500 kHz Low Pass Filter



EF506

Description

The EF506 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 EF506 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.

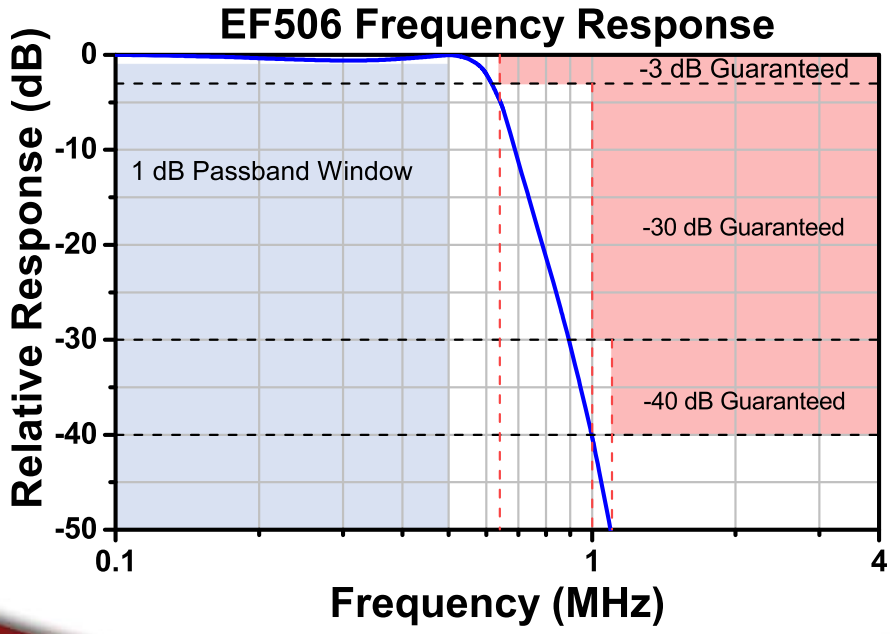
Specifications

EF506	
	Value[a]
Passband (1 dB Window)	0 to 500 kHz
3 dB Rejection	> 640 kHz
30 dB Rejection	> 1 MHz
40 dB Rejection[b]	> 1.1 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

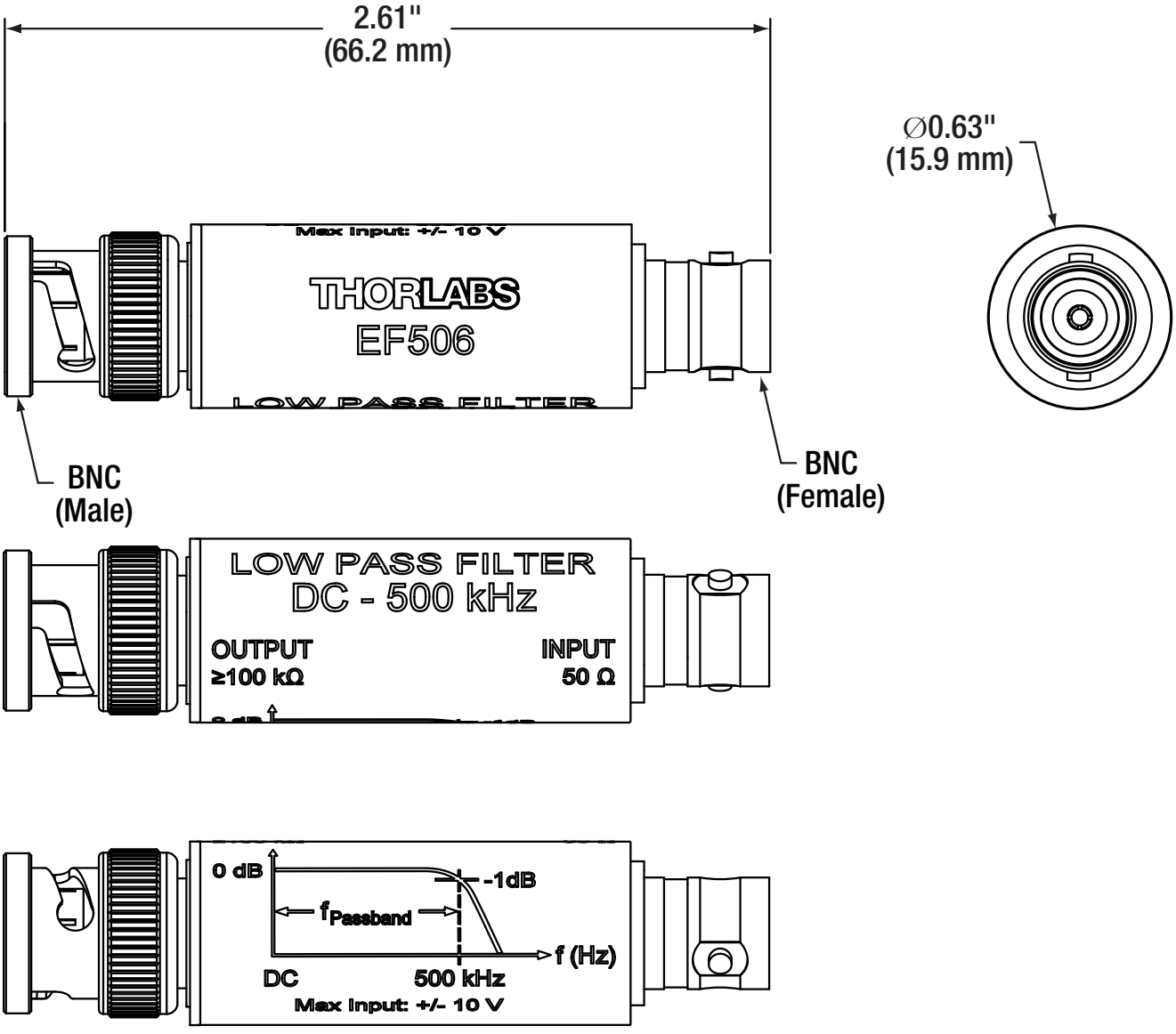
a. Values measured at 25 °C.
b. Rejection measured to 500 MHz.
c. This filter can be operated with termination resistances below 1 kΩ, however, the passband will narrow at smaller termination resistances and the performance is not guaranteed.

Sample Response Data

Frequency (Hz)	Rel. Resp. (dB)	Group Delay Variation (nS)
100000	0.00	0.0
101756	-0.01	0.0
102645	-0.01	-1.1
112958	-0.04	14.1
124306	-0.07	18.1
136795	-0.11	16.8
150538	-0.16	23.8
165662	-0.21	39.0
182306	-0.28	48.4
200621	-0.36	58.6
220777	-0.43	79.3
242957	-0.50	107.2
267367	-0.56	127.8
294228	-0.59	158.4
323788	-0.60	196.1
356318	-0.55	229.9
392116	-0.45	274.0
431510	-0.28	356.8
474862	-0.10	525.6
495982	-0.03	649.6
500318	-0.02	682.9
504691	-0.02	723.3
545812	-0.22	1226.1
580098	-1.09	1582.4
590283	-1.52	1600.9
600648	-2.05	1563.4
616537	-3.05	1416.5
638378	-4.67	1124.5
643958	-5.12	1043.2
655265	-6.11	863.7
721097	-13.47	
793543	-20.63	
873268	-27.81	
995046	-39.73	
1003743	-40.61	
1012517	-41.48	
1095014	-50.18	
1104586	-51.35	
1114241	-52.71	
1153714	-60.79	
1194585	-72.00	
1280721	-60.61	
1409391	-58.82	
1550987	-61.09	
1706809	-66.61	
1878286	-80.45	
2066991	-70.93	
2274654	-65.20	
2503180	-62.84	
2754666	-61.32	
3193919	-60.48	
3221838	-60.47	



Drawings


2.61"
(66.2 mm)
Ø0.63"
(15.9 mm)
Max Input: +/- 10 V
THORLABS
EF506
LOW PASS FILTER
BNC
(Male)
BNC
(Female)
LOW PASS FILTER
DC - 500 kHz
OUTPUT
≥100 kΩ
INPUT
50 Ω
0 dB
-1dB
f Passband
f (Hz)
DC
500 kHz
Max Input: +/- 10 V