REPLACEMENT SHEET 09 APR 2002

~~24~~

FLIP-CHIP PACKAGE WITH OPTIMIZED ENCAPSULANT ADHESION AND METHOD

ABSTRACT

An electronic module having enhanced adhesion at the chip passivation and underfill interface, and a method of assembling the electronic module, id disclosed. The surface of the chip passivation is chemically modified to a sufficient depth such that the cured passivation is more reactive. The modified surface is treated with a polyamine preferably preferably having a cyclic amine group extending from a preferably aliphatic backbone. During reflow of the solder joints (10) of the electronic module by heating, the modified passivation (5) reacts with the polyamine at the amine functionality. Following uderfill of the electronic module with a polymeric material, the polyamine on the surface of the passivation reacts with the underfill material (15) during curing of the underfill material. The resulting electronic module is more robust since the amine acts as a chemical anchoring site for both the modified passivation and the underfill material.

FIG 3



