

ABSTRACT

A semiconductor device includes a substrate, a bottom electrode on the substrate, a first support layer on the substrate next to a sidewall of the bottom electrode, a dielectric layer covering the sidewall and a top surface of the bottom electrode, and a top electrode on the dielectric layer. The bottom electrode includes a first part having a plurality of protrusions that protrude from a sidewall of the first part. The first part of the bottom electrode may be on the first support layer.

FIG. 2