RESISTOR IN SERIES WITH BOOTSTRAP DIODE FOR MONOLITHIC GATE DRIVER DEVICE

ABSTRACT OF THE DISCLOSURE

A power circuit includes at least a high side and low side MOS gated transistor operable to form a bridge circuit across high and low power terminals of a power source; a high side driver circuit having an output operable to change conduction characteristics of the high side MOS gated transistor; and a series coupled diode and capacitor configured in a bootstrap arrangement with the high side and low side transistors to provide an operating voltage to the high side driver circuit. The power circuit also includes a low side driver circuit having an output operable to change conduction characteristics of the low side MOS gated transistor; a low side voltage source coupled to the low side driver circuit to provide an operating voltage thereto, the series coupled diode and capacitor being in series with the low side voltage source; and a stray inductance located in series with the high side and low side MOS gated transistors and inducing a current through the low side MOS gated transistor in response to conduction changes in the high side and low side MOS gated transistors. The power circuit also includes a first current limiting element coupled in series between the low side voltage source and the diode to reduce a component of the induced current from the stray inductance from flowing through the diode into the capacitor; and a second current limiting element operable to be coupled in series between the low power terminal and the low side voltage source to reduce a component of the induced current from the stray inductance from flowing through the diode into the capacitor.

Fig. 2