5 kHz Low-Pass Filter

EF114

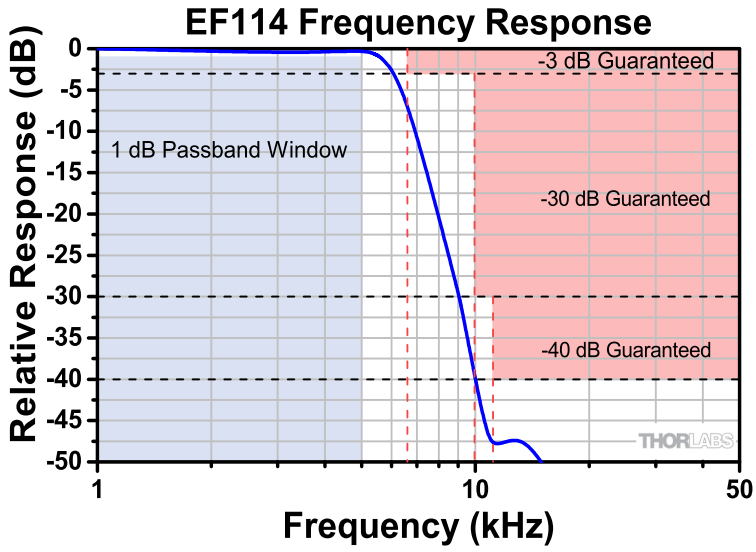
Description

The EF114 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 EF114 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

EF114	
	Value[a]
Passband (1 dB Window)[b]	0 to 5 kHz
3 dB Rejection	> 6.61 kHz
30 dB Rejection	> 9.95 kHz
40 dB Rejection	> 11.14 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.

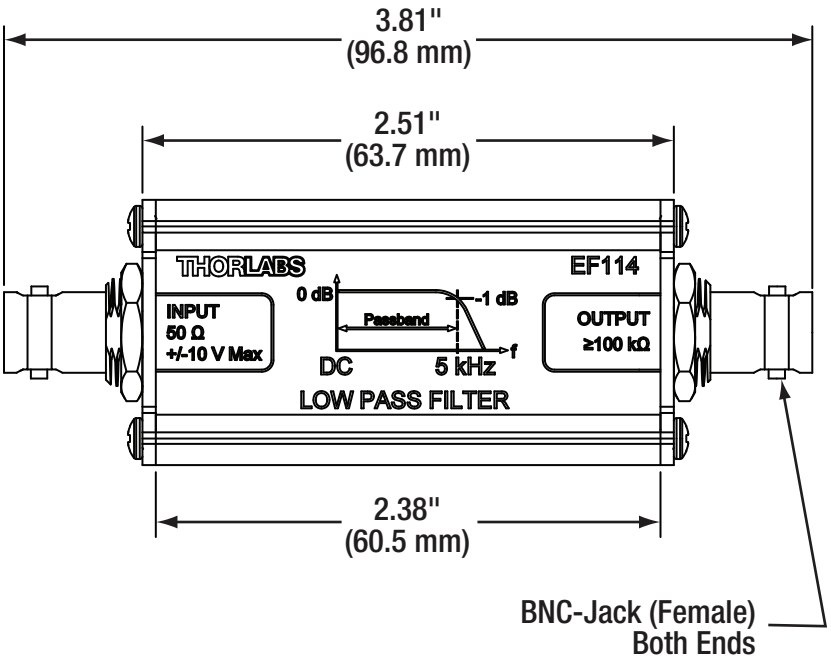


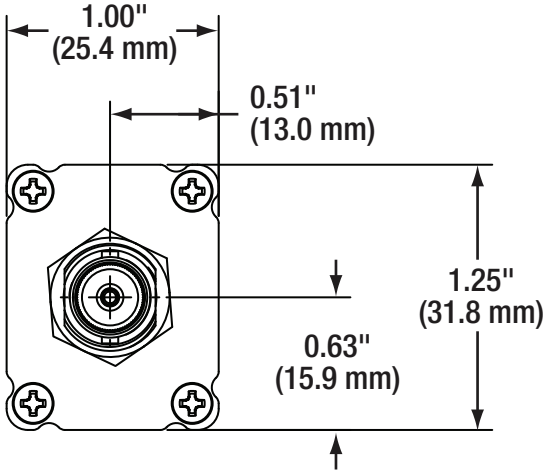
Sample Response Data

Freq. (kHz)	Rel. Resp. (dB)	Group Delay Variation (µs)
1.00	0.00	0.00
1.10	-0.04	-0.26
1.33	-0.10	-0.67
1.47	-0.15	-0.41
1.61	-0.20	-0.28
2.15	-0.33	0.57
2.60	-0.40	3.50
3.15	-0.44	8.23
3.47	-0.43	12.71
3.82	-0.40	18.66
4.20	-0.35	29.68
4.47	-0.32	39.14
4.67	-0.30	47.23
4.83	-0.31	55.91
4.96	-0.31	63.15
5.00	-0.32	65.48
5.05	-0.33	68.37
5.14	-0.37	74.87
5.23	-0.41	84.77
5.36	-0.55	94.31
5.51	-0.78	104.35
5.60	-1.01	108.61
5.90	-2.07	111.75
6.11	-3.16	103.21
6.55	-6.18	68.17
7.47	-15.04	-5.78

Freq. (kHz)	Rel. Resp. (dB)
9.04	-29.86
9.12	-30.68
9.20	-31.51
9.95	-39.46
10.04	-40.35
10.13	-41.28
10.76	-46.83
11.24	-48.22
12.70	-47.01
14.09	-48.14
16.20	-52.43
18.62	-59.20
21.22	-69.53
24.39	-61.97
28.28	-58.11
32.22	-56.78

Drawings


3.81"
(96.8 mm)
2.51"
(63.7 mm)
THORLABS
EF114
INPUT
50 Ω
+/-10 V Max
0 dB
-1 dB
Passband
f
DC
5 kHz
OUTPUT
≥100 kΩ
LOW PASS FILTER
2.38"
(60.5 mm)
BNC-Jack (Female)
Both Ends


1.00"
(25.4 mm)
0.51"
(13.0 mm)
1.25"
(31.8 mm)
0.63"
(15.9 mm)