

# Restructuring a QFN I/O-Bondpad Interconnect for a Robust Wiring Configuration

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**Keywords**— Wire sway; Semiconductor Die; Mold fillers; Process and Design Improvements.

## I. OVERVIEW

- Wire sway is the common terminology used in integrated circuit assembly to describe the change or displacement of the wire loop structure of a package during molding process.
- The collision of epoxy mold fillers to the wire looping structure during encapsulation process creates certain shift in the wire structure.

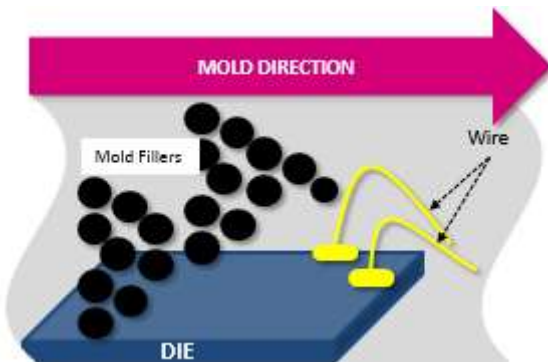


Fig. 1. Illustration of encapsulation process with epoxy mold compound

- The wire perpendicular to the mold flow are usually affected with worst wire swaying.

## III. PACKAGE DESIGN SOLUTION

- A package with channelled metal layer leadframe design shortens the wire length needed to connect the silicon die bondpads to I/O (input/output). Shorter wire is more stiff and can withstand mold fillers

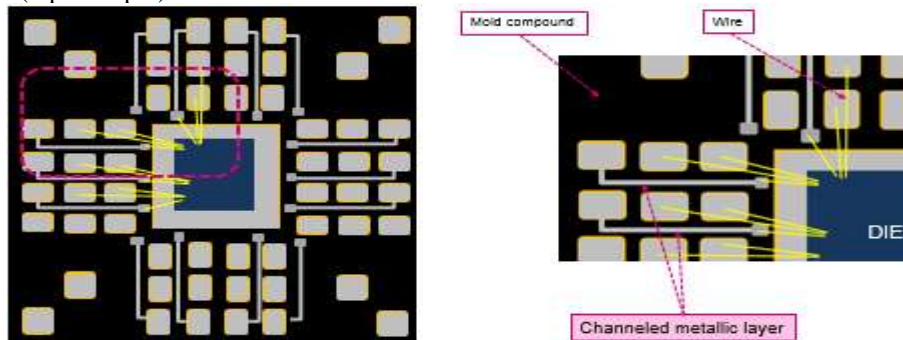


Fig. 3. Illustration of a device with channelled I/O interconnects.

- The routing of the I/O interconnects can be maximize through available spaces inside the package

## II. PROBLEM IDENTIFICATION

- The worst occurrence of wire sway during mold process creates a two neighboring wire to be electrically shorted thus affects the functionality of the product

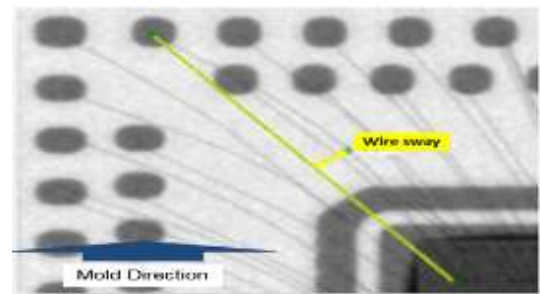


Fig. 2. Example of shorting of two neighboring wires.

- As the wire span or length of wire connection increases, the structure of the wire becomes weak and susceptible to displace when collided with mold fillers.