

Ceramic

Bandpass Filter

BFHK-2802+

50Ω 26.50 to 29.50 GHz

The Big Deal

- 5G n257 bandpass filter
- Low Insertion Loss – Mid band 2.0dB typical
- Pick and place standard case style
- Small size 4.5mm x 3.2mm
- High quality distributed filter topology



CASE STYLE: NM1812C-2

Product Overview

The BFHK-2802+ LTCC Bandpass Filter covers the 5G n257 band. This corresponds to a passband of 26.5 to 29.5 GHz, with as low as 2dB passband loss, and up to 50dB stopband rejection. This model handles up to 1W 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, up to mmWave frequencies.

Key Features

Feature	Advantages
5G n257 band compatible	Designed for 5G Telecommunications, n257 band, 26.5 - 29.5 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 allows for cost reduction at volume.
Small size (4.5mm x 3.2mm)	Allows for high layout density of circuit boards, while minimizing effects of parasitics.



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Generic photo used for illustration purposes only

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Features

- Small size
- Temperature stable
- Hermetically sealed
- LTCC construction

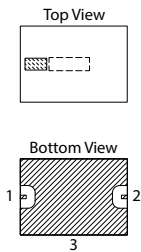
Applications

- 5G Telecommunications

Maximum Ratings

Operating Temperature	-55°C to +125°C
Storage Temperature	-55°C to +125°C
RF Power Input	1W

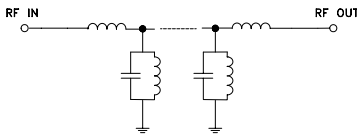
Permanent damage may occur if any of these limits are exceeded.



Pad Connections

Input	1
Output	2
Ground	3

Functional Schematic



Electrical Specifications¹ at 25°C

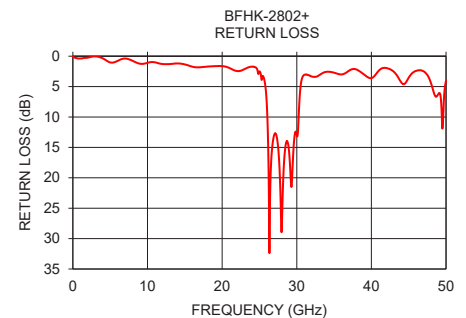
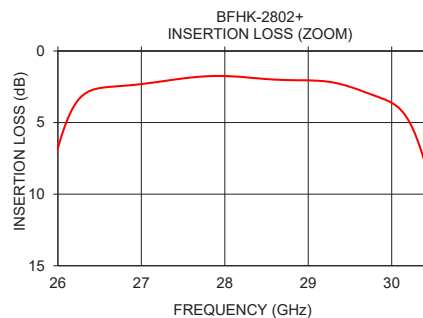
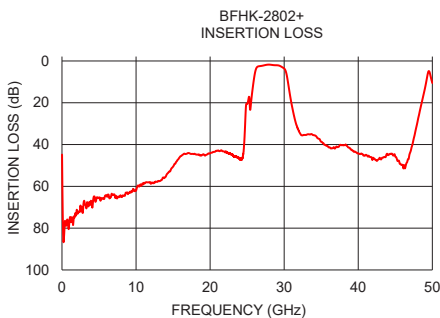
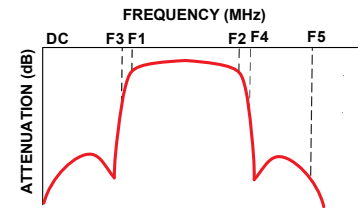
Parameter	F#	Frequency (GHz)	Min.	Typ.	Max.	Unit	
Center Frequency	—	26.5 - 27.3	—	28	—	GHz	
Pass Band	Insertion Loss	F1-F2	27.3 - 28.6	—	3.7	—	
			28.6 - 29.5	—	2	4.5	dB
			26.5 - 29.5	—	3.7	—	dB
	Return Loss	F1-F2	26.5 - 29.5	—	10	—	dB
Stop Band, Lower	Insertion Loss	DC - F3	14 - 20	45	50	—	
			20 - 23.39	39	43	—	dB
			23.39 - 24.5	30	40	—	dB
Stop Band, Upper	Insertion Loss	F4-F5	32 - 32.7	—	33	—	
			32.7 - 37	25	33	—	dB
			37 - 40	31	37	—	dB
			40 - 44	—	40	—	dB

1. Measured on Mini-Circuits Characterization Test Board TB-BFHK-2802C+ with feedline losses removed by normalization of S12 and S21 traces to measurement of TB thru-line.

Typical Performance Data at 25°C

Frequency (GHz)	Insertion Loss (dB)	Return Loss (dB)
1	76.86	0.37
5	65.70	1.02
10	62.05	1.09
15	50.54	1.36
20	44.17	1.63
25	20.54	2.50
26	6.78	8.29
27	2.31	12.88
28	1.75	28.00
29	2.05	16.16
30	3.62	12.95
31	20.66	3.07
35	38.68	2.71
40	44.14	3.61
45	45.79	3.52
50	10.55	4.05

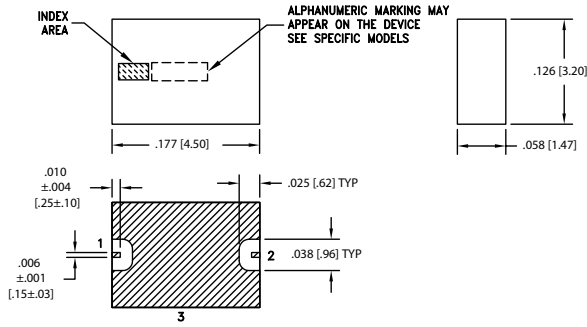
Specification Definition



Bandpass Filter

BFHK-2802+

Outline Drawing



METALLIZATION

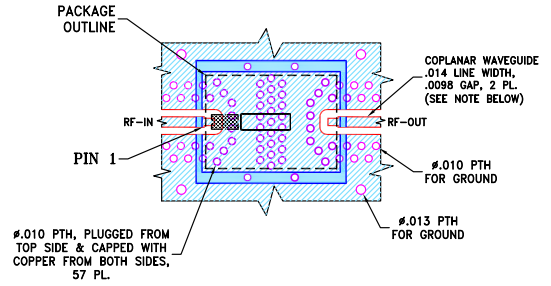
Weight: .064 grams.
Dimensions are in inches [mm]

Product Marking: F413

Pad Connections

Input	1
Output	2
Ground	3

Demo Board MCL P/N: TB-BFHK-2802C+ Suggested PCB Layout (PL-677)



NOTES:

- TRACE WIDTH AND GAP ARE SHOWN FOR MEGTRON7 WITH DIELECTRIC THICKNESS: .0079±.001"; COPPER: HVLP/HVLP. FOR OTHER MATERIALS TRACE WIDTH AND GAP MAY NEED TO BE MODIFIED.
- 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.

Additional Notes

- 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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
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