10 kHz Low-Pass Filter



EF120

Description

The EF120 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 EF120 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

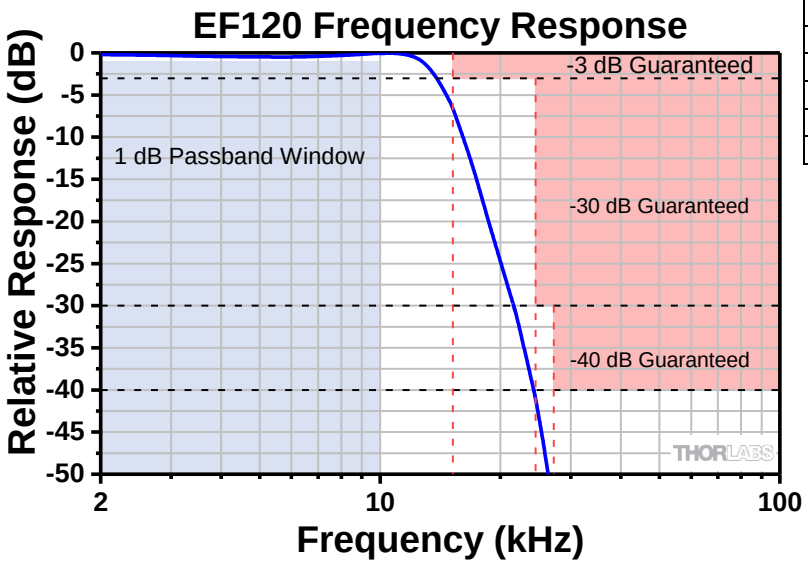
EF120	
	Value[a]
Passband (1 dB Window)[b]	0 to 10 kHz
3 dB Rejection	>15.2 kHz
30 dB Rejection	>24.5 kHz
40 dB Rejection	>27.2 kHz
Source Impedance (BNC Female)	50 Ω (Typical)
Load Impedance[c] (BNC Female)	≥100 kΩ (Typical)
Input Voltage	±10 V (Max)
Storage Temperature	-20 to +70 °C

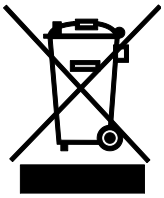
a. Values measured at 25 °C.
b. Performance measured to 500 MHz.
c. This filter can be operated with termination resistances below 1 kΩ, however, the passband will narrow at smaller termination resistances and the performance is not guaranteed.

Sample Response Data

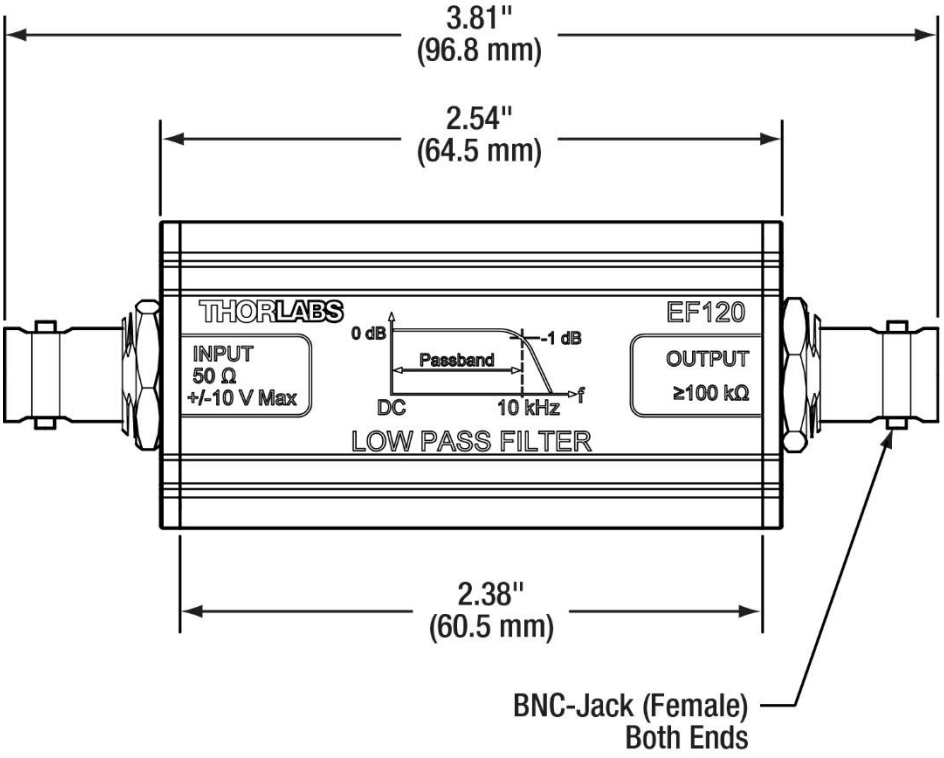
Freq. (kHz)	Rel. Resp. (dB)	Group Delay Variation (µS)
2.00	-0.20	0.0
2.24	-0.24	-4.1
2.71	-0.28	-4.6
3.28	-0.35	-4.7
3.98	-0.42	-5.1
4.82	-0.48	-5.0
5.83	-0.50	-6.3
6.42	-0.47	-2.4
7.06	-0.41	-0.8
7.77	-0.34	3.6
8.56	-0.22	6.4
9.41	-0.11	12.1
9.92	-0.05	15.7
10.01	-0.06	14.8
10.09	-0.05	17.0
10.82	0.00	27.4
11.91	-0.23	41.5
12.88	-1.01	46.3
13.93	-3.06	34.9
15.06	-6.07	14.4
15.20	-6.53	12.3
16.87	-12.61	-7.2
17.77	-16.42	-14.6

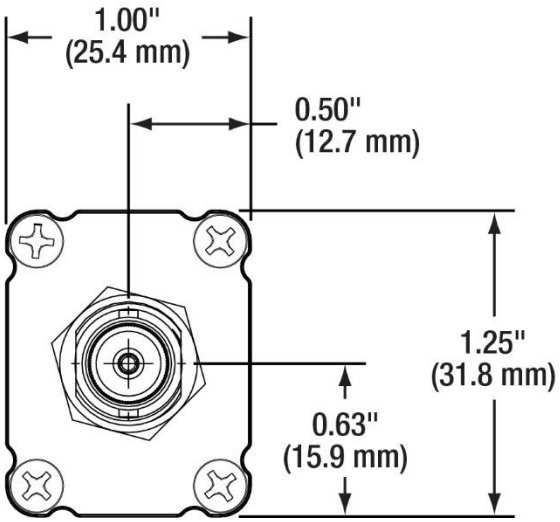
Freq. (kHz)	Rel. Resp. (dB)
18.24	-18.35
20.07	-25.07
21.52	-29.84
21.71	-30.43
21.90	-31.04
24.10	-39.51
24.31	-40.36
24.52	-41.20
26.99	-52.15
29.70	-74.72
32.40	-59.28
35.65	-58.64
39.24	-60.68
43.18	-65.24
47.52	-70.47
52.29	-69.40
57.54	-65.67
63.88	-62.62
64.44	-62.48





Drawings


3.81"
(96.8 mm)
2.54"
(64.5 mm)
THORLABS
EF120
INPUT
50 Ω
+/-10 V Max
0 dB
Passband
-1 dB
DC
10 kHz
f
OUTPUT
≥100 kΩ
LOW PASS FILTER
2.38"
(60.5 mm)
BNC-Jack (Female)
Both Ends


1.00"
(25.4 mm)
0.50"
(12.7 mm)
1.25"
(31.8 mm)
0.63"
(15.9 mm)