

PHOTOMASK BLANK, METHOD FOR MANUFACTURING PHOTOMASK,
AND METHOD FOR MANUFACTURING PHASE SHIFT MASK

ABSTRACT

A light-shielding film 2 formed on a transparent substrate 1 has a monolayer structure or a multilayer structure. At least one layer is formed by film-formation with a chromium-containing material including tin. The light-shielding film 2 has an optical density of 2 or higher and 4 or lower and has a reflection-preventing function. The layer made of a chromium-containing material including tin, which constitutes the light-shielding film 2, can cause a significant increase in the etching rate at the time of chlorine-containing dry etching including oxygen. Thus, burden on the resist pattern or hard mask pattern at the time of transferring a pattern on the light-shielding film is reduced, and therefore it is possible to carry out pattern transfer with high precision.

Fig. 1