Surface Mount Thin-Film Filters

50Ω DC to 40 GHz

The Big Deal

- Low passband insertion loss
- High rejection
- Good power handling
- Temperature stability -55°C to 125°C
- High repeatability
- RoHS complaint
- Small size

Product Overview

Mini-Circuits' *Surface Mount Thin-Film filters* offer low insertion loss and high rejection realized via Thin-Film on Alumina substrate, using a sputtering process that can guarantee a enhanced Q and repeatable performance.

Low pass, high pass and bandpass surface mount thin-film designs can be realized with this technology. Using thin-film manufacturing, we can guarantee repeatability on large batches of filters. Thin-film filters are small in size with high-quality, precise machining for applications where size is critical.

Key Features

Feature	Advantages
Low insertion loss	High Q material and sputtering process results in lower insertion loss, better SNR is obtained.
Fast roll-off (steeper skirts)	High selectivity results in better adjacent channel rejection and dynamic range
Wider stopband	Wide spur-free stopband results in better adjacent channel rejection and dynamic range
Temperature stability	Very minimal change in electrical performance across temperature makes these filters suitable for a wide range of operating conditions.
Small Size	Various design techniques are employed to realize small size.

Surface mount Thin Film

Bandpass Filter

ABF-26G+

50Ω 24250 to 27500 MHz

Generic photo used for illustration purposes only

CASE STYLE: VG3044

Features

- Low mid band insertion loss of 1.8 dB typ.
- 15 dB typ. return loss in entire passband
- 60 dB typ. rejection
- Shielded component

Applications

- n258
- 5G Telecommunication

Electrical Specifications[1] at 25°C

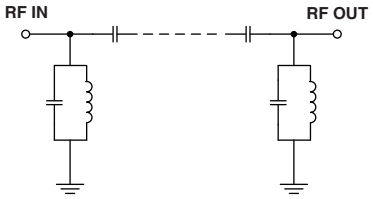
Parameter		F#	Frequency (MHz)	Min.	Typ.	Max.	Unit
Pass Band	Center Frequency	Fc	25875	—	1.8	3.0	dB
	Insertion Loss	F1-F2	24250 - 27500	—	3.5	—	dB
	Return Loss	F1-F2	24250 - 27500	—	15	—	dB
Stop Band, Lower	Insertion Loss	DC-F3	DC - 20000	30	45	—	dB
		F3-F4	20000 - 22500	25	45	—	dB
Stop Band, Upper	Insertion Loss	F5-F6	29250 - 31000	25	45	—	dB
		F6-F7	31000 - 35000	40	60	—	dB
		F7-F8	35000 - 40000	—	40	—	dB

1. Measured on Mini-Circuits Characterization Test Board TB-ABF-26G+

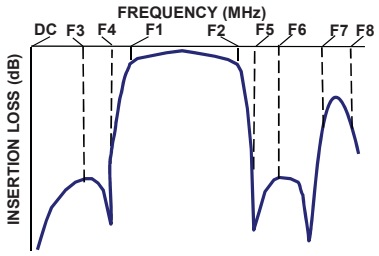
Maximum Ratings	
Operating Temperature	-55°C to 125°C
Storage Temperature	-55°C to 125°C
RF Power Input	1W Max. @ 25°C

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

Functional Schematic



Typical Frequency Response

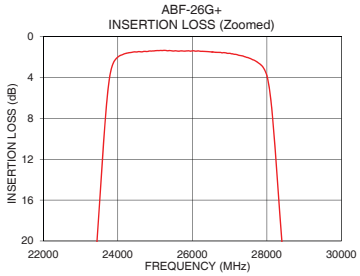


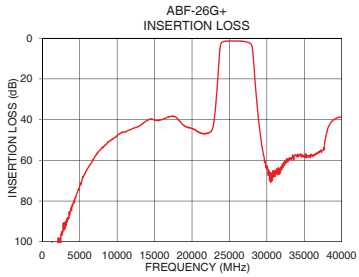
Typical Performance Data at 25°C

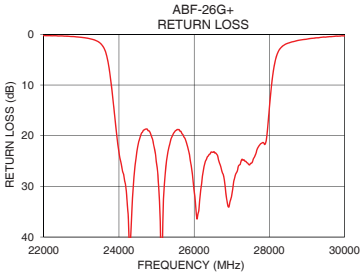
Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)
10	114.71	0.03
1000	105.71	0.21
10000	47.76	0.06
20000	44.38	0.23
22500	45.94	0.32
23225	30.43	0.87
23450	19.55	1.45
23825	3.17	11.78
24250	1.61	36.24
25875	1.40	23.68
26000	1.39	30.94
27000	1.63	31.78
27500	2.07	25.48
27900	3.01	21.48
28400	19.95	2.08
28625	30.01	1.46
29250	50.51	0.68
31000	65.18	0.05
35000	57.52	0.50
40000	38.60	0.74

+RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications







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.
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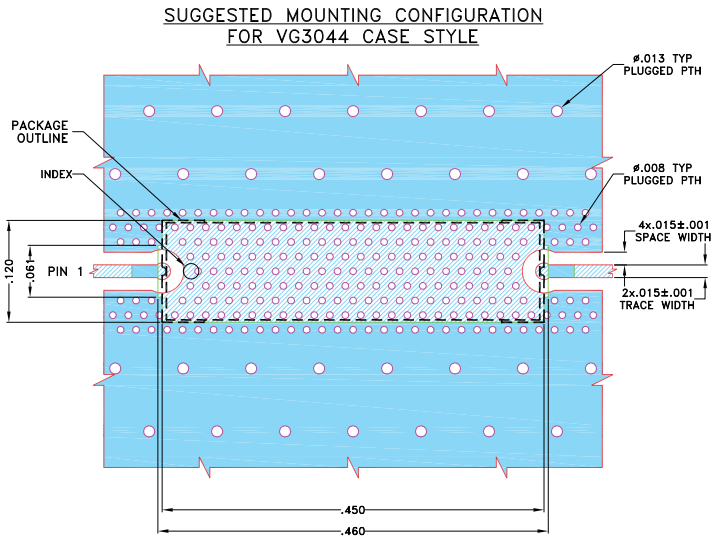
Pad Connections

RF IN	1
RF OUT	2
GROUND	3

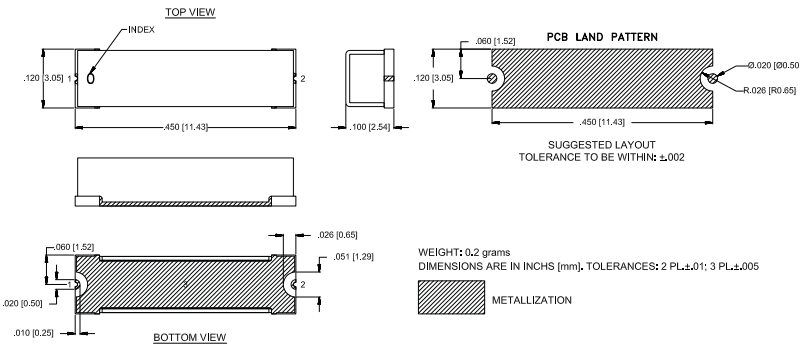
Demo Board MCL P/N: TB-ABF-26G+
Suggested PCB Layout (PL-713)



NOTES:
1. COPLANAR WAVEGUIDE PARAMETERS ARE SHOWN FOR ROGERS (RO4350B) WITH DIELECTRIC THICKNESS .0066±.0007. COPPER: 1/2 Oz. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH AND GAP MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

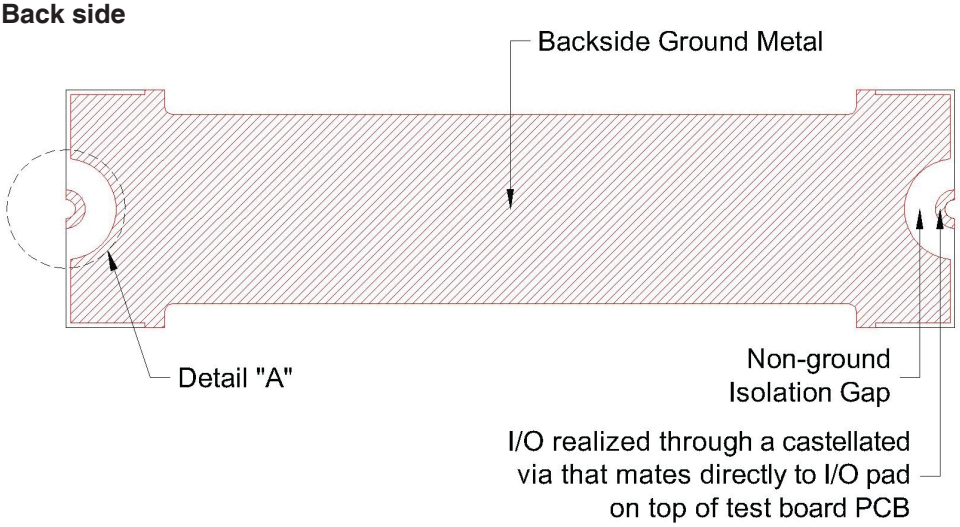
DENOTES PCB COPPER PATTERN WITH SMOBC (SOLDER MASK OVER BARE COPPER)
DENOTES PCB COPPER PATTERN FREE OF SOLDERMASK

Outline Drawing



Recommendations of PCB pattern at customer board

Filter Back side



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