

# Isolated driver forms solid-state circuit breaker

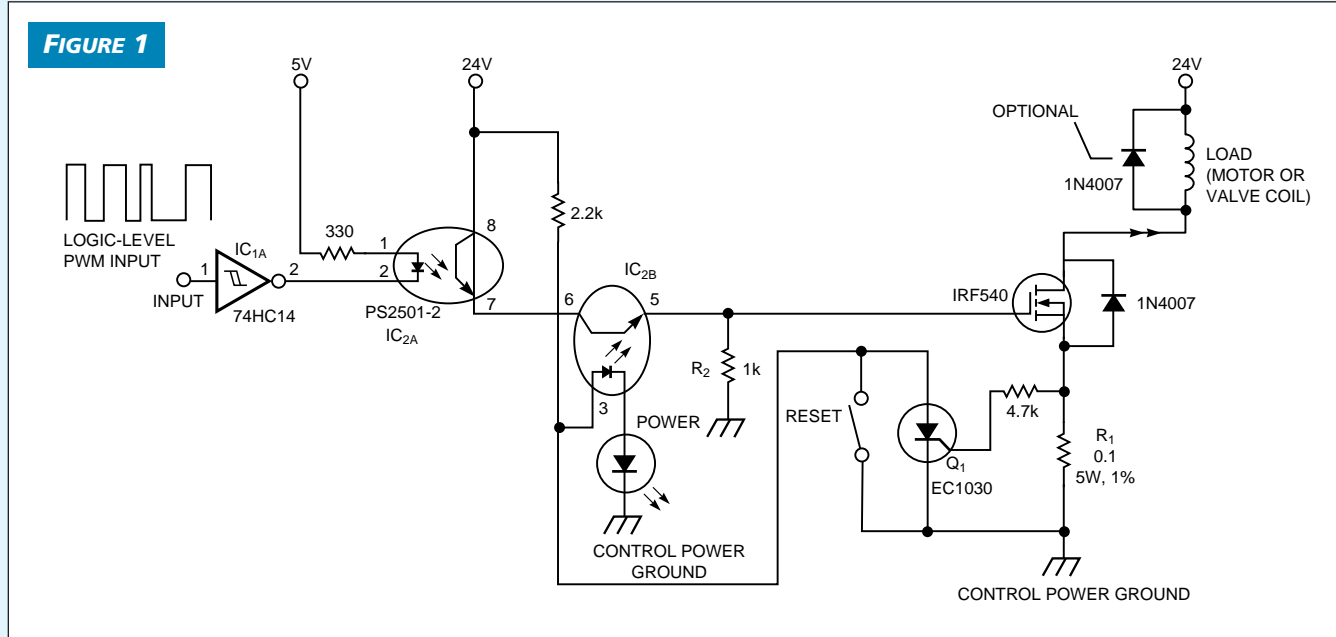
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The circuit in Figure 1 allows standard TTL logic levels to safely drive a high-power dc load. The circuit provides for both signal and ground isolation as well as a solid-state circuit breaker.

The input signal drives IC<sub>1A</sub>, which in turn provides drive current for optoisolator IC<sub>2A</sub>. In the absence of an overcurrent condition, IC<sub>2B</sub> conducts the signal to the gate of the MOSFET. When sufficient current passes through current-sense resistor,

R<sub>1</sub>, to cause a voltage drop of approximately 0.7V, SCR Q<sub>1</sub> latches on. When Q<sub>1</sub> is on, the circuit pulls Pin 3 of IC<sub>2B</sub> low, which stops the transistor side of IC<sub>2B</sub> from conducting. R<sub>2</sub> then holds the gate of the MOSFET low, which prevents it from conducting until you reset the SCR. (DI #2163)

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An overcurrent condition in this isolated PWM driver turns on SCR Q<sub>1</sub>, which stops IC<sub>2B</sub> from conducting.