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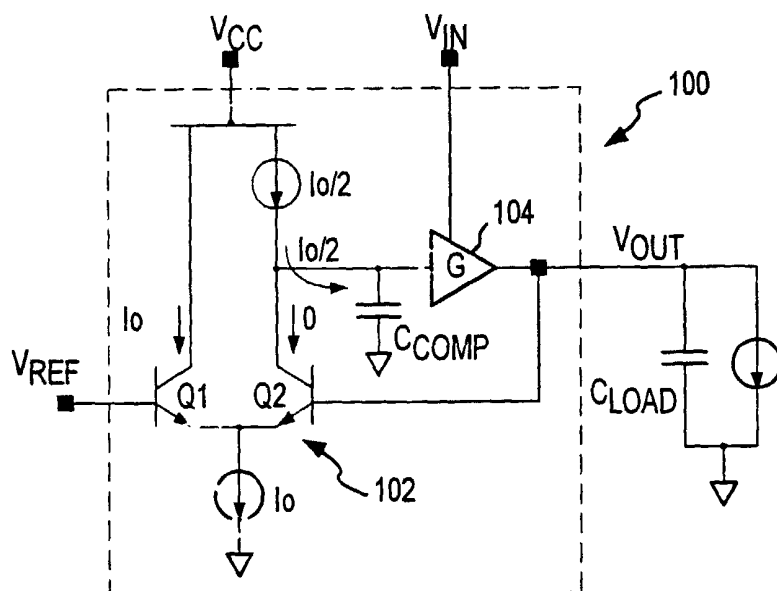
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(54) Title: WIDEBAND REGULATOR WITH FAST TRANSIENT SUPPRESSION CIRCUITRY



(57) Abstract: A wideband voltage regulator is configured to provide suppression of fast transients, which can include a boosting circuit and a sensing circuit. The boosting circuit can be suitably configured to boost the voltage regulator response, while the sensing circuit can determine when such a boost may be desired. Accordingly, the response of the voltage regulator can be accelerated to a fast load transient beyond the closed loop bandwidth limited response or the slew rate limited response of the voltage regulator. An exemplary voltage regulator can be configured with an active sensing circuit comprising a sensing amplifier with switch control outputs, and a boosting circuit comprising N stored charge sources, e.g., boost capacitors, and (3N-1) switches that are configured to accelerate the voltage regulators response to a fast load transient beyond

the closed loop bandwidth limited or slew rate limited response of the voltage regulator. The sensing circuit can determine when to switch the state of the stored charge sources by comparison of the output voltage of the regulator to a constant reference voltage. In addition, the sensing circuit can switch the state of the boost capacitors by comparing the voltage drop across the parasitic inductance between the voltage regulator output and the load to a constant reference voltage, or by comparing the difference between the voltage drop across the parasitic inductance of the supply side and the ground return of the load. Further, the sensing circuit can be triggered on a one-shot basis with preset pulse width, or by any other suitable trigger methodology. Still further, a differential offset voltage can be added to the sense amplifier to suitably adjust or configure the sensitivity of the sensing circuit.

WO 02/19487 A3



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INTERNATIONAL SEARCH REPORT

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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G05F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4 341 990 A (DAVIS WILLIAM F) 27 July 1982 (1982-07-27) the whole document ---	1-36
A	US 6 058 488 A (MCNAMARA TIMOTHY GERARD ET AL) 2 May 2000 (2000-05-02) the whole document ---	1, 17, 28
A	US 5 672 959 A (DER LAWRENCE) 30 September 1997 (1997-09-30) abstract ---	1, 17, 28
A	US 6 104 179 A (YUKAWA AKIRA) 15 August 2000 (2000-08-15) abstract -----	1, 17, 28



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Patent family members are listed in annex.

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INTERNATIONAL SEARCH REPORT

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