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Cornelius

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(54) **WIRE BONDING METHOD AND APPARATUS FOR INTEGRATED CIRCUIT**

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(57) **ABSTRACT**

(51) **Int. Cl.**⁷ **H01L 23/498; H01L 21/60**

(52) **U.S. Cl.** **257/692; 438/125**

(58) **Field of Search** 257/692, 693, 257/695, 698, 700, 738, 758, 784, 786, 678, 257/688; 438/106, 125

Wire bonding methods and apparatuses are described herein. In one aspect of the invention, an exemplary apparatus includes a plurality of electrically conductive contacts disposed on a surface of the IC device, the plurality of electrically conductive contacts being disposed in at least two rows, a plurality of first return paths formed through some of the plurality of electrically conductive contacts, a plurality of signal paths formed through some of the plurality of electrically conductive contacts, and wherein at least one of the plurality of first return paths are placed between every predetermined number of the plurality of the signal paths. Other methods and apparatuses are also described.

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33 Claims, 24 Drawing Sheets

