



US 20240237169A1

(19) **United States**

(12) **Patent Application Publication**
TANG et al.

(10) **Pub. No.: US 2024/0237169 A1**

(43) **Pub. Date: Jul. 11, 2024**

(54) **LED DRIVER DIMMING CONTROL**

(52) **U.S. Cl.**

CPC **H05B 45/325** (2020.01); **H05B 45/10** (2020.01)

(71) Applicant: **TEXAS INSTRUMENTS
INCORPORATED**, Dallas, TX (US)

(57) **ABSTRACT**

(72) Inventors: **Yichao TANG**, Shanghai (CN); **Jiana LOU**, Shanghai (CN)

A light emitting diode (LED) dimming circuit includes an amplifier, a switch, a pulse extension circuit, and a reference shaping circuit. The amplifier has an amplifier output, a first amplifier input, and a second amplifier input. The first amplifier input is coupled to a current sense terminal. The switch has a first switch terminal, a second switch terminal, and a switch control input. The first switch terminal is coupled to the amplifier output. The pulse extension circuit has an extended pulse output and a pulse input. The extended pulse output is coupled to the switch control input. The pulse input is coupled to a pulse width modulation (PWM) terminal. The reference shaping circuit has a reference input and reference control input. The reference input is coupled to the second amplifier input. The reference control input is coupled to the PWM terminal.

(21) Appl. No.: **18/150,839**

(22) Filed: **Jan. 6, 2023**

Publication Classification

(51) **Int. Cl.**
H05B 45/325 (2006.01)
H05B 45/10 (2006.01)

