4.5 MHz Low Pass Filter

EF516

Description

The EF516 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 EF516 is designed to terminate into DAQ, lab equipment, oscilloscope, 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

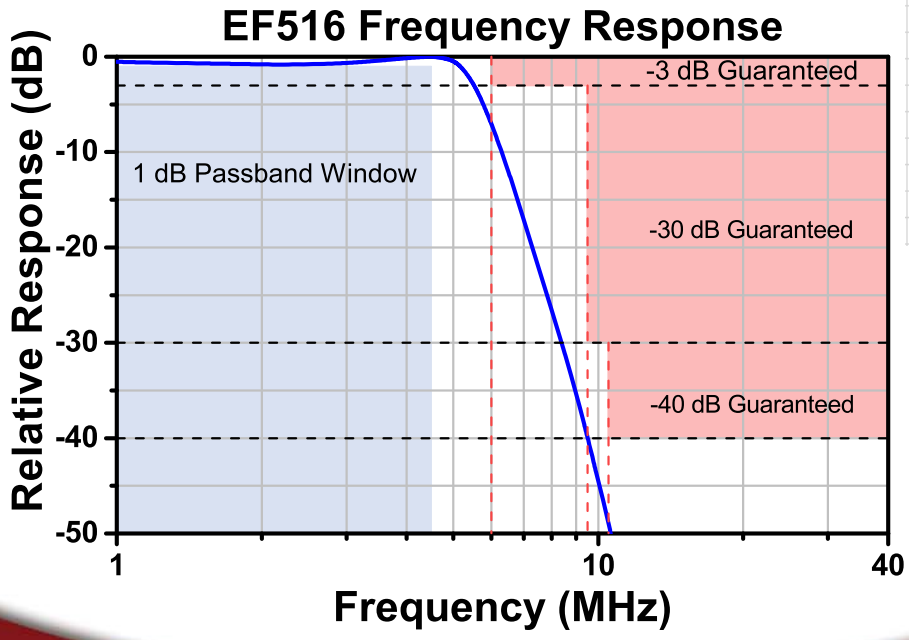
EF516	
	Value[a]
Passband (1 dB Window)	0 to 4.5 MHz
3 dB Rejection	> 6 MHz
30 dB Rejection	> 9.5 MHz
40 dB Rejection[b]	> 10.5 MHz
Source Impedance (BNC Female)	50 Ω (Typical)
Load Impedance[c] (BNC Male)	≥100 kΩ (Typical)
Input Voltage	±10 V (Max)
Storage Temperature	-20 to +70 °C

a. Values measured at 25 °C.
b. Rejection 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.

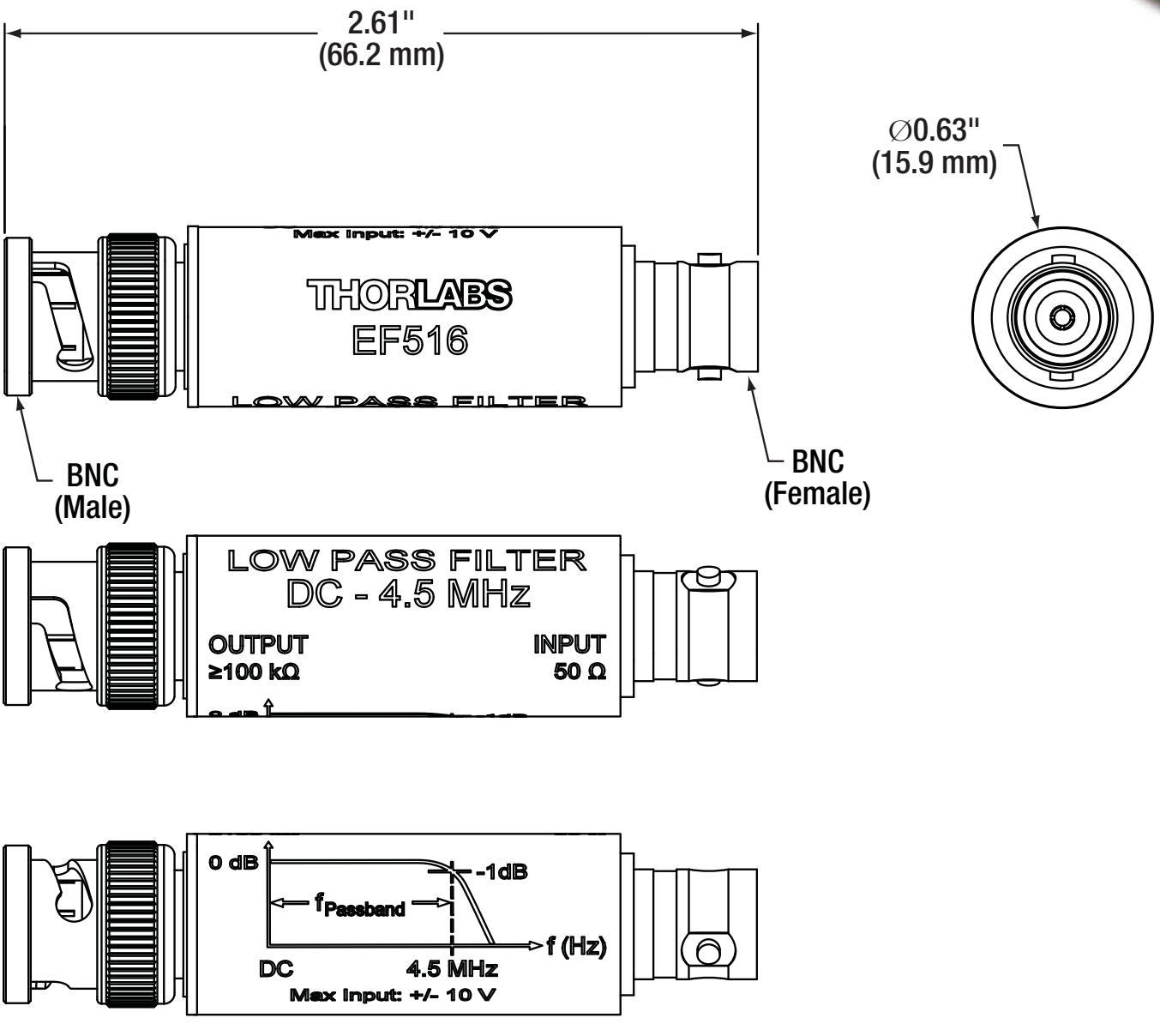
Sample Response Data

Frequency (Hz)	Rel. Resp. (dB)	Group Delay Variation (nS)
1000000	-0.54	0.0
1119789	-0.59	-0.3
1232290	-0.62	-0.5
1356094	-0.66	0.9
1492336	-0.70	2.3
1642266	-0.74	4.1
1807258	-0.77	5.7
1988827	-0.79	8.0
2188637	-0.82	9.3
2408522	-0.81	12.2
2650497	-0.77	14.6
2916783	-0.70	17.9
3209822	-0.57	22.0
3532301	-0.41	28.0
3887179	-0.21	33.7
4277710	-0.02	49.4
4429249	0.00	58.2
4467966	0.00	60.7
4507021	0.00	63.9
4546417	-0.01	67.1
4586158	-0.02	70.6
4748624	-0.12	84.7
4916846	-0.31	103.6
5046912	-0.58	120.1
5180419	-1.04	139.2
5410824	-2.24	157.5
5553958	-3.23	153.4
5700877	-4.39	137.3
5954430	-6.62	97.2
6058982	-7.60	80.2

Frequency (Hz)	Rel. Resp. (dB)
6667706	-13.51
7337586	-20.55
8074767	-27.14
8886010	-34.23
9444191	-39.42
9526744	-40.18
10483861	-48.73
10575502	-49.56
11637984	-60.39
12807211	-64.74
14093905	-65.08
15509870	-68.08
17068091	-71.14
18782860	-68.94
20490795	-65.96
22549432	-64.04
24814893	-62.95
27307956	-62.44
30051488	-62.32
32218377	-62.44



Drawings


2.61"
(66.2 mm)
∅0.63"
(15.9 mm)
Max Input: +/- 10 V
THORLABS
EF516
LOW PASS FILTER
BNC
(Male)
BNC
(Female)
LOW PASS FILTER
DC - 4.5 MHz
OUTPUT
≥100 kΩ
INPUT
50 Ω
0 dB
-1dB
fPassband
f (Hz)
DC
4.5 MHz
Max Input: +/- 10 V