20 kHz Low-Pass Filter



EF122

Description

The EF122 Low-Pass Filter employs a 5th order elliptic filter design. The design reduces group delay variation while preserving a practical 5th order rejection skirt. The EF122 is notably designed to terminate into any modern voltage signal transfer system that has a high impedance input, including DAQ systems, laboratory test equipment, and oscilloscopes. This architecture provides the highest signal-to-noise ratio capabilities for $V_{transfer}$ systems.

Specifications

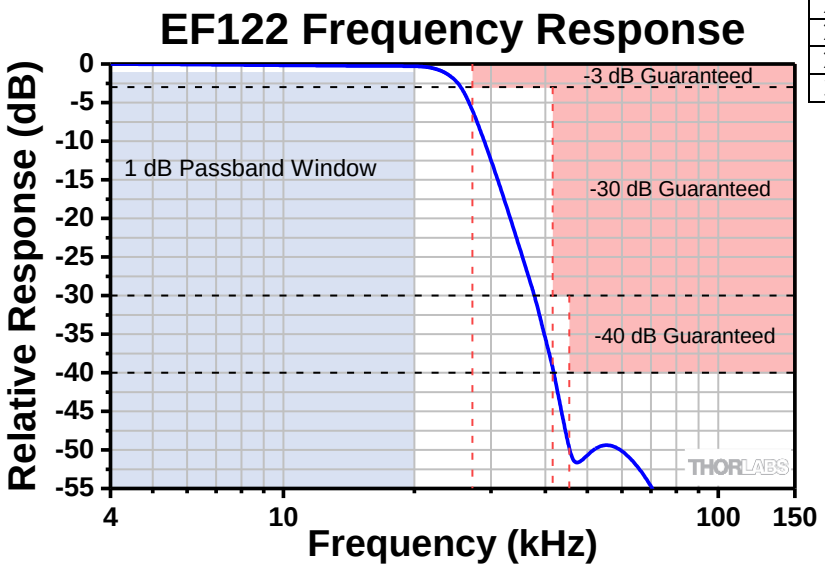
EF122	
	Value[a]
Passband (1 dB Window)[b]	DC to 20 kHz
3 dB Rejection	>27.2 kHz
30 dB Rejection	>41.6 kHz
40 dB Rejection	>45.4 kHz
Source Impedance (BNC Female)	50 Ω (Typical)
Load Impedance[c] (BNC Female)	≥100 kΩ (Typical)
Input Voltage	±10 V (Max)
Storage Temperature	-20 to +70 °C

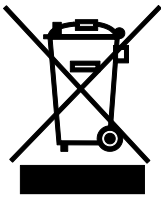
a. Values measured at 25 °C.
b. Performance measured to 500 MHz.
c. This filter can be operated with termination resistances below 1 kΩ, however, the passband will narrow at smaller termination resistances and the performance is not guaranteed.

Sample Response Data

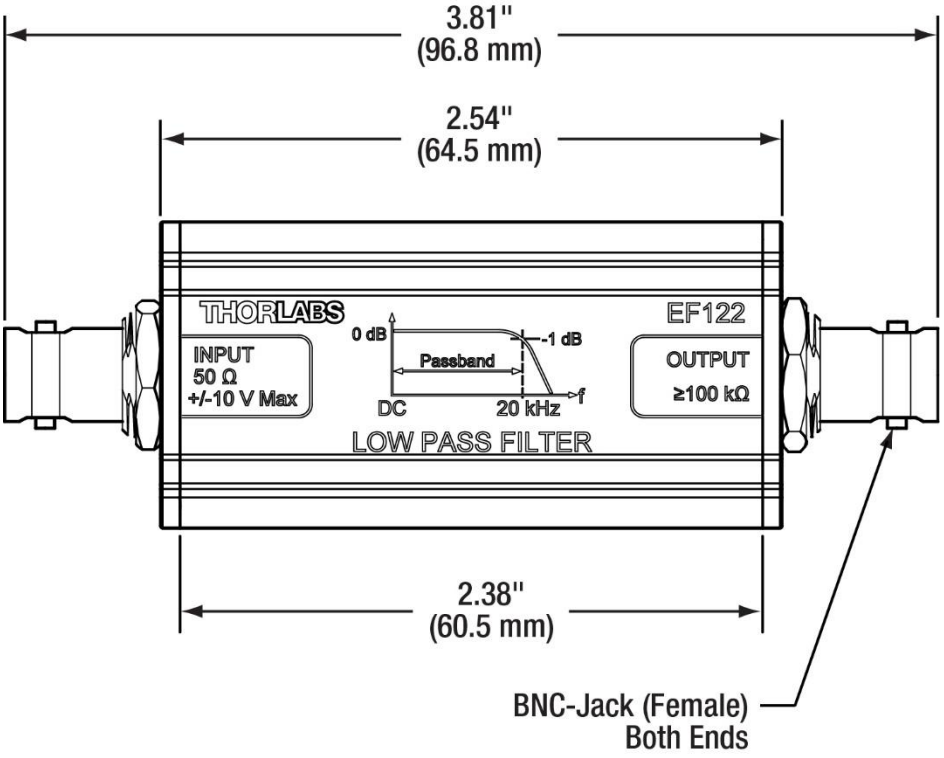
Freq. (kHz)	Rel. Resp. (dB)	Group Delay Variation (µs)
4.00	0.00	0.00
5.42	-0.03	-0.24
7.36	-0.09	-0.44
8.91	-0.14	-0.30
10.79	-0.18	0.81
13.18	-0.23	1.74
14.76	-0.24	2.85
16.24	-0.25	4.75
18.03	-0.26	7.04
19.84	-0.28	10.79
20.01	-0.28	10.81
20.19	-0.29	11.24
21.27	-0.37	15.94
22.02	-0.50	18.76
23.41	-0.99	24.33
24.66	-1.91	26.44
25.76	-3.12	25.15
27.38	-6.25	17.11
31.19	-14.87	-1.21

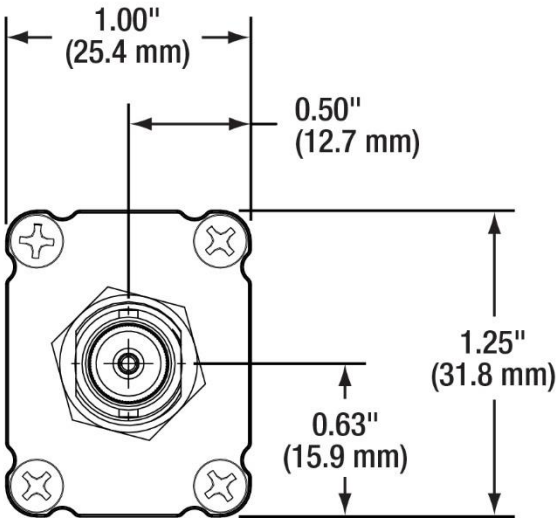
Freq. (kHz)	Rel. Resp. (dB)
37.78	-29.98
38.11	-30.77
41.57	-39.25
41.94	-40.14
45.35	-50.03
46.96	-52.57
51.68	-49.58
56.87	-49.13
62.58	-50.85
68.87	-53.87
75.79	-58.15
83.40	-66.20
91.78	-69.13
101.00	-64.11
111.15	-60.65
122.32	-58.90
128.87	-58.29





Drawings


3.81"
(96.8 mm)
2.54"
(64.5 mm)
THORLABS
EF122
INPUT
50 Ω
+/-10 V Max
0 dB
Passband
-1 dB
DC
20 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)