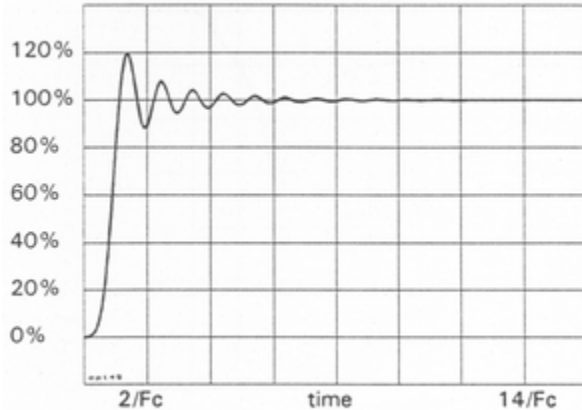
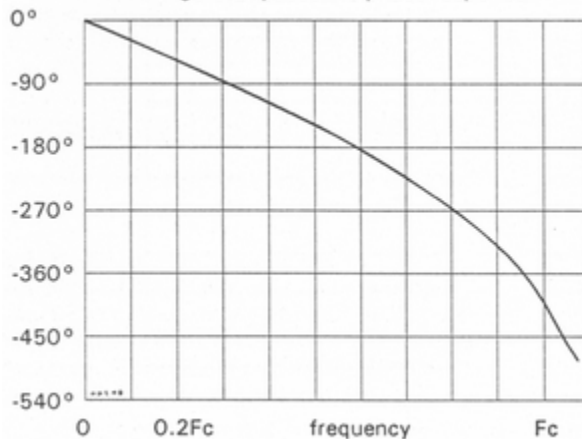


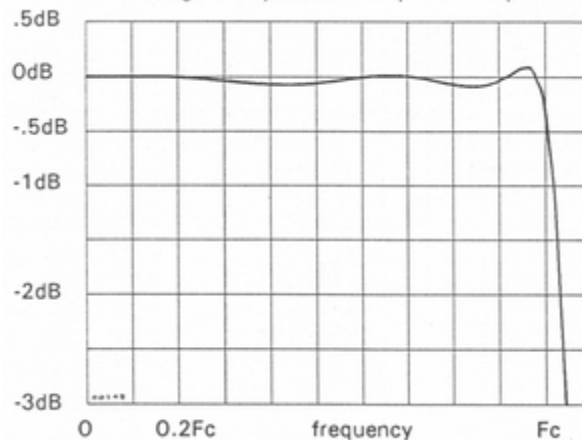
↓ Figure 1: step response vs. time



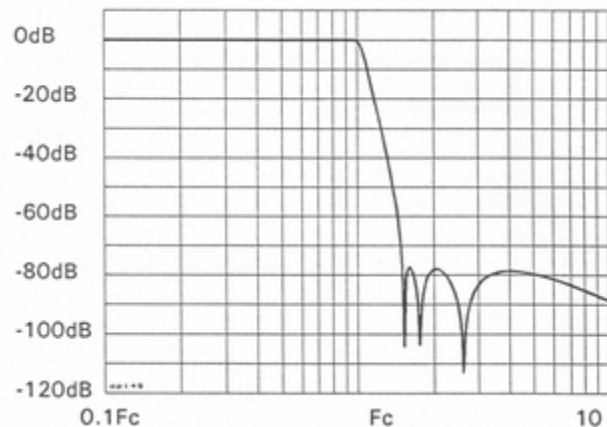
↓ Figure 2: passband phase response



↓ Figure 3: passband amplitude response



↓ Figure 4: overall frequency response



Description

The Option 49 response is a modified elliptic filter; it has a flat passband with ripple of less than 0.2dB, and stopband rejection of 77dB starting at 1.5times the cutoff frequency (see figures 3 and 4). It is designed for alias protection of signals prior to sampling and A-to-D conversion, in systems where data analysis is carried out mainly in the frequency domain.

The Option 49 filter is not the best choice where criteria of time-domain accuracy are important. The settling time is fairly long (see figures 1 and 5) while phase and delay linearity are poor (figures 2, 6 and 7)

This response is switchable from lowpass to highpass, for increased versatility. When supplied on the VBF806 Laboratory Filter it is sometimes referred to as Option 806. Data on the highpass response is available upon request.

Note: Similarity to Option 01 and Option L1

two other responses are available which are extremely similar and intended for the same applications. On some multichannel systems (e.g. 21CF30, VBF64 etc), Option 01 is provided; this is our traditional 135dB/octave elliptic filter. On systems such as the VBF4x, the equivalent response is Option L1, which was altered slightly to facilitate the switched bandpass mode of the VBF4x series. Consult the appropriate Filter Response sheet if you are contemplating these responses.

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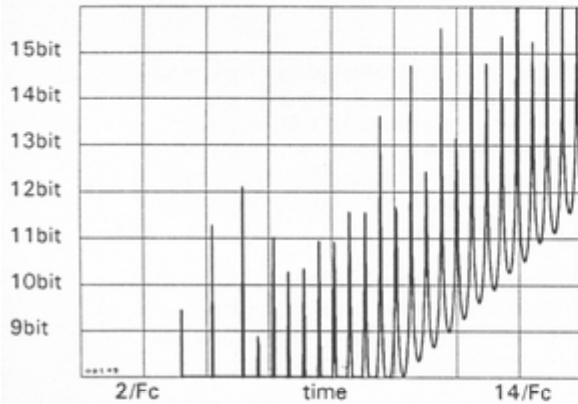
14 Rainstone Drive
Greenville
SC 29615

usa@kemo.com
Tel (864) 297 2522

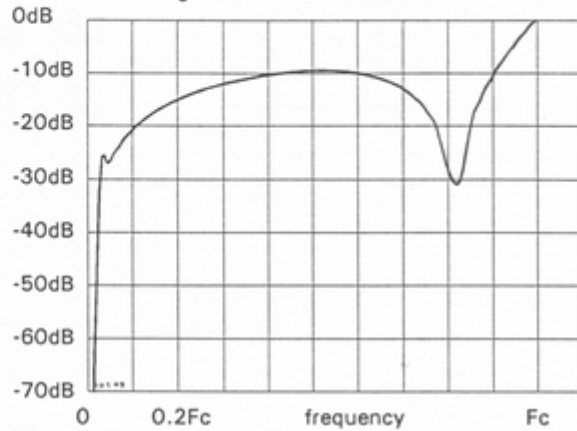
Option 49
 n = 8 lowpass
 -77dB at 1.5 times Fc

Filter Response

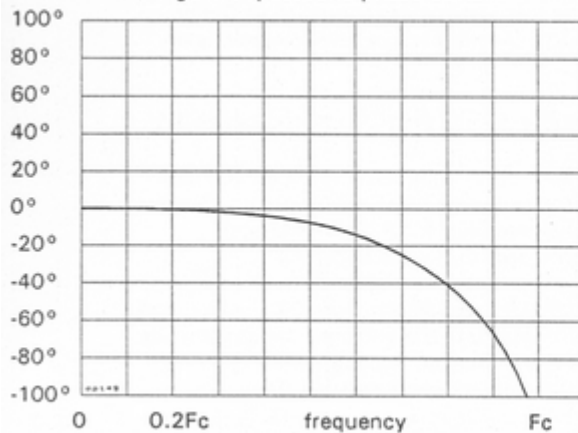
↓ Figure 5: accuracy vs. time



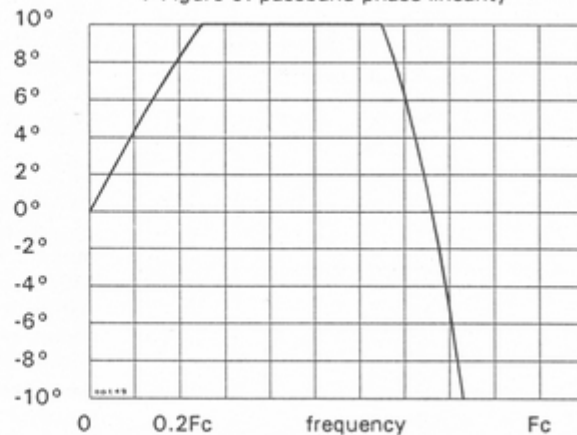
↓ Figure 8: vector error



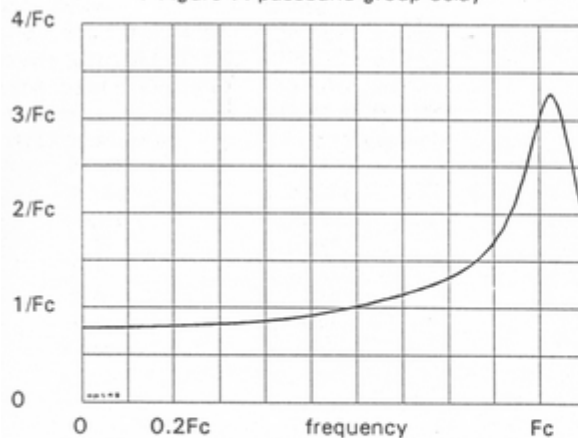
↓ Figure 6: passband phase deviation



↓ Figure 9: passband phase linearity



↓ Figure 7: passband group delay



zero frequency delay	0.7831/Fc
z.f. phase line (used in Figure 6)	-281.92° x f/Fc
mean phase line (used in Figure 9)	-326.32° x f/Fc
best phase line (used in Figure 8)	-335.64° x f/Fc
theoretical stopband	-77.11dB @ 1.5Fc
equivalent slope attenuation	131.8dB/octave
attenuation:	
0.1dB	0.989Fc
0.25dB	0.996Fc
0.5dB	1.005Fc
1dB	1.016Fc
3dB	1.042Fc
6dB	1.068Fc
36dB	1.282Fc
48dB	1.366Fc
60dB	1.438Fc
72dB	1.487Fc
84dB	-
96dB	-
overshoot	19.8% at 1.4/Fc
risetime to 0.996Vin	1.14/Fc
approximate settling time to 8 bits	9.9Fc
add on for each subsequent bit:	1.63/Fc

KT70180 8/4/93

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