

ABSTRACT

A semiconductor device including high-integrated memory cells and a method for fabricating the semiconductor device is provided.

- 5 The semiconductor device includes a vertical arrangement and a horizontal arrangement of nano sheets; horizontal conductive lines that surround the horizontal arrangement of the nano sheets; pads coupled to edge portions of the horizontal conductive lines; inter-pad dielectric layers disposed between the pads; contact plugs each coupled to a
- 10 different one of the pads; and contact spacers each including a first low-k material and each formed on a sidewall of each of the contact plugs.

FIG.4D