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(54) Title: NOVEL UNDERFILL MATERIAL HAVING ENHANCED ADHESION

(57) Abstract: An underfill composition with enhanced adhesion and improved resistance to cracking comprising an epoxy resin in combination with a difunctional siloxane anhydride epoxy hardener and optional reagents. In some embodiments, the epoxy resin includes a functionalized colloidal silica filler having a particle size ranging from about 1 nm to about 500 nm. The difunctional siloxane anhydride epoxy hardener can optionally be combined with liquid anhydride epoxy hardeners. Cure catalysts, hydroxyl-containing monomers, adhesion promoters, flame retardants and defoaming agents may also be added to the composition. Further embodiments of the present disclosure include packaged solid state devices comprising the underfill compositions.

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