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(54) Title: FABRICATION OF A SEMICONDUCTOR DEVICE WITH AIR GAPS FOR ULTRA-LOW CAPACITANCE INTERCONNECTIONS

(57) Abstract

A method of forming an air gap (26) or gaps within solid structures and specifically semiconductor structures to reduce capacitive coupling between electrical elements such as metal lines, wherein a norbornene-type polymer is used as a sacrificial material (20) to occupy a closed interior volume in a semiconductor structure. The sacrificial material (20) is caused to decompose into one or more gaseous decomposition products which are removed, preferably by diffusion, through an overcoat layer (24). The decomposition of the sacrificial material leaves an air gap or gaps (26) at the closed interior volume previously occupied by the norbornene-type polymer. The air gaps may be disposed between electrical leads to minimize capacitive coupling therebetween.

