FilterLab® Active Filter Software Design Tool

The difficult job of low- pass, active filter design is made easy with FilterLab software.

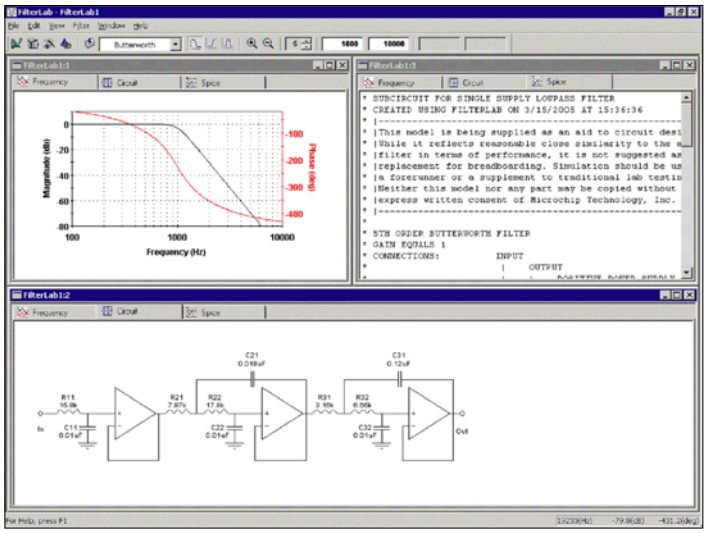
FilterLab® 2.0 is an innovative software tool that simplifies active (op amp) filter design. Available at no cost from Microchip's web site (www.microchip.com), the FilterLab 2.0 active filter software design tool provides full schematic diagrams of the filter circuit with component values and displays the frequency response.

FilterLab 2.0 allows the design of low-pass filters up to an 8th order filter with Chebychev, Bessel or Butterworth responses from frequencies of 0.1 Hz to 10 MHz. FilterLab 2.0 also can be used to design band-pass and high-pass filters with Chebychev and Butterworth responses. The circuit topologies supported by FilterLab 2.0 are the Sallen Key and Multiple Feedback (MFB). The low-pass filters can use either the Sallen Key or MFB, the band-pass is available with the MFB and the high-pass uses the Sallen Key.

Users can select a flat passband or sharp transition from passband to stopband. Options, such as minimum ripple factor, sharp transition and linear phase delay are available. Once the filter response has been identified, FilterLab 2.0 generates the frequency response and the circuit. For maximum design flexibility, changes in capacitor values can be implemented to fit the demands of the application. FilterLab 2.0 will recalculate all values to meet the desired response, allowing real-world values to be substituted or changed as part of the design process.

FilterLab also generates a SPICE model of the designed filter. Extraction of this model will allow time domain analysis in SPICE simulations, streaming the design process.

Further consideration is given to designs used in conjunction with an analog-to-digital converter (ADC). A suggested filter can be generated by simply inputting the bit resolution and sample rate via the Anti-Aliasing Wizard. This eliminates erroneous signals folded back into the digital data due to the aliasing effect.



Features:

- A Variety of Active Filter Types
  - Low-pass, Band-pass or High-pass
  - Bessel, Butterworth or Chebyshev
  - Sallen Key and Multiple Feedback Topologies
- A Wide Range of Selectable Parameters
  - Gain: 1 and 10 V/V
  - Order: 1 to 8
  - Passband Ripple: 0.01 dB to 3.0 dB
  - Stopband Attenuation: 10 dB to 100 dB
  - Cut-off Frequency: 0.1 Hz to 1 MHz
  - Stop-band Frequency: 0.1 Hz to 1 MHz
  - Bandpass Q: 0.5 to 5.0
  - Bandpass Fractional Bandwidth: 20% to 200%
- Easy-to-Use Design Windows for Filter
  - Frequency Response
  - Circuit Diagram
  - SPICE Listing
- Design Aids
  - Toolbar
  - Filter Design Wizard
  - Filter Selection Wizard
  - Anti-Aliasing Wizard (for ADCs)
- Component Value Generation
  - Automatic Calculation of Components
  - Either Exact or 1% Resistor Values
  - Can Manually Input Capacitors
- User's Guide (Help Menu)
  - How to Use Chapters
  - Technical Background Appendices (SPICE Interface, Filter Templates, Group Delay, Bessel filter Response, Op Amp Selection, and Selected References)

MICROCHIP
Linear Analog ICs

Ordering Information:

- Model Name: FilterLab® 2.0
- Devices Supported: PC
- Host System Requirements:
  – PC with 386 or higher processor, Pentium® recommended
  – 8 MB Memory, 32 MB recommended
  – 16 MB hard disk space, 20 MB recommended
  – 600 x 800 Monitor
  – Microsoft® Windows 95/98
  – CD-ROM Drive

Customer Support:

Microchip maintains a worldwide network of distributors, representatives, local sales offices, Field Application Engineers and Corporate Application Engineers. Visit our web site at www.microchip.com for additional product information and sales office locations.

Development Tools from Microchip	
MPLAB® IDE	Integrated Development Environment (IDE)
MPASM™ Assembler	Universal PICmicro® Macro-Assembler
MPLINK™ Linker/MPLIB™ Librarian	Linker/Librarian
MPLAB SIM	Simulator Software Simulator
MPLAB C18	C Compiler for PIC18CXXX MCUs
MPLAB C30	C Compiler for dsPIC30F MCUs
PICkit™ 1	Flash Starter Kit
MPLAB ICD 2	In-Circuit Debugger
MPLAB ICE 2000	Full-featured Modular In-Circuit Emulator for PIC12, PIC16 and PIC18 MCUs
MPLAB ICE 4000	Full-featured Modular In-Circuit Emulator for PIC18 and dsPIC MCUs
PICSTART® Plus Programmer	Entry-level Development Kit with Programmer
MPLAB PM3 Device Programmer	Full-featured, Modular Device Programmer
KEELOQ® Evaluation Kit	Encoder/Decoder Evaluator
microID® Developer's Kit	125 kHz and 13.56 MHz RFID Development Tools

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Microchip Technology Inc. • 2355 W. Chandler Blvd. • Chandler, AZ 85224-6199 • (480) 792-7200 • Fax (480) 792-9210

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