CERAMIC

Bandpass Filter

BFCQ-3852A+

50Ω 37 to 40 GHz

THE BIG DEAL

- Optimized for 5G N260 band (37 to 40 GHz)
- Low Insertion Loss – Mid band 2.5dB typical
- Surface mountable pick and place standard case style
- Standard small 1008 (2.5mm x 2.0mm) case style
- High quality distributed filter topology
- Wide rejection band

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
- Ka-Band for SatCOM and Radar
- 5G N260 Telecom Band

PRODUCT OVERVIEW

The BFCQ-3852A+ LTCC (Low Temperature Co-Fired Ceramic) Bandpass Filter that covers the 5G N260 band from 37 to 40 GHz. It has a low insertion loss , 2.5dB (typ) and has upto 40dB stopband rejection. This model can handle upto 1W of RF input power and has an operating temperature 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 n260 band compatible	Designed for 5G Telecommunications, n260 band, 37 – 40 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 is cost effective due to ease of production in high quantities.
Small size (2.5mm x 2.0mm)	Allows for high layout density of circuit boards, while minimizing effects of parasitics.
Surface Mountable	Suitable for very high volume automated assembly process.

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ELECTRICAL SPECIFICATIONS[1] AT 25°C

Parameter		F#	Frequency (GHz)	Min.	Typ.	Max.	Units
Passband	Center Frequency	—	—	—	38.5	—	GHz
	Insertion Loss	F1-F2	37 - 38.6	—	2.9	—	dB
			38.6 - 40	—	2.5	3.4	dB
	Return Loss (In)	F1-F2	37 - 40	—	10	—	dB
	Return Loss (Out)		37 - 40	—	10	—	dB
Stopband, Lower	Insertion Loss	DC-F3	0.1 - 28	45	55	—	dB
			28 - 33.2	30	45	—	
Stopband, Upper	Insertion Loss	F4-F5	44.8 - 47	20	25	—	dB
			47 - 54	30	36	—	
			54 - 58	20	30		

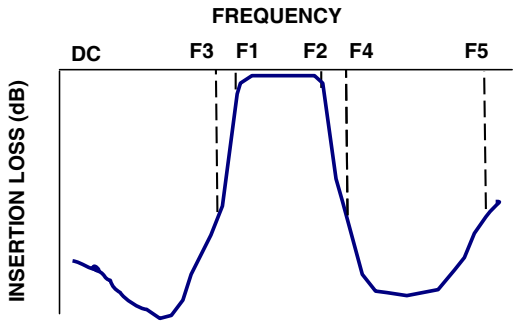
1.Measured on Mini-Circuits Test Board TB-BFCQ-3852AC+ with feedline losses removed by normalization of S12 and S21 traces to measurement of TB thru-line.

ABSOLUTE MAXIMUM RATINGS

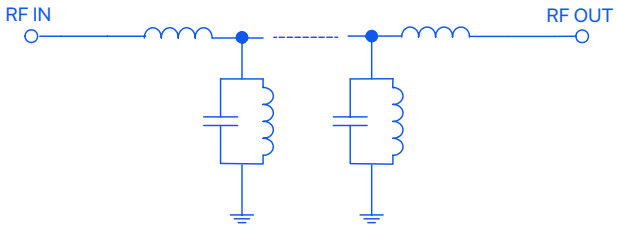
Parameter	Ratings
Operating Temperature	-55°C to +125°C
Storage Temperature	-55°C to +125°C
RF Power Input	1 W at 25°C

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

TYPICAL FREQUENCY RESPONSE



FUNCTIONAL SCHEMATIC



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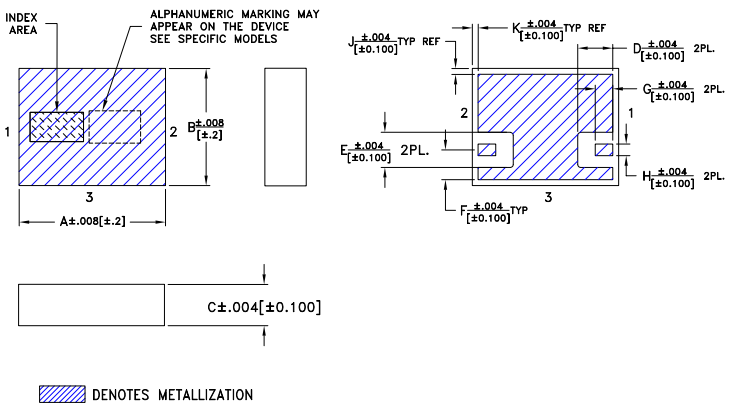
PAD CONNECTIONS

INPUT	1
OUTPUT	2
GROUND	3

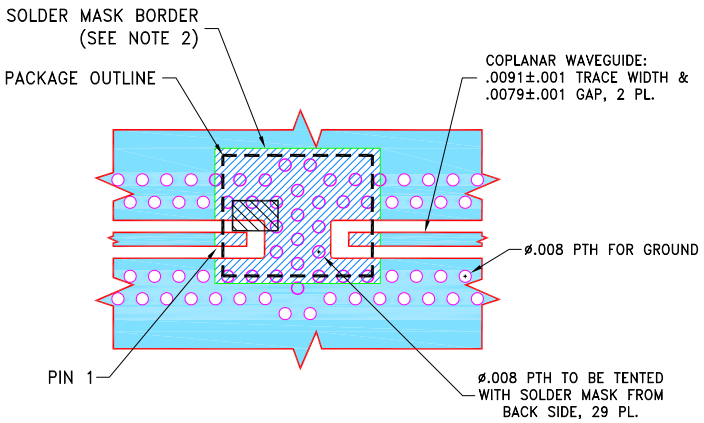
PRODUCT MARKING: NS

OUTLINE DRAWING



EVALUATION BOARD MCL P/N: TB-BFCQ-3852AC+

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

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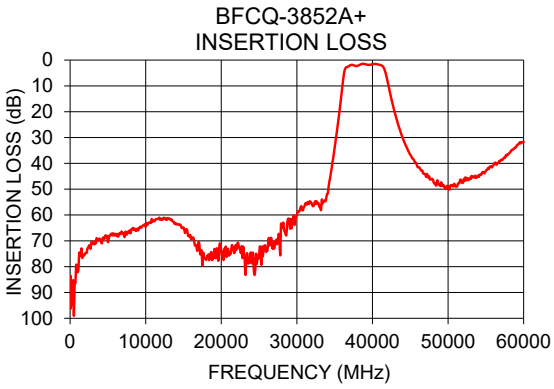
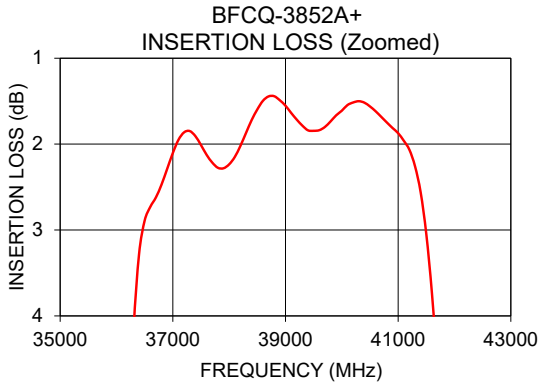
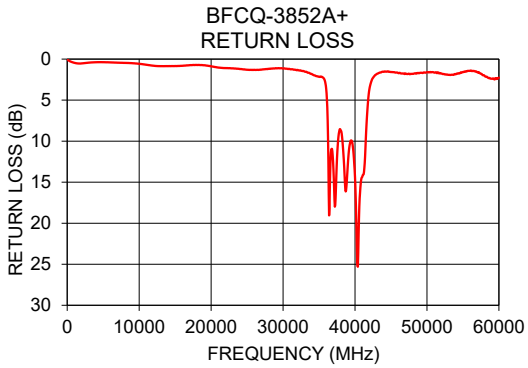
TYPICAL PERFORMANCE DATA AT 25°C

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)
10	85.26	0.05
5000	70.51	0.38
10000	64.52	0.57
20000	73.53	0.88
25000	75.86	1.30
30000	60.17	1.15
34000	51.82	1.82
37000	2.10	13.39
38500	1.60	13.18
40000	1.61	14.39
45000	36.70	1.57
45000	36.70	1.57
50000	48.91	1.59
58000	36.29	2.03
60000	31.74	2.27







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