Abstracts

Novel flip-chip bonding technology for W-band interconnections using alternate lead-free solder bumps

K. Onodera, T. Ishii, S. Aoyama, S. Sugitani and M. Tokumitsu. "Novel flip-chip bonding technology for W-band interconnections using alternate lead-free solder bumps." 2002 Microwave and Wireless Components Letters 12.10 (Oct. 2002 [MWCL]): 372-374.

A novel lead-free flip-chip technology for mounting high-speed compound semiconductor ICs, which have a relatively severe limitation regarding high-heat treatment, is presented. Solder bump interconnections of 0.95Sn-0.05Au were successfully fabricated by reflowing multilayer metal film at as low a temperature as 220/spl deg/C. The bumps were designed to have a diameter of 36 /spl mu/m with a gap between the chip and the motherboard of 24 /spl mu/m. The electrical characteristics of flip-chip-mounted coplanar waveguide chips were measured. The deterioration in reflection loss in the flip chip mounting was less than 3 dB for frequencies up to W-band.

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