

Title (en)

LEAD-FREE ALLOYS WITH IMPROVED WETTING PROPERTIES

Title (de)

BLEIFREIE LEGIERUNGEN MIT VERBESSERTEM VERNETZUNGSVERHALTEN

Title (fr)

ALLIAGES SANS PLOMB A PROPRIETES D'AGENT MOUILLANT AMELIOREES

Publication

EP 1309447 A4 20051109 (EN)

Application

EP 01984406 A 20010718

Priority

- US 0122778 W 20010718
- US 22182000 P 20000731

Abstract (en)

[origin: WO0209936A1] An electronic device has a die that is attached to a metallic contact of a substrate via a coupling layer. The coupling layer comprises an alloy of at least two metals selected from the group consisting of Zn, Al, Mg, and Ga, and further comprises at least one sacrificial chemical element other than Zn, Al, Mg, and Ga at a concentration of 10-1000ppm with an oxygen affinity higher than the alloy. Alternative alloys comprise at least two metals selected from the group consisting of Sn, Ag, Bi, Zn, and Cu, and at least one sacrificial chemical element other than Sn, Ag, Bi, Zn, and Cu. Still further contemplated alloys comprise at least two metals selected from the group consisting of Sn, Ag, Bi, and Sb, and at least one sacrificial chemical element other than Sn, Ag, Bi, and Sb. These Pb free alloys demonstrate improved wetting characteristics and can be used for high reliability soldering process for microelectronics applications.

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