Keywords: load switcher, current, low power

APPLICATION NOTE 942

Load Switcher Draws Only 6µA

Jul 04, 1996

Abstract: Taking advantage of the IC's very low quiescent current, this circuit enables a small signal of ±1mV or more to switch relatively large load currents.

Figure 1's circuit draws only 6µA, but it enables a small signal of ±1mV or more to switch relatively large load currents. It takes advantage of the IC's very low quiescent current—1.2µA (max) per amplifier (less than a typical battery's self-discharge)—which is able to flow through R1 without turning on Q1. When operated with a sensing coil (as shown) and stimulated by a magnet, the circuit performs the function of a reed switch, but with greater sensitivity. Other applications include alarm systems, bipolar threshold sensing, and audio volume switching.

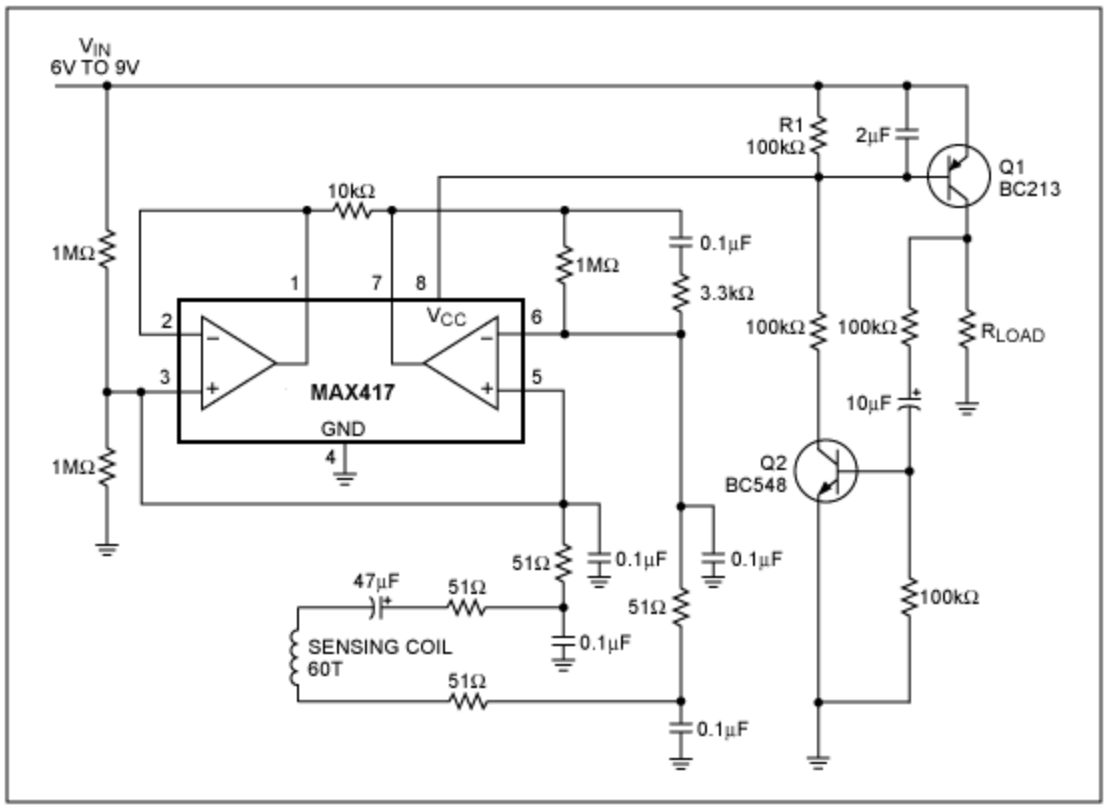

Figure 1. This load switcher enables a small signal to turn on a much larger load current.

Inducing a signal of either polarity in the coil (by passing a magnet near it, for example) causes the dual op amp to draw more current from its V_{CC} terminal. The increase produces a voltage across R1 that exceeds Q1's V_{BE} threshold, activating the complementary monostable multivibrator consisting of Q1, Q2, and associated components. As a result, Q1 connects battery voltage to the load. For many applications, you can replace the monostable with a simple pnp output stage.

A similar idea appeared in the July 4, 1996 issue of EDN.

Related Parts		
MAX417	Single, Dual, Quad, 1.2µA Max, Single-Supply Op Amps	Free Samples

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