10 kHz High-Pass Filter



EF121

Description

The EF121 High-Pass Filter employs a 5th order elliptic filter design. The design delivers good low-band rejection (>48 dB typical). Uniquely, the EF121 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

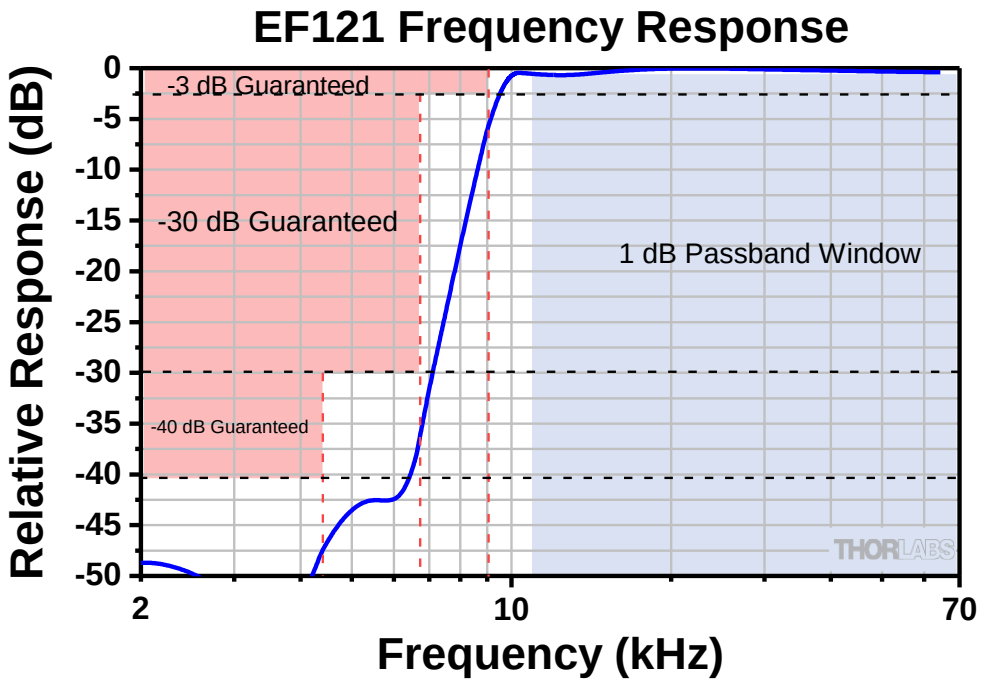
EF121	
	Value[a]
Passband (1 dB Window)[b]	>10.5 kHz
3 dB Rejection	<9.0 kHz
30 dB Rejection	<6.6 kHz
40 dB Rejection	<4.4 kHz
Source Impedance (BNC Female)	50 Ω (Typical)
Load Impedance[c] (BNC Female)	≥100 kΩ (Typical)
Input Voltage	±10 V (Max)
Storage Temperature	-20 to +70 °C

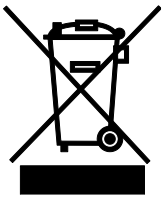
a. Values measured at 25 °C.
b. Please see the 1 dB Window Exceptions graph on page 2 for details.
c. This filter can be operated with termination resistances below 1 kΩ; however, the passband will narrow at smaller termination resistances and the performance is not guaranteed.

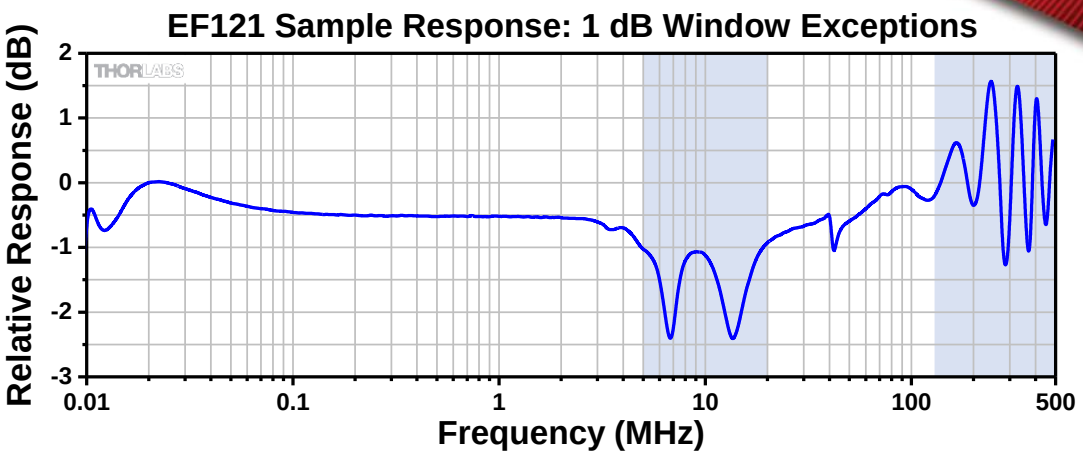
Sample Response Data

Freq. (kHz)	Rel. Resp. (dB)
2.00	-48.71
2.16	-48.69
2.60	-49.84
2.96	-52.61
3.31	-56.86
3.84	-55.30
4.38	-47.70
4.42	-47.36
4.78	-44.28
5.39	-42.01
6.15	-43.23
6.59	-38.61
6.65	-37.57
6.76	-35.43
7.06	-30.38

Freq. (kHz)	Rel. Resp. (dB)	Group Delay Variation (µs)
7.44	-25.08	18.54
8.19	-14.95	72.42
8.94	-6.68	139.77
9.01	-5.95	147.03
9.41	-2.90	174.20
9.75	-1.36	169.69
9.92	-0.91	160.98
10.01	-0.74	147.99
10.18	-0.49	139.96
10.27	-0.43	131.88
11.11	-0.60	70.70
12.44	-0.74	42.07
13.69	-0.61	31.97
14.68	-0.44	27.29
16.29	-0.23	21.86
19.05	-0.04	15.30
23.48	-0.01	9.24
28.93	-0.10	5.87
36.60	-0.21	3.30
46.29	-0.29	1.87
55.57	-0.35	1.38
64.44	-0.40	1.01







1 dB exceptions will vary from production run to production run. Beyond 120 MHz, variance can increase as frequency increases to 500 MHz. The shaded regions in the plot above indicate regions in which exceptions to the 1 dB window are likely to occur.

Drawings

