

CONDUCTIVE FILM COATED SUBSTRATE, MULTILAYER REFLECTIVE FILM COATED SUBSTRATE, REFLECTIVE MASK BLANK, REFLECTIVE MASK, AND SEMICONDUCTOR DEVICE MANUFACTURING METHOD

ABSTRACT

A conductive film coated substrate includes a conductive film formed on a mask blank substrate. In a frequency distribution chart where a relationship between a bearing depth obtained by measuring, with an atomic force microscope, a region of $1\ \mu\text{m} \times 1\ \mu\text{m}$ of a surface of the conductive film and a frequency (%) of the bearing depth is plotted, an absolute value of a bearing depth corresponding to a center of a full width at half maximum, which is determined from an approximated curve drawn through the plotted points or a highest frequency of the plotted points, is smaller than an absolute value of the bearing depth corresponding to $1/2$ of a maximum height (R_{max}) of surface roughness of the surface of the conductive film, and the maximum height (R_{max}) is 1.3 nm or more and 15 nm or less.

(Fig. 11)