1 MHz Low Pass Filter



EF508

Description

The EF508 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 EF508 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.

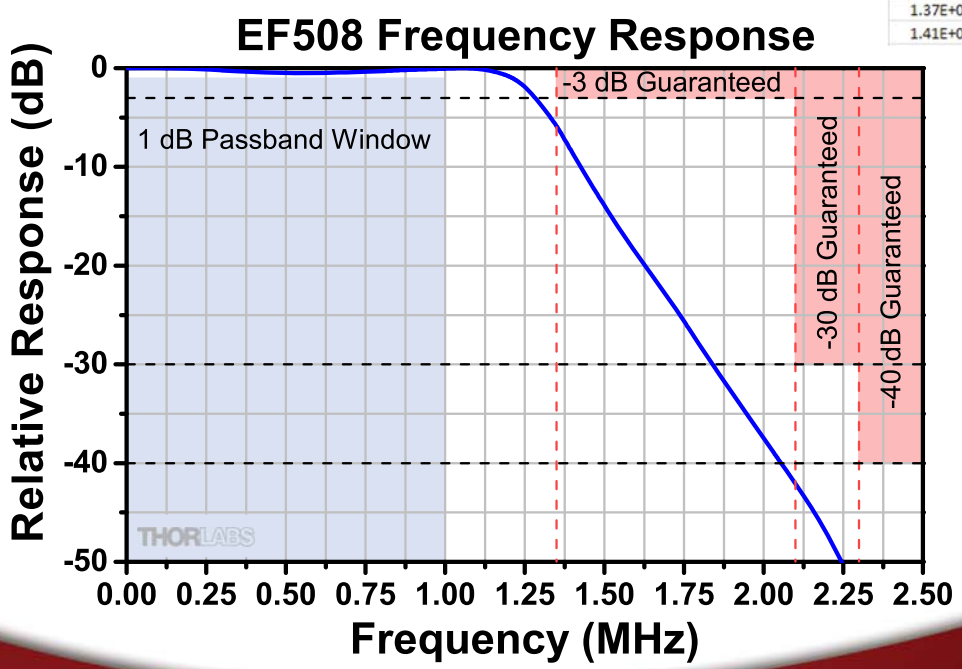
Specifications

EF508	
	Value[a]
Passband (1 dB Window)	0 to 1 MHz
3 dB Rejection	>1.35 MHz
30 dB Rejection	>2.1 MHz
40 dB Rejection[b]	>2.3 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

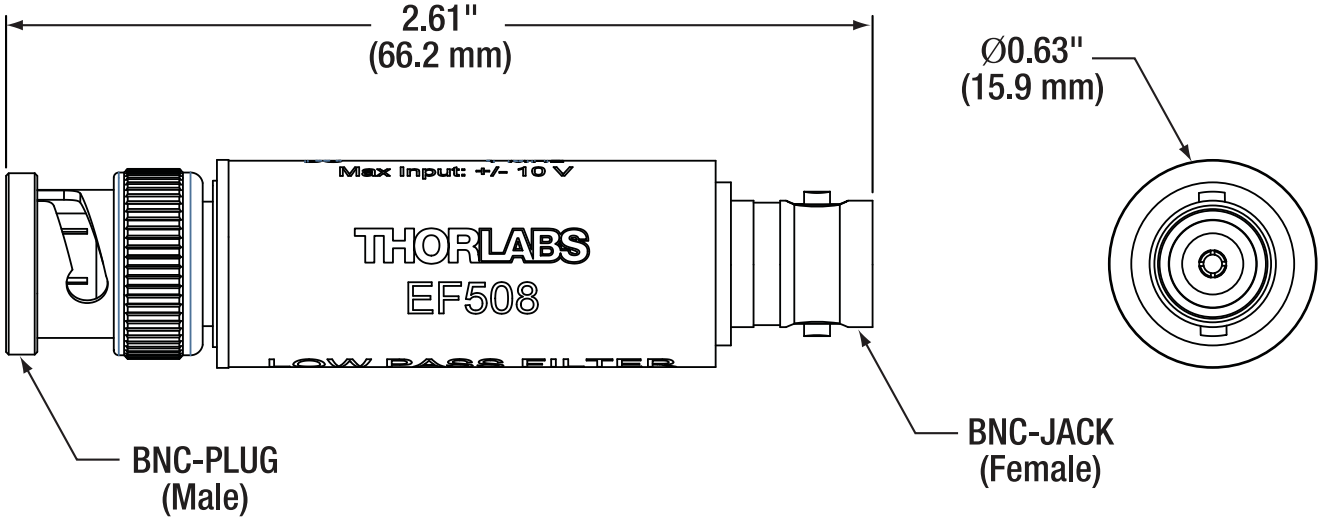
a. Values measured at 25 °C.
b. Rejection measured to 500 MHz.
c. This filter can be operated with termination resistances below 1 kΩ, however, the passband will narrow at smaller termination resistances and the performance is not guaranteed.

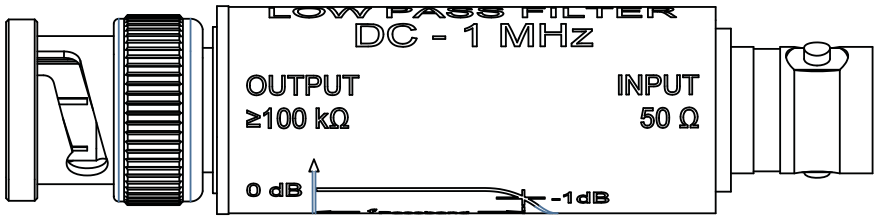
Sample Response Data

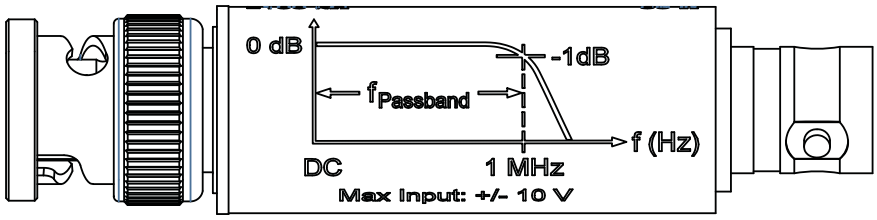
Frequency (Hz)	Rel. Resp. (dB)	Group Delay Variation (ns)	Frequency (Hz)	Rel. Resp. (dB)
1.00E+01	-0.01	0	1.43E+06	-10.25
1.00E+03	-0.01	0	1.52E+06	-14.99
1.00E+05	-0.01	0	1.61E+06	-19.51
2.00E+05	-0.02	0	1.72E+06	-23.88
3.06E+05	-0.23	10	1.82E+06	-29.32
4.34E+05	-0.45	27	1.94E+06	-34.66
5.63E+05	-0.53	62	2.03E+06	-38.62
7.25E+05	-0.39	105	2.10E+06	-41.91
8.05E+05	-0.29	125	2.19E+06	-46.40
8.63E+05	-0.21	144	2.29E+06	-52.74
8.94E+05	-0.17	157	2.31E+06	-54.45
9.25E+05	-0.14	173	2.50E+06	-69.09
9.58E+05	-0.09	198	2.65E+06	-60.77
9.92E+05	-0.06	237	2.79E+06	-59.45
1.00E+06	-0.04	246	3.02E+06	-60.31
1.02E+06	-0.03	281	3.27E+06	-63.12
1.05E+06	-0.01	339	3.53E+06	-69.13
1.07E+06	-0.01	386	3.82E+06	-78.78
1.13E+06	-0.15	616	4.13E+06	-73.66
1.19E+06	-0.66	820	4.47E+06	-67.34
1.22E+06	-1.17	855	4.84E+06	-63.64
1.27E+06	-2.23	790	5.23E+06	-62.66
1.35E+06	-5.56	404	5.66E+06	-61.59
1.37E+06	-6.85	299	6.22E+06	-60.23
1.41E+06	-8.89	168		



Drawings


2.61"
(66.2 mm)
Ø0.63"
(15.9 mm)
Max Input: +/- 10 V
THORLABS
EF508
BNC-PLUG
(Male)
BNC-JACK
(Female)


DC - 1 MHz
OUTPUT
≥100 kΩ
INPUT
50 Ω
0 dB
-1dB


0 dB
-1dB
fPassband
f (Hz)
DC
1 MHz
Max Input: +/- 10 V