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(54) Title: A FIDUCIAL FOR ALIGNING AN INTEGRATED CIRCUIT DIE

(57) Abstract

In one embodiment, the fiducial is configured to be exposed by laser chemical etching through a silicon substrate through the back side of a C4 packaged integrated circuit die. The presently described fiducial includes floating diffusion regions disposed in the substrate. An oxide layer free of metal contacts is disposed over the diffusion regions within the fiducial region of the integrated circuit. A metal pattern layer is disposed beneath the oxide layer to provide alignment information. The metal pattern layer is configured to be visible through the oxide layer after the silicon substrate has been removed from the fiducial region. A light block is disposed between the metal pattern layer and an underlying epoxy underfill layer to minimize the risk of an excessive amount of light from being exposed to the underlying epoxy layer, which minimizes the risk of the epoxy layer from damaging the integrated circuit from excessive light exposure. Since the presently described fiducial does not include any contacts in the oxide layer, the additional step of utilizing a focus ion beam mill is no longer necessary and the presently described fiducial therefore only needs to be etched with a laser chemical etcher to be exposed.

