



US 20230230879A1

(19) **United States**(12) **Patent Application Publication**
LIAO et al.(10) **Pub. No.: US 2023/0230879 A1**(43) **Pub. Date: Jul. 20, 2023**(54) **METHOD FOR FABRICATING
CONDUCTIVE FEATURE AND
SEMICONDUCTOR DEVICE**(71) Applicant: **NANYA TECHNOLOGY
CORPORATION**, New Taipei City
(TW)(72) Inventors: **CHE-HSIEN LIAO**, NEW TAIPEI
CITY (TW); **YU-CHANG CHANG**,
TAOYUAN CITY (TW)(21) Appl. No.: **17/578,679**(22) Filed: **Jan. 19, 2022****Publication Classification**(51) **Int. Cl.**
H01L 21/768 (2006.01)
H01L 27/108 (2006.01)(52) **U.S. Cl.**
CPC .. **H01L 21/76861** (2013.01); **H01L 21/76876**
(2013.01); **H01L 21/76843** (2013.01); **H01L**
27/10891 (2013.01); **H01L 21/7684** (2013.01)(57) **ABSTRACT**

The present application discloses method for fabricating a conductive feature and a method for fabricating a semiconductor device. The method includes providing a substrate; forming a recess in the substrate; conformally forming a first nucleation layer in the recess; performing a post-treatment to the first nucleation layer; and forming a first bulk layer on the first nucleation layer to fill the recess. The first nucleation layer and the first bulk layer configure the conductive feature. The first nucleation layer and the first bulk layer include tungsten. The post-treatment includes a borane-containing reducing agent.

