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(54) **CIRCUIT AND METHOD FOR IMPROVING EFFICIENCY BY USE OF EXTERNAL INDUCTOR FOR TEMPERATURE CONTROL**

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(57) **ABSTRACT**

A circuit and a method for improving efficiency by use of external inductor for temperature control, wherein the operating temperature of a field effect transistor is calculated by the inductor voltage. The change in operating temperature is used to adjust and control the voltage of the variable voltage gate drive module. When the operating temperature rises, the input voltage of the gate increases accordingly; when the operating temperature decreases, the input voltage of the gate decreases accordingly, thereby achieving the efficiency of regulating light and heavy loads.

