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(54) **COMBINED CLASS D AMPLIFIER AND BUCK REGULATOR**

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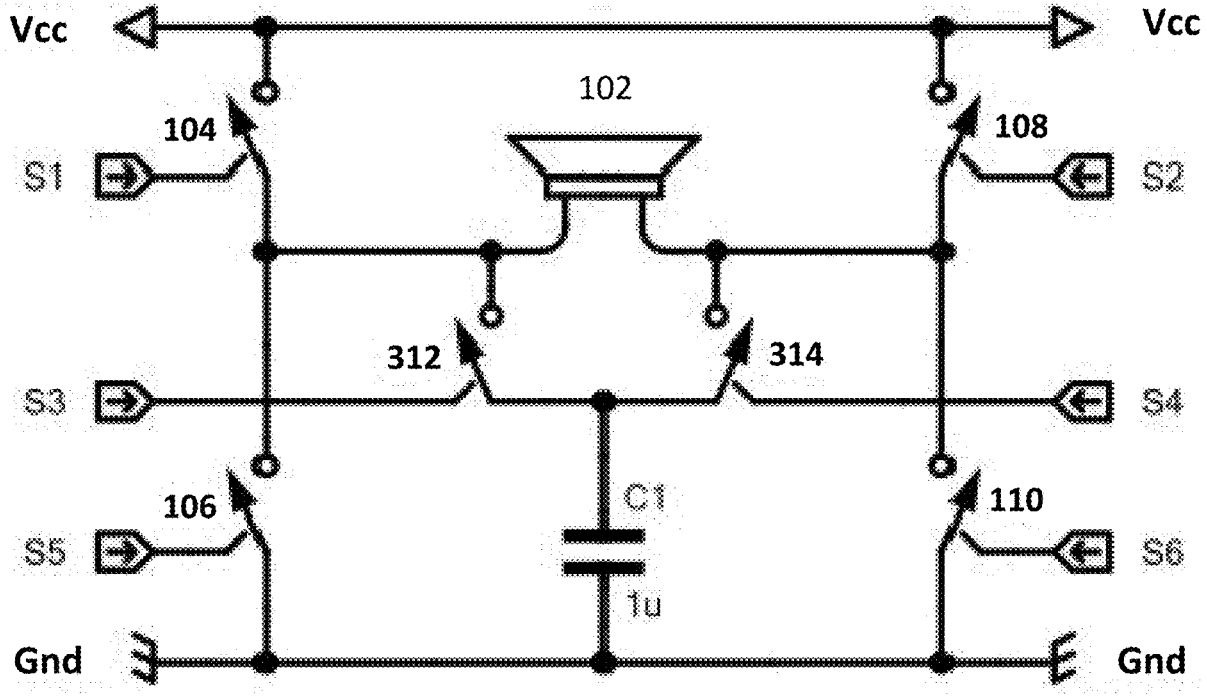
(57) **ABSTRACT**

An apparatus and method for improving the efficiency of a D class amplifier, particularly at lower output levels. A class D amplifier having a load with inductance, such as a transducer, is configured to concurrently act as its own buck regulator. A capacitor connected to ground and to both ends of the transducer through switches functions as the buck regulator in connection with the inductance of the transducer, providing the class D amplifier with additional voltage levels such as might be provided by a G/H class amplifier but without the added complexity or expense of the G/H configurations. Better efficiency is possible than that provided by a 100% efficient conventional buck regulator. No envelope detector is required, nor any change to the gain of the digital signal to the class D amplifier. Feedback may be used if desired, but is not required to obtain a high quality output signal.



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