



US006046577A

United States Patent [19]

Rincon-Mora et al.

[11] Patent Number: **6,046,577**

[45] Date of Patent: **Apr. 4, 2000**

[54] **LOW-DROPOUT VOLTAGE REGULATOR INCORPORATING A CURRENT EFFICIENT TRANSIENT RESPONSE BOOST CIRCUIT**

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[57] **ABSTRACT**

[21] Appl. No.: **09/001,057**

An improved low-dropout (“LDO”) voltage regulator incorporates a transient response boost circuit which is added to the slew-rate limited node at the control terminal of the LDO voltage regulator output transistor and provides improved transient response performance to the application of various load current step stimuli while requiring no standby or quiescent current during zero output current load conditions. The transient boost circuit supplies current to the slew-rate limited node only upon demand and may be constructed as either a localized positive feedback loop or a number of switching devices which conduct current only during slew-rate conditions.

[22] Filed: **Dec. 30, 1997**

Related U.S. Application Data

[60] Provisional application No. 60/035,726, Jan. 2, 1997.

[51] **Int. Cl.**⁷ **G05F 1/40**

[52] **U.S. Cl.** **323/282; 323/279; 323/280; 323/281**

[58] **Field of Search** 323/282, 280, 323/281, 276, 279

[56] **References Cited**

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32 Claims, 3 Drawing Sheets



