

ABSTRACT OF THE DISCLOSURE

SEMICONDUCTOR DEVICE AND METHOD FOR MANUFACTURING THE SEMICONDUCTOR DEVICE

5

First to third insulators are successively formed in this order over a first conductor over a semiconductor substrate; a hard mask with a first opening is formed thereover; a resist mask with a second opening is formed thereover; a third opening is formed in the third insulator; a fourth opening is formed in the second insulator; the resist mask is removed; a fifth opening is formed in the first to third insulators; a second conductor is formed to cover an inner wall and a bottom surface of the fifth opening; a third conductor is formed thereover; polishing treatment is performed so that the hard mask is removed, and that levels of top surfaces of the second and third conductors and the third insulator are substantially equal to each other; and an oxide semiconductor is formed thereover. The second insulator is less permeable to hydrogen than the first and third insulators, the second conductor is less permeable to hydrogen than the third conductor.

10

Fig. 4A