



US 20220385254A1

(19) **United States**(12) **Patent Application Publication****Park et al.**(10) **Pub. No.: US 2022/0385254 A1**(43) **Pub. Date: Dec. 1, 2022**(54) **DIFFERENTIAL AMPLIFIER AND METHOD FOR ENHANCING GAIN OF A DIFFERENTIAL AMPLIFIER****Publication Classification**(51) **Int. Cl.**
H03G 3/30 (2006.01)**H03F 3/45** (2006.01)(52) **U.S. Cl.**
CPC **H03G 3/30** (2013.01); **H03F 3/45475**
(2013.01); **H03G 2201/103** (2013.01)(71) Applicants: **IMEC VZW**, Leuven (BE); **VRIJE UNIVERSITEIT BRUSSEL**, Brussel (BE)(72) Inventors: **Sehoon Park**, Heverlee (BE); **Daewoong Park**, Heverlee (BE); **Pierre Wambacq**, Groot-Bijgaarden (BE); **Jan Craninckx**, Boutersem (BE)(57) **ABSTRACT**

A differential amplifier is provided. The differential amplifier includes a first single-ended amplifying means including at least a first terminal and a second terminal, a second single-ended amplifying means including at least a first terminal and a second terminal, a first transmission line, and a second transmission line. In this context, the first terminal of the first single-ended amplifying means is connected to the second terminal of the second single-ended amplifying means via the first transmission line. In addition to this, the first terminal of the second single-ended amplifying means is connected to the second terminal of the first single-ended amplifying means via the second transmission line.

(21) Appl. No.: **17/826,692**(22) Filed: **May 27, 2022**(30) **Foreign Application Priority Data**

May 28, 2021 (EP) 21176438.6

