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Bridge Connection for Wirebonding in Large Semiconductor QFN Packages

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Abstract*—*The paper presents a solution to long wire connection in large semiconductor quad flat no-leads (QFN) packages using wirebond bridge connection.

***Keywords*— *Wirebond; bridge connection; QFN; semiconductor*.**

I. BACKGROUND OF THE STUDY

- For large quad flat no-leads (QFN) packages in terms of dimension and/or input/output (I/O) pin requirement, long wire connections may be inevitable

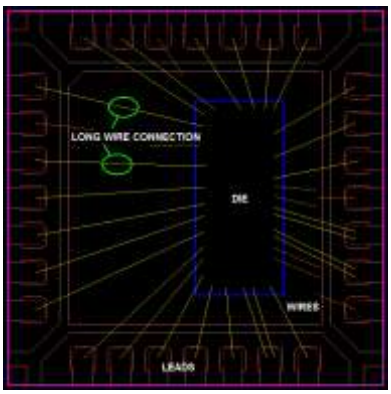

Fig. 1. Semiconductor QFN package design with long wires.

- Consequently, long wires might sag or be swept during molding process

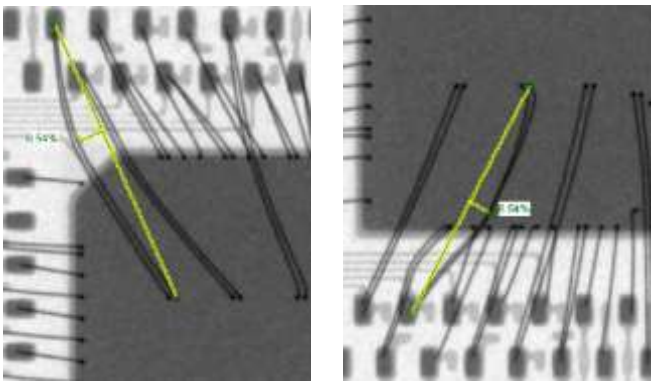

Fig. 2. X-ray images showing wire sweep or sway on actual QFN package.

- As the semiconductor QFN package becomes bigger, i.e. with body sizes greater than 5mm x 5mm and I/O pin or lead count of 28 or more, and with relatively small active die, the risk of having wire sweep increases due to long wire connections

II. DESIGN SOLUTION

- To address the issue of long wire connection, wirebond bridge connection could be employed

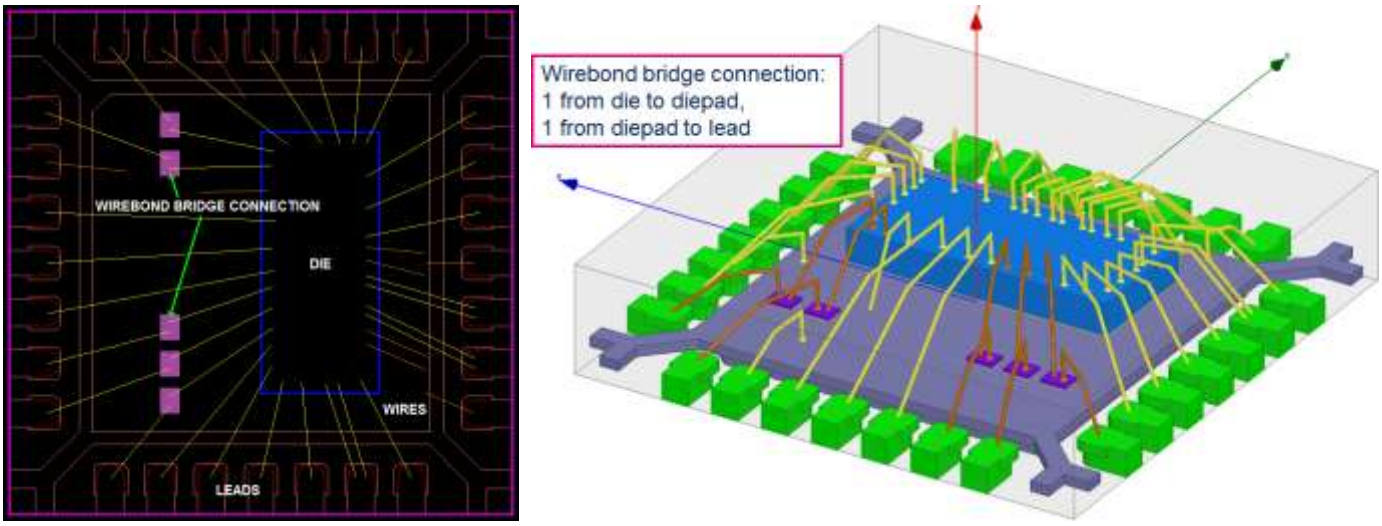

Fig. 3. Semiconductor QFN package design with wirebond bridge connection.

- Wirebond bridge connection prevents long wires that may sag or be swept during molding process

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