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Straw

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[54] MONOLITHIC LOW NOISE PREAMPLIFIER FOR PIEZOELECTRIC SENSORS

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[58] Field of Search 367/135, 63; 330/258, 330/260, 294

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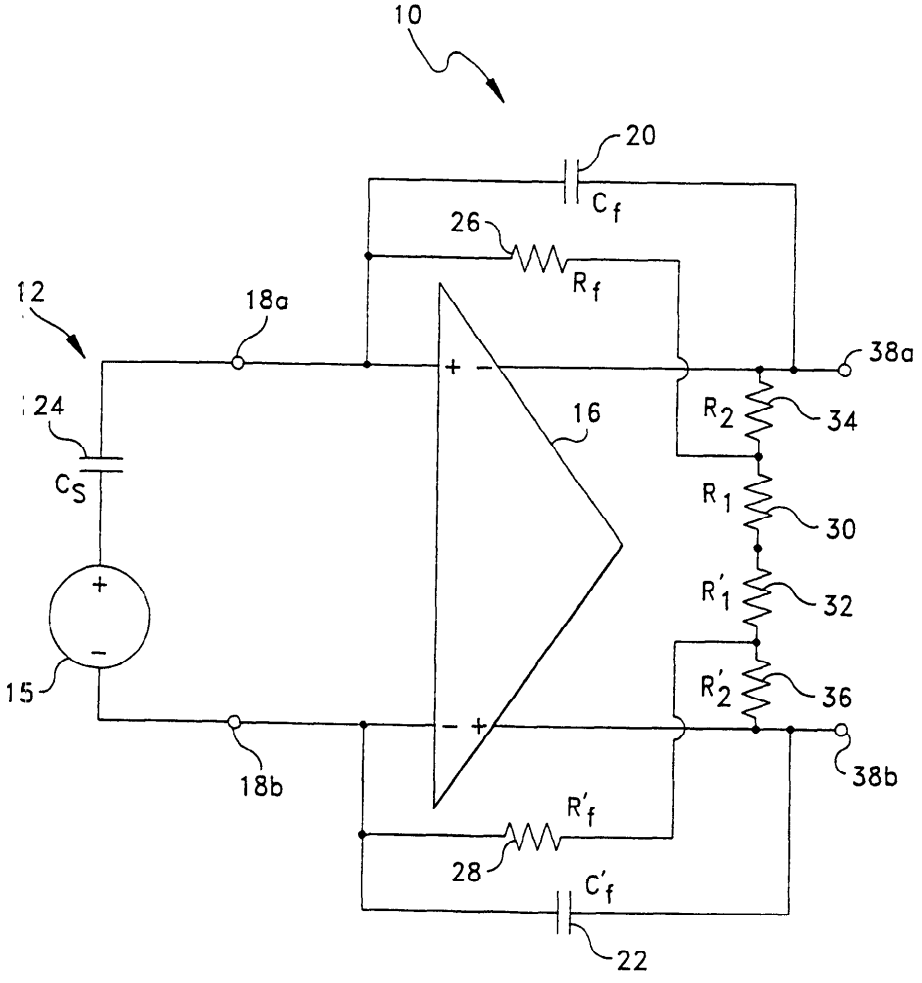
[57] ABSTRACT

A preamplifier for a piezoelectric sensor requiring a high-impedance, low noise interface circuit. The preamplifier is a single, monolithic integrated circuit that can be mounted directly onto or inside a miniature sensor without degrading the sensor's performance. The preamplifier performs signal amplification with a full-differential amplifier that includes common-mode feedback. A pair of feedback capacitors together with the sensor capacitance control the voltage gain of the preamplifier over much of it's useful operating range of 100 Hz to 100 kHz. The preamplifier circuit also has feedback resistors that discharge any accumulated DC voltage which might appear on the capacitors. Also the feedback resistors form a high pass filter which rejects low .frequency background noise from the sensor.

6 Claims, 2 Drawing Sheets