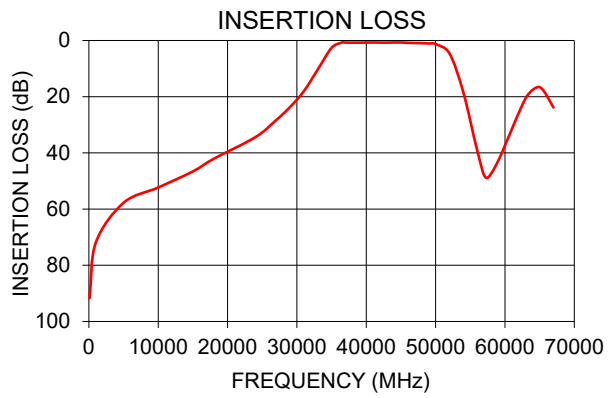
Bandpass Filter

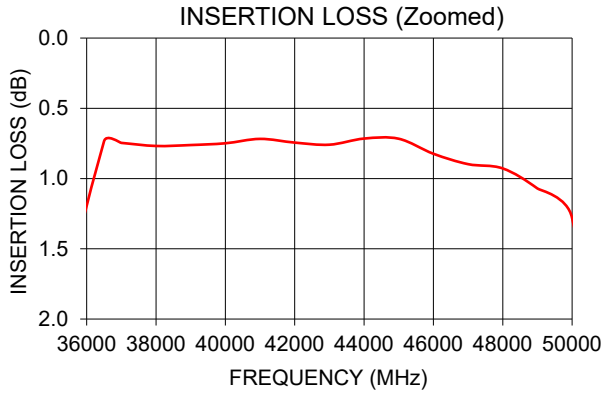
BFCQ-4302+

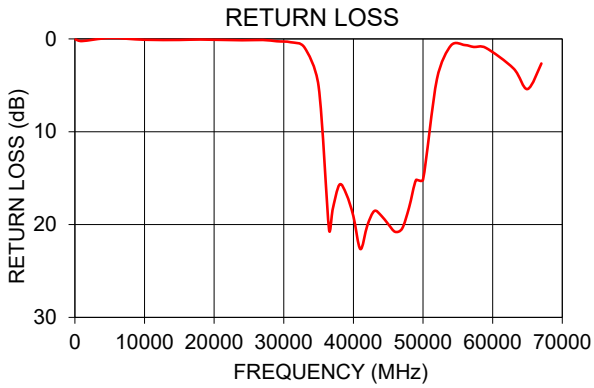
50Ω 36.5 to 50 GHz

TYPICAL PERFORMANCE DATA AT +25°C

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)
100	91.68	0.06
1000	71.93	0.23
5000	57.77	-0.09
10000	52.33	0.09
15000	46.60	0.11
18000	42.11	0.07
24000	34.43	0.14
27000	28.36	0.11
31000	18.05	0.36
35000	2.63	5.09
36500	0.74	20.53
40000	0.75	19.11
44000	0.72	19.04
50000	1.28	15.16
57300	48.90	0.87
59000	42.96	0.95
67000	23.84	2.65







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