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Balakrishnan et al.

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(54) **METHOD AND APPARATUS FOR MAINTAINING A CONSTANT LOAD CURRENT WITH LINE VOLTAGE IN A SWITCH MODE POWER SUPPLY**

(52) **U.S. Cl.** 323/282; 323/273
(58) **Field of Classification Search** 323/282-288, 323/235-239, 220-223, 272-275; 363/79, 363/80, 97, 131, 63, 89
See application file for complete search history.

(75) Inventors: **Balu Balakrishnan**, Saratoga, CA (US); **Alex B. Djenguerian**, Saratoga, CA (US); **Kent Wong**, Fremont, CA (US); **David Michael Hugh Matthews**, Windsor (GB)

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Primary Examiner—Rajnikant B Patel

(74) *Attorney, Agent, or Firm*—Blakely Sokoloff Taylor & Zafman, LLP

(73) Assignee: **Power Integrations, Inc.**, San Jose, CA (US)

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This patent is subject to a terminal disclaimer.

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(65) **Prior Publication Data**

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Related U.S. Application Data

(63) Continuation of application No. 11/784,560, filed on Apr. 6, 2007, now Pat. No. 7,646,184, which is a continuation of application No. 11/397,524, filed on Apr. 3, 2006, now Pat. No. 7,215,105, which is a continuation of application No. 10/892,300, filed on Jul. 15, 2004, now Pat. No. 7,110,270, which is a continuation of application No. 10/253,307, filed on Sep. 23, 2002, now Pat. No. 6,781,357.

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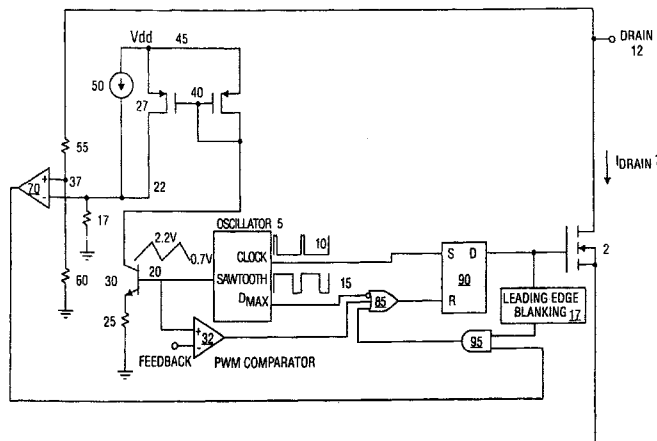
(51) **Int. Cl.**
G05F 1/40

(2006.01)

(57) **ABSTRACT**

A power supply regulator including a variable current limit threshold that increases during an on time of a switch. In one aspect, a power supply regulator includes a comparator that has a first input coupled to sense a voltage representative of a current flowing through a switch during an on time of the switch. The comparator has a second input coupled to receive a variable current limit threshold that increases during the on time of the switch. A feedback circuit is coupled to receive a feedback signal representative of an output voltage at an output of a power supply. A control circuit is coupled to generate a control signal in response to an output of the comparator and in response to an output of the feedback circuit. The control signal is to be coupled to a control terminal of the switch to control switching of the switch.

12 Claims, 5 Drawing Sheets



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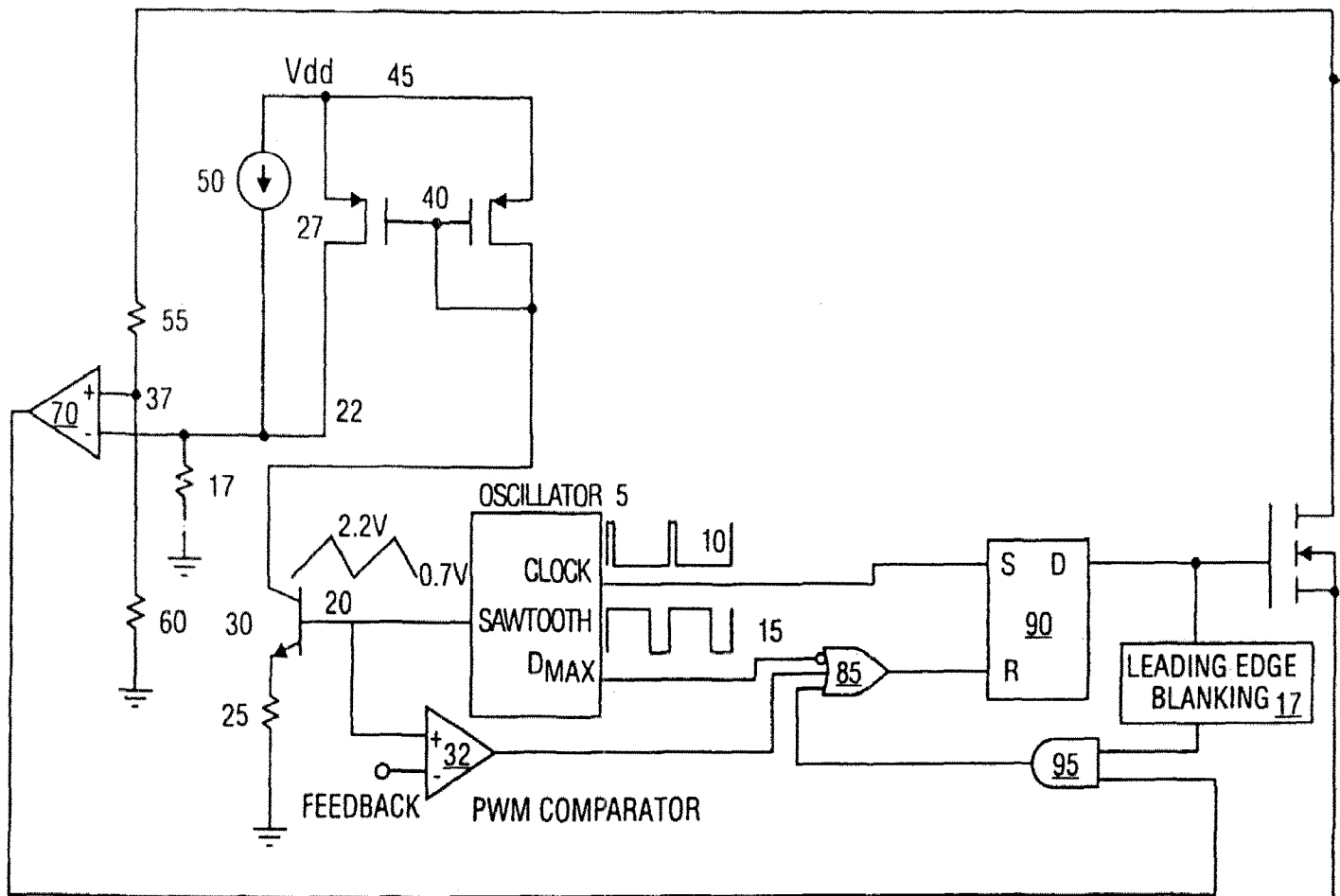


FIG. 1

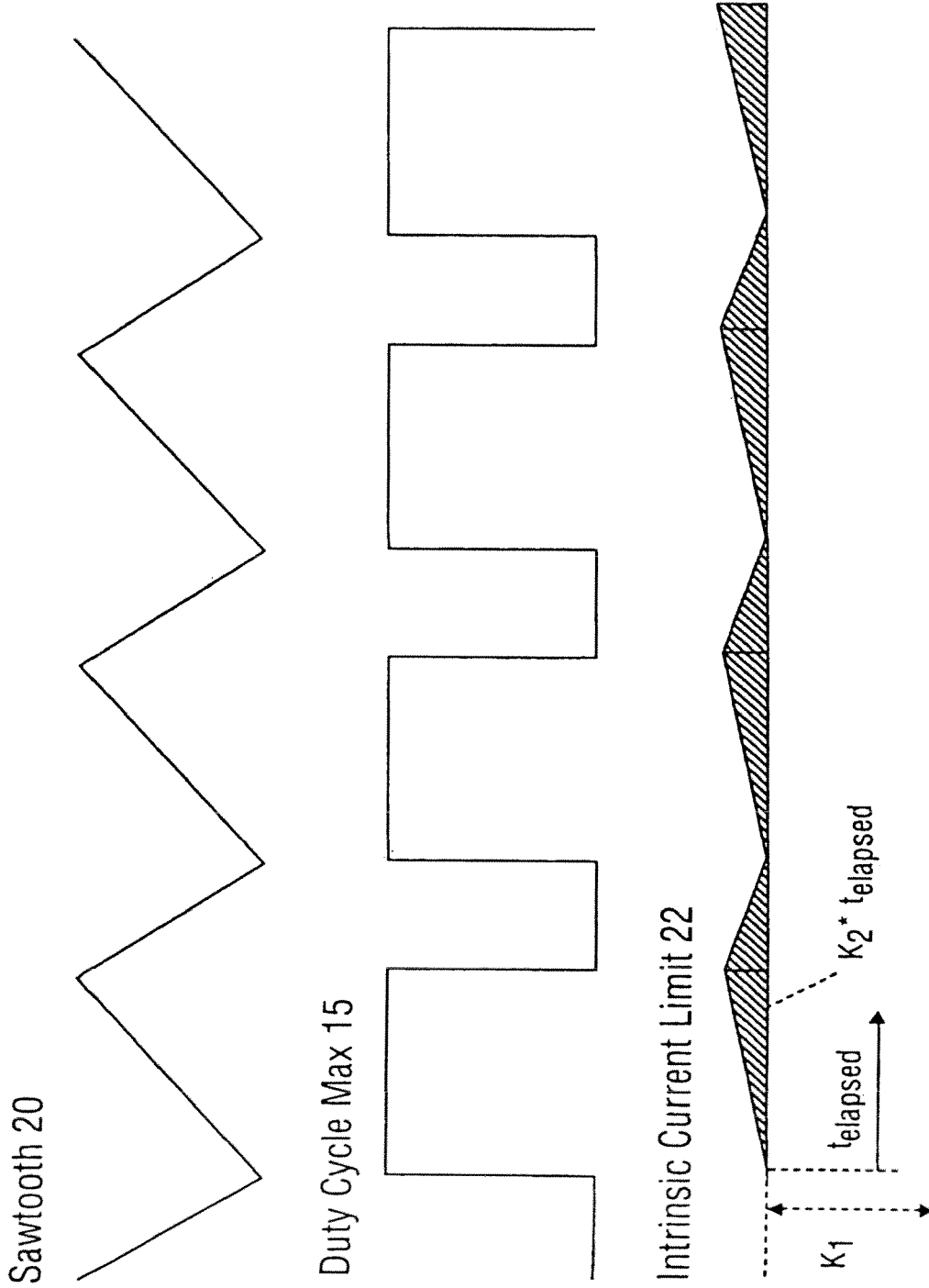


FIG. 2

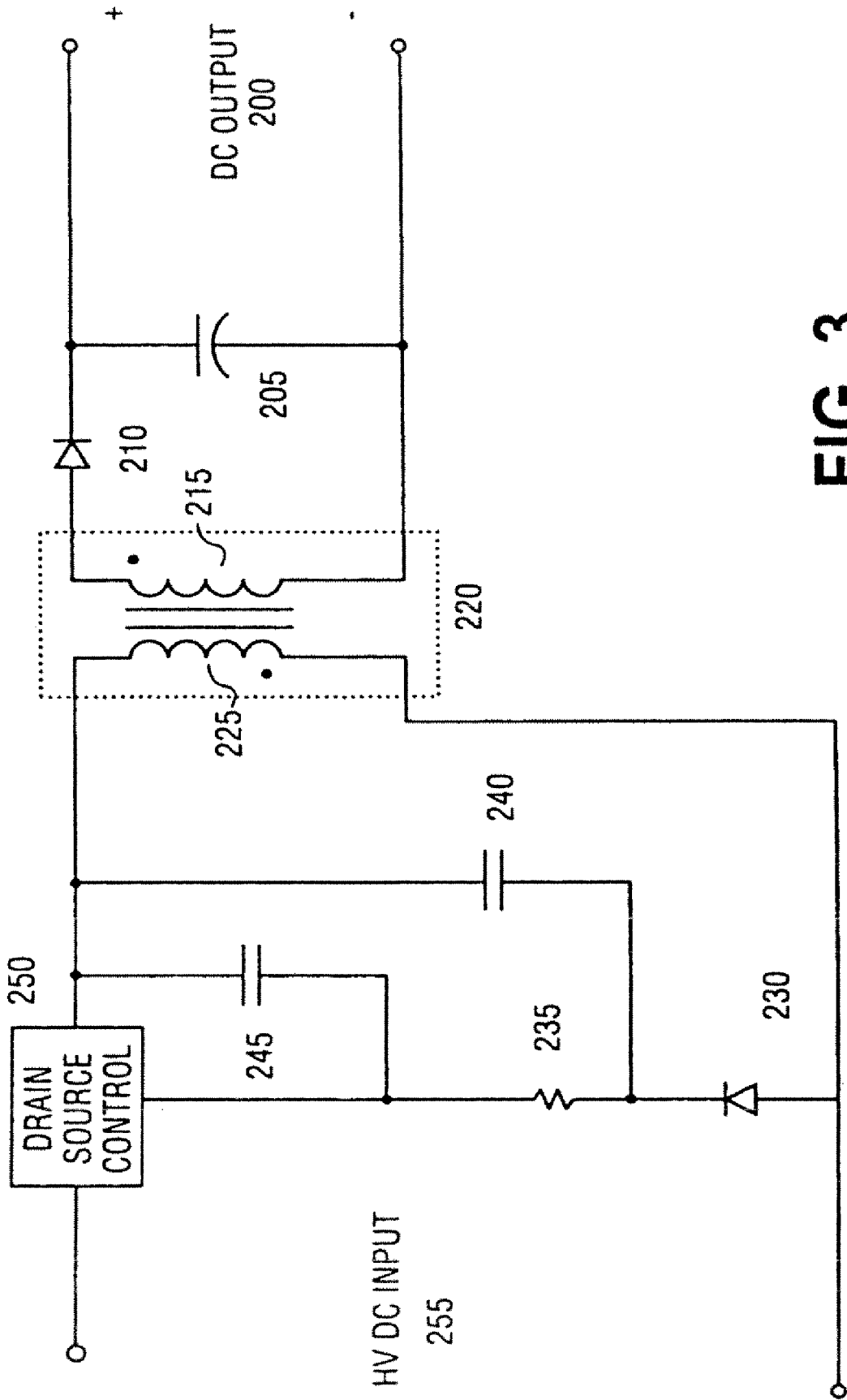


FIG. 3

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