

## ABSTRACT

### MASK BLANK, TRANSFER MASK, AND METHOD OF MANUFACTURING SEMICONDUCTOR DEVICE

Provided is a mask blank including a light shielding film pattern having high ArF light fastness to solve a problem of detection sensitivity that becomes insufficient during mark detection using long-wavelength light having a wavelength of 800 nm or more and 900 nm or less.

A mask blank includes a light shielding film on a transparent substrate. In the mask blank, the light shielding film is a single layer film formed of a material containing silicon and nitrogen, and the light shielding film has an optical density to an ArF excimer laser exposure light of 2.5 or more, a surface reflectance to the exposure light of 40% or less, a back-surface reflectance to the exposure light of 40% or less, a transmittance to a light having a wavelength of 900 nm of 50% or less, an extinction coefficient to a light having a wavelength of 900 nm of 0.04 or more, and a thickness of 60 nm or less.

FIG. 1