100 kHz Low-Pass Filter



EF502

Description

The EF502 Low-Pass Filter employs a 5th order elliptic filter design. The design reduces group delay variation while preserving a practical 5th order rejection skirt. Uniquely, the EF502 is designed to terminate into DAQ systems, lab equipment, oscilloscopes, or any modern voltage signal transfer systems that have high impedance inputs. For $V_{transfer}$ systems, this architecture provides the highest signal-to-noise ratio capabilities.

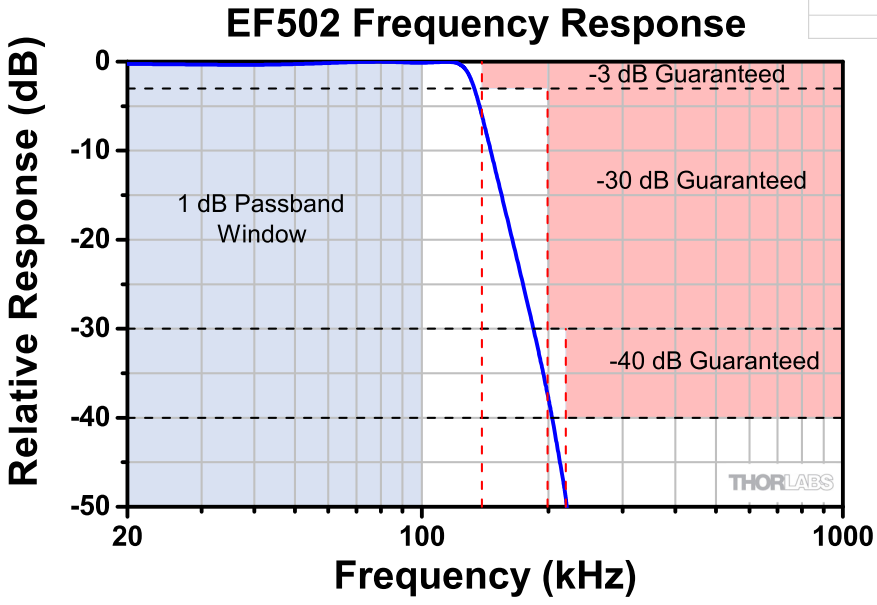
Specifications

EF502	
	Value[a]
Passband (1 dB Window)[b]	0 to 100 kHz
3 dB Rejection	> 139 kHz
30 dB Rejection	> 199 kHz
40 dB Rejection	> 220 kHz
Source Impedance (BNC Female)	50 Ω (Typical)
Load Impedance[c] (BNC Male)	≥100 kΩ (Typical)
Input Voltage	±10 V (Max)
Storage Temperature	-20 to +70 °C

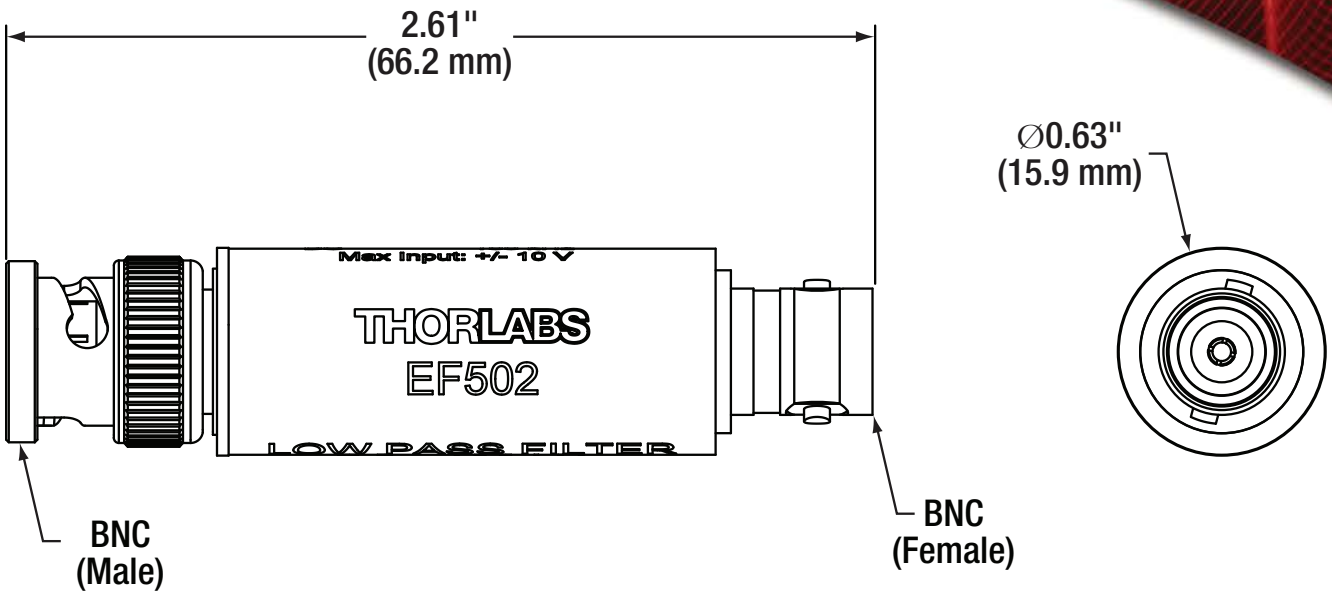
a. Values measured at 25 °C.
b. Performance measured to 500 MHz.
c. This filter can be operated with termination resistances below 1 kΩ, however, the passband will narrow at smaller termination resistances and the performance is not guaranteed.

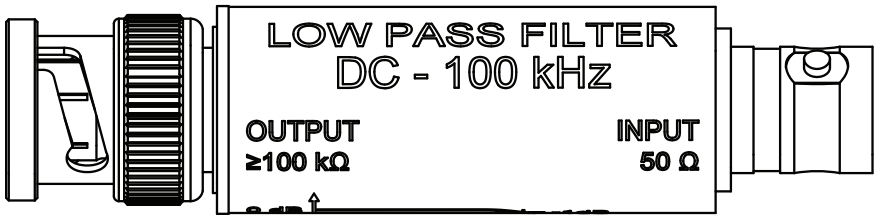
Sample Response Data

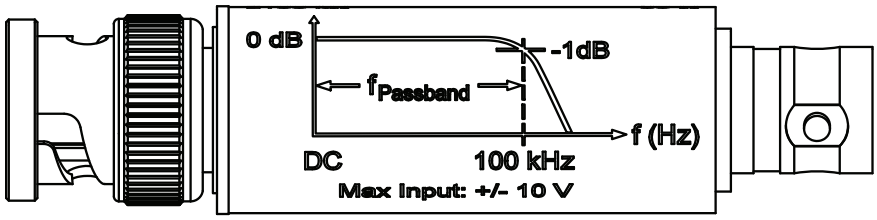
Frequency (kHz)	Rel. Resp. (dB)	Group Delay Variation (ns)	Frequency (kHz)	Rel. Resp. (dB)
20.0	-0.3	0.0	154.6	-14.8
21.1	-0.3	65.2	185.6	-30.5
30.1	-0.3	139.2	199.0	-37.3
35.2	-0.3	137.4	204.3	-40.0
41.2	-0.3	325.5	219.0	-48.4
48.6	-0.3	584.0	220.9	-49.7
57.3	-0.2	952.5	230.7	-60.7
67.1	-0.1	1198.3	241.0	-65.3
77.7	0.0	1378.1	243.1	-63.0
86.3	0.0	1354.4	247.4	-60.0
95.0	-0.1	1458.9	269.9	-56.0
98.3	-0.1	1608.8	294.4	-57.0
99.2	-0.1	1649.8	321.2	-60.9
100.1	-0.1	1743.6	350.4	-68.2
100.9	-0.1	1764.6	382.3	-82.2
104.5	-0.1	2154.5	417.0	-65.8
108.2	-0.1	2760.3	454.9	-61.6
112.1	0.0	3692.2	496.3	-59.7
116.0	0.0	5100.4	541.4	-58.3
120.1	-0.1	7208.8	590.7	-57.7
124.4	-0.4	9543.3	644.4	-57.4
128.8	-1.1	10580.1		
133.4	-2.9	8615.1		
138.1	-5.5	5553.6		
139.3	-6.2	4843.9		



Drawings


2.61"
(66.2 mm)
Ø0.63"
(15.9 mm)
Max Input: +/- 10 V
THORLABS
EF502
LOW PASS FILTER
BNC
(Male)
BNC
(Female)


LOW PASS FILTER
DC - 100 kHz
OUTPUT
≥100 kΩ
INPUT
50 Ω


0 dB
-1dB
fPassband
f (Hz)
DC
100 kHz
Max Input: +/- 10 V