

CONTACTS FOR SEMICONDUCTOR DEVICES

Abstract

- A semiconductor device substrate (10, 11) has a major surface on which is located an insulating layer (12), such as silicon dioxide, having an aperture
- 5 penetrating through it all the way down to the major surface. An impurity-doped plug (13), such as tungsten doped with zinc, is spatially selectively deposited in the aperture to a thickness such that the height of the plug is significantly less than the height of the aperture in the insulating layer, by means of a rapid-thermal-cycle low-pressure-metalorganic-chemical vapor deposition (RTC-LP-MOCVD) process.
- 10 Then another plug (14), composed of (pure) electrically conductive barrier metal such as tungsten, is deposited on at least the entire top surface of the impurity-doped plug and on the sidewalls of the insulating layer. The structure being fabricated can then be heated, in order to diffuse the impurity into the underlying semiconductor device substrate. A metallization layer (15) such as titanium/platinum/gold can be
- 15 deposited on the (pure) conductive barrier metal and patterned, in order to supply a desired access metallization for the device.

This Sheet Has Been Replaced

