



US 20240178820A1

(19) **United States**

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

(10) **Pub. No.: US 2024/0178820 A1**

(43) **Pub. Date: May 30, 2024**

(54) **CLOCK DISTRIBUTION WITH
TRANSIMPEDANCE AMPLIFIER AND
BIQUAD FILTER**

H03H 11/04 (2006.01)

H03K 17/687 (2006.01)

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

CPC **H03K 3/012** (2013.01); **H03F 3/45179**

(2013.01); **H03H 11/04** (2013.01); **H03K**

17/6871 (2013.01)

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

(72) Inventors: **Hesam ASLAN**, San Jose, CA (US);
Ramsin ZIAZADEH, San Jose, CA
(US)

(21) Appl. No.: **18/059,599**

(22) Filed: **Nov. 29, 2022**

Publication Classification

(51) **Int. Cl.**

H03K 3/012 (2006.01)

H03F 3/45 (2006.01)

(57)

ABSTRACT

An integrated circuit (IC) includes a voltage-to-current converter circuit having a first voltage terminal, a second voltage terminal, a first current terminal, and a second current terminal. A transimpedance amplifier (TIA) and biquad filter circuit has a first TIA and biquad filter input coupled to the first current terminal and has a second TIA and biquad filter input coupled to the second current terminal. The transimpedance amplifier includes cross-coupled transistors configured to use positive feedback.

