

ABSTRACT OF THE DISCLOSURE

A light-coupling device includes an interposer, an optical chip, an optical waveguide element and a fiber array connector. The optical chip includes a waveguide layer with a light-emitting surface located aside the optical chip. The optical waveguide element includes an incident surface facing the light-emitting surface, an emergent surface located atop, and a reflective surface located inside. A light beam emitted horizontally from the light-emitting surface enters the optical waveguide element through the incident surface, totally reflected through the reflective surface and is output as a parallel light beam in the vertical direction through the emergent surface. The fiber array connector includes an optical waveguide lens and a plurality of fibers. The optical waveguide lens faces the emergent surface. One of both horizontal sides of the optical waveguide lens is a tilted reflective surface while the other is a light-coupling surface aligned with the fibers. The light beam is emitted from the emergent surface and enters the optical waveguide lens, totally reflected through the tilted reflective surface, and coupled to the fibers in the horizontal direction.

Fig. 1