50 - 60 Hz Mains Hum Filter and DC Block

EF599



Description

The EF599 Mains Hum Filter and DC Block provides rejection in the Mains Hum spectral region of intermodulation around 50 - 60 Hz. It employs a modified 2nd order Butterworth filter design fit into a compact coaxial BNC, EF5 format. The EF599 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.

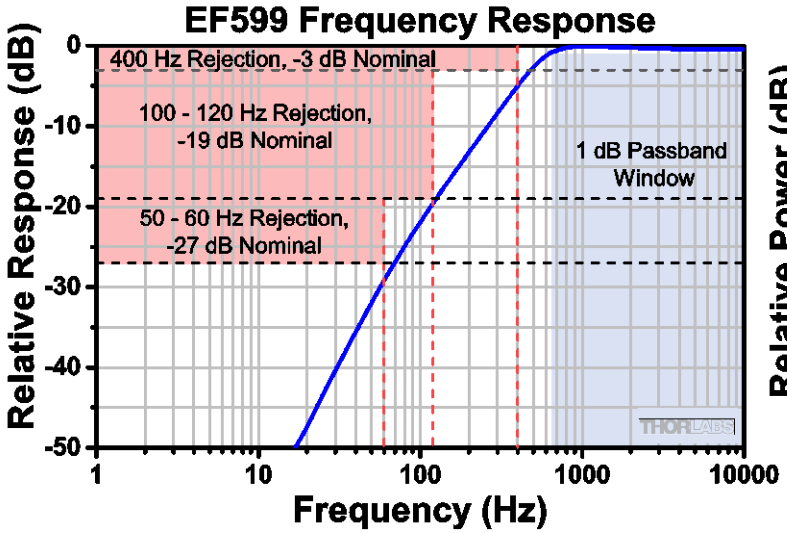
Specifications

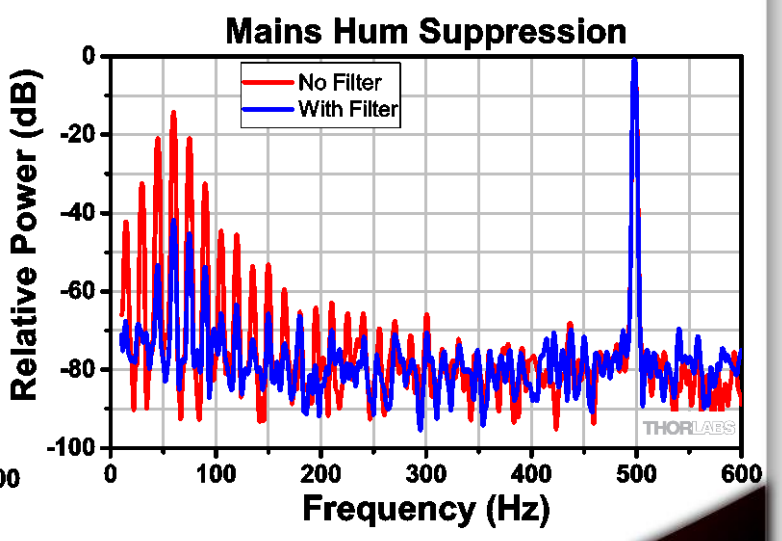
EF599	
	Value[a]
Passband (1 dB Window)[b]	>650 Hz (Nominal)
50 - 60 Hz Rejection	27 dB (Nominal)
100 - 120 Hz Rejection	19 dB (Nominal)
400 Hz Rejection	3 dB (Nominal)
Source Impedance (BNC Female)	50 Ω (Typical)
Load Impedance[c] (BNC Male)	≥100 kΩ (Typical)
Input Voltage	±10 V (Max)
Storage Temperature	-20 to +70 °C

a. Values measured at 25 °C.
b. 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.

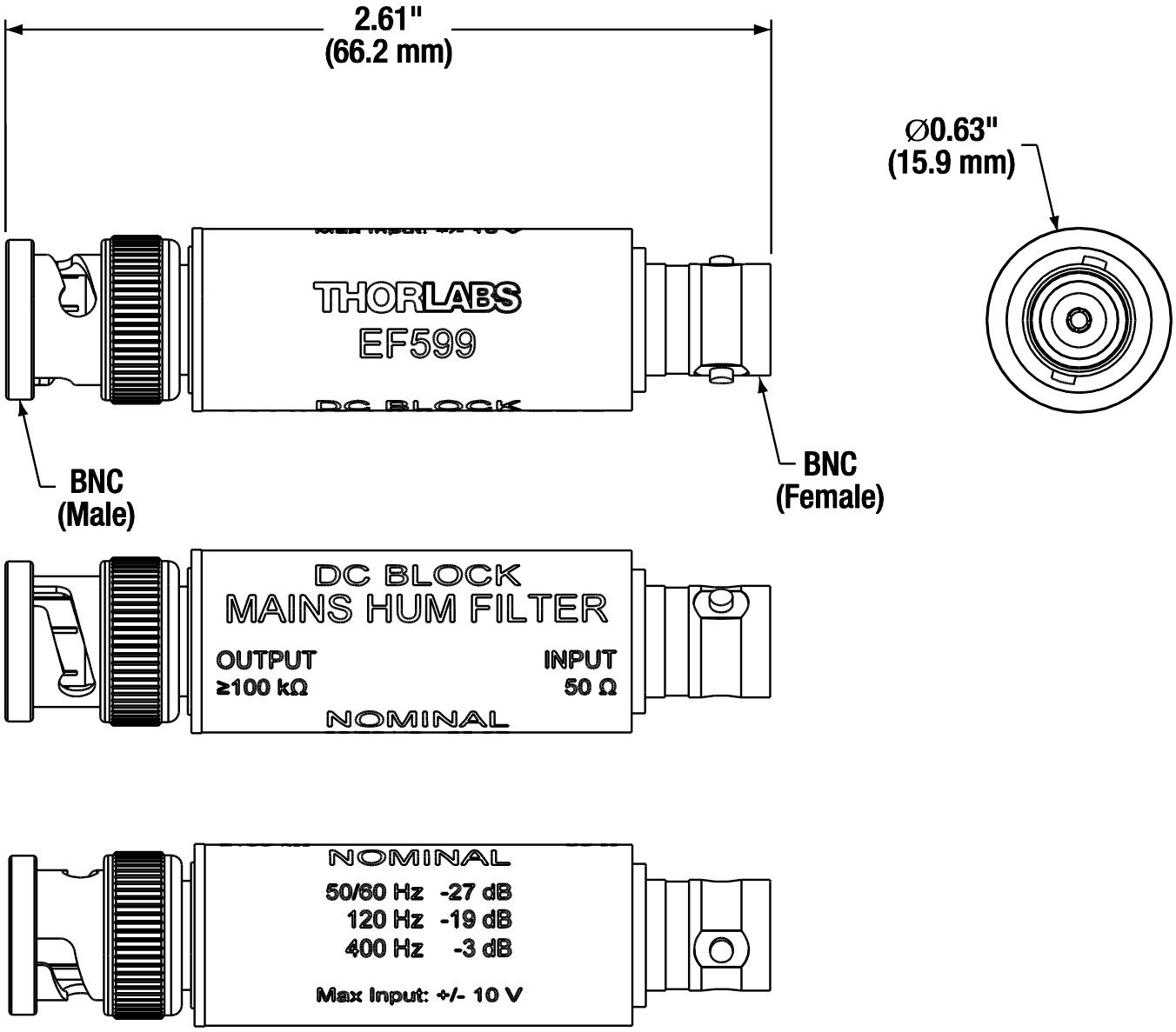
Sample Response Data

Frequency (Hz)	Rel. Resp. (dB)	Frequency (Hz)	Rel. Resp. (dB)
10.00	-61.50	220.04	-12.14
12.09	-56.93	300.26	-8.36
14.13	-53.44	402.72	-4.89
16.22	-50.56	478.63	-3.04
20.30	-47.31	504.08	-2.58
24.13	-43.99	609.54	-1.00
30.20	-40.28	699.84	-0.57
40.50	-35.29	803.53	-0.20
50.70	-31.78	906.78	-0.05
60.26	-29.07	1005.77	-0.01
72.86	-26.38	2077.30	-0.24
80.82	-24.82	2934.27	-0.33
89.64	-23.37	4144.77	-0.38
101.16	-21.88	4926.06	-0.39
120.23	-19.54	5854.64	-0.41
140.44	-17.60	6958.25	-0.41
161.25	-15.87	8269.90	-0.42
181.97	-14.47	9828.79	-0.42
201.84	-13.14		





Drawings


2.61"
(66.2 mm)
Ø0.63"
(15.9 mm)
THORLABS
EF599
DC BLOCK
BNC
(Male)
BNC
(Female)
DC BLOCK
MAINS HUM FILTER
OUTPUT
≥100 kΩ
INPUT
50 Ω
NOMINAL
NOMINAL
50/60 Hz -27 dB
120 Hz -19 dB
400 Hz -3 dB
Max Input: +/- 10 V