



(54) **POWER CONVERSION CIRCUIT FOR QUICK RESPONSE AND SWITCHING POWER SUPPLY**

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(21) Appl. No.: **18/399,866**

(22) Filed: **Dec. 29, 2023**

(30) **Foreign Application Priority Data**
Dec. 29, 2022 (CN) 202211705781.5
Dec. 29, 2022 (CN) 202211705782.X

Publication Classification
(51) **Int. Cl.**
H05B 45/325 (2006.01)
H05B 45/375 (2006.01)
H05B 45/38 (2006.01)

(52) **U.S. Cl.**
CPC **H05B 45/325** (2020.01); **H05B 45/375** (2020.01); **H05B 45/38** (2020.01)

(57) **ABSTRACT**

Disclosed is a power conversion circuit for quick response and a switching power supply, wherein an error compensation signal is obtained according to a sampled signal representing an output feedback signal or an average current through the inductor. A PWM control signal is generated according to the error compensation signal, a ramp signal, and a proportional signal, and is used to control switching operations of a main power switch transistor, the proportional signal is proportional to an input voltage or/and an output voltage, thus the system can quickly respond to transient change of the input voltage or the output signal and provide stable output. Output voltage information or/and input voltage information can be fed back to a control loop, thus the system can quickly obtain a switching duty cycle which allows the system to operate in a state close to steady, and dynamic response speed of the system is fast.

