Lead Frame Delamination Improvement- No Ag Plating on Side Wall of LF

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Background:

Delamination still remains an issue now for QFP or L/TQFP, even when they are in mass production already. Delamination almost always occurs in Ag plating (interface between the molding compound & Ag) areas and sometimes penetrates into die pad areas (interface between the molding compound & Cu). (shown below in Fig. 1)

The interface between Ag and the molding compound is known for its poor adhesion (shown below in Fig. 1), so the objective for this invention is to reduce the Ag area of the ground ring. The actual products currently have Ag plating on the edges of pads and fingers, which is prone to delamination.

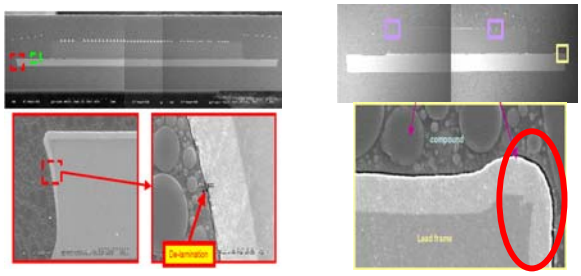

Fig. 1

Summary:

The objective of this invention is to have a smaller Ag plating area than that of the conventional process. Less Ag means better adhesion with the molding compound.

Detailed Description:

The difference between the current invention and the conventional process is that an extra stamping flow is added after the Ag plating process. In the conventional process, the leadframe is plated with Ag after the punching process, resulting in Ag plated on the edges of fingers and pads as well, as shown below in Fig. 2.

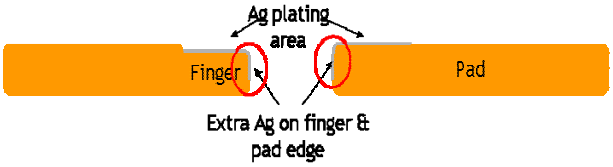

Fig. 2

An innovative process (as shown below in Fig. 3) is thus disclosed below: An extra space is intentionally added to the original size of the pad and fingers. After the Ag plating process, this extra space is stamped off, resulting in Ag covering the intended parts of the pad and fingers and not on the edges. This will improve the delamination issue significantly.

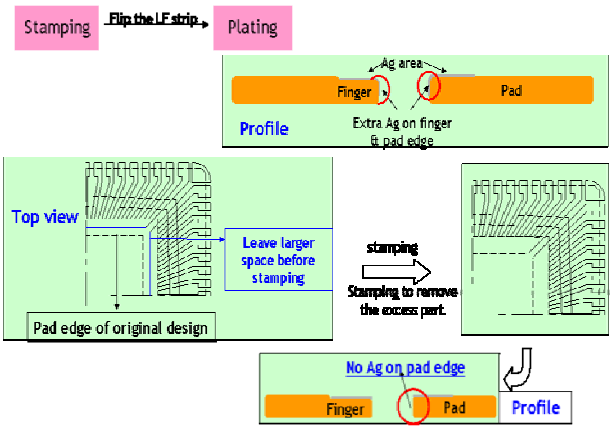

Fig. 3