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**LIANG et al.**(10) **Pub. No.: US 2023/0230916 A1**(43) **Pub. Date: Jul. 20, 2023**(54) **SEMICONDUCTOR DEVICE AND METHOD  
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**ABSTRACT**

A method for manufacturing a semiconductor device includes: forming a lower metal contact in a trench of a first dielectric structure, the lower metal contact having a height less than a depth of the trench and being made of a first metal material; forming an upper metal contact to fill the trench and to be in contact with the lower metal contact, the upper metal contact being formed of a second metal material different from the first metal material and having a bottom surface with a dimension the same as a dimension of a top surface of the lower metal contact; forming a second dielectric structure on the first dielectric structure; and forming a via contact penetrating through the second dielectric structure to be electrically connected to the upper metal contact, the via contact being formed of a metal material the same as the second metal material.

