

ABSTRACT

MULTILAYERED-REFLECTIVE-FILM-PROVIDED SUBSTRATE, REFLECTIVE MASK BLANK, REFLECTIVE MASK, METHOD OF MANUFACTURING REFLECTIVE MASK, AND METHOD OF MANUFACTURING SEMICONDUCTOR DEVICE

A multilayered-reflective-film-provided substrate includes: a substrate; a multilayered reflective film provided on the substrate; and a protective film provided on the multilayered reflective film, in which the protective film includes ruthenium (Ru) and at least one additive material selected from aluminum (Al), yttrium (Y), zirconium (Zr), rhodium (Rh), and hafnium (Hf), and a content of the additive material is 5% or more by atom and less than 50% by atom.

FIG. 1