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NEAR-FIELD OPTICAL STORAGE MEDIUM AND OPTICAL DATA STORAGE SYSTEM THEREFOR

ABSTRACT OF THE DISCLOSURE

An optical data storage system writes or reads information with respect to an optical storage medium using an optical pickup including a solid-state immersion optical system or solid-state immersion lens for generating the near-field. The optical storage medium includes a recording layer which is put on one surface opposing the other surface of an optical transmissive layer opposing the solid-state immersion optical system or solid-state immersion lens. The thickness of the optical transmissive layer is larger than one wavelength of light used. The interval between the surfaces of the solid-state immersion lens or solid-state immersion optical system and the optical transmissive layer is smaller than one wavelength of the used light. Thus, the light beam reflected from the inside of an air gap and the inside of the storage medium between the air gap and the recording layer does not function as noise with respect to the light reflected from the recording layer. Also, since the thickness of a protective layer or a substrate which is an external surface of the optical storage medium can be thickened, information can be written or read with respect to the optical storage medium having dust and damage.

Figure 7