

ABSTRACT OF THE DISCLOSURE

A solid state drive apparatus includes a housing having an inner space and a plurality of vent channels penetrating a first side wall at a first side of the housing and a connector opening penetrating a second side wall at a second side of the housing opposite the first side of the housing, and a package substrate module in the inner space and having a package base substrate and a plurality of semiconductor chips mounted on the package base substrate. Each of the plurality of vent channels extends inwardly from an outer surface of the first side wall to an inner surface of the first side wall such that a vertical level of at least a portion of each of the plurality of vent channels varies between the outer surface and the inner surface.

FIG. 1A