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Corsi et al.

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[54] **CURRENT SENSING CIRCUIT AND METHOD**

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[58] Field of Search **327/538, 540, 327/541, 543, 545, 546, 54, 55, 67, 87, 99; 323/313, 315, 316**

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[57] **ABSTRACT**

A circuit and method for sensing and limiting current. An output driving transistor (M1) is coupled between a circuit output terminal and a power supply terminal. A replicator circuit is formed in a cross-coupled quad configuration from bipolar transistors (Q11, Q12, Q13 and Q14) and is coupled to a second transistor (M2) which generates a voltage proportional to the current flowing in the output driving transistor (M1). The current sensing circuit generates an output current which is proportional to the current flowing in the output driving transistor multiplied by a ratio of the sizes of the second transistor and the output driving transistor. In a current limiting configuration, the output of the cross-coupled quad is used to reset a flip-flop (FF1) that drives the gate terminal of the output transistor (M1), thus shutting down the output transistor before it is damaged due to excess current. The circuitry of the invention may be applied to a high side driver or a low side driver output circuit. Other embodiments are also described.

26 Claims, 1 Drawing Sheet



