MAXIM

8th-Order/4th-Order, Continuous-Time Analog Filters

General Description

The MAX274/MAX275 are 8th-order/4th-order, continuous-time analog filters. The MAX274 has four independent, cascadable 2nd-order sections, while the MAX275 has two. Each filter section can implement any all-pole bandpass or lowpass filter response (such as Butterworth, Bessel, and Chebyshev) and is programmed by four external resistors. The filters' continuous-time design offers low noise and a wide dynamic range by eliminating clock noise and aliasing problems characteristic of their switched-capacitor counterparts.

Allowable pole frequencies range from 100Hz to 150kHz (MAX274) and 100Hz to 300kHz (MAX275). Center-frequency accuracy is ±0.9% (MAX275), ±1.0% (MAX274) over the full operating temperature range.

These low-noise filters, with total harmonic distortion less than -86dB, are ideal for lowpass anti-aliasing and digital-to-analog converter output smoothing in high-resolution, data-conversion applications.

Applications

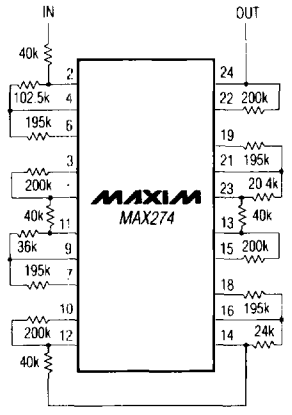
Low-Distortion, Anti-Aliasing Filters

Output Smoothing Filters

Audio/Sonar/Avionics Frequency Filtering

Vibration Analysis

Typical Operating Circuit

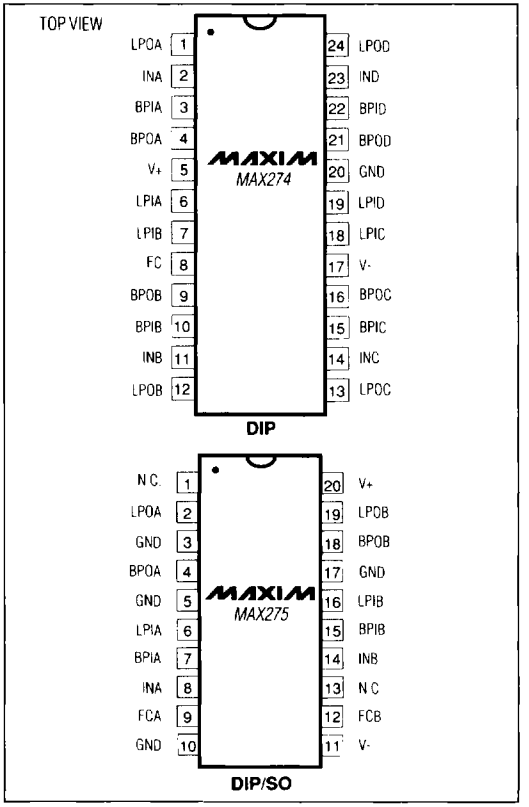


10kHz 8TH-ORDER BUTTERWORTH LOWPASS FILTER

Features

- ♦ **Continuous-Time Filters - No Clock, No Clock Noise**
- ♦ **8th-Order, Quad 2nd-Order Sections (MAX274)**
  4th-Order, Dual 2nd-Order Sections (MAX275)
- ♦ **Lowpass/Bandpass Outputs**
- ♦ **Low Noise; Low Distortion (-86dB Typ)**
- ♦ **±0.9% Frequency Accuracy Over Temperature**
- ♦ **Supplies: ±5V, +5V, +12V, or +15V (MAX274)**
  ±5V or +5V (MAX275)
- ♦ **Pole Frequency Range: 100Hz to 150kHz (MAX274)**
  100Hz to 300kHz (MAX275)
- ♦ **Cascadable for Higher Order**
- ♦ **DIP and SO Packages**

Pin Configurations



6