

# Modified Indexer Top Plate for Micromodule thin Packages

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## I. OVERVIEW

Introduction of technology innovation in semiconductor industry are getting more complex in terms of materials, designs, processes and other factors that can cause issues. One major challenge in die attach is the design of the indexer top plate. This indexer top plate used to hold the tape during processing. This product application puts on smartphones, security devices and automated teller machine (ATM) cards. Fig. 1 shows the assembly process flow of the product and as high lightened by a red dotted line below is the process where the issue occur.



Fig. 1. Assembly process flow.

## II. PROBLEM IDENTIFICATION

One major reject seen during visual inspection, there was a dents underneath the tape. As highlighted in Fig. 2. This is mainly because of the screw hole touches below the tape during dispensing on the indexer top plate. This issue is very critical at die attach process because this product is mounted on ATM cards any abnormality seen is reject.

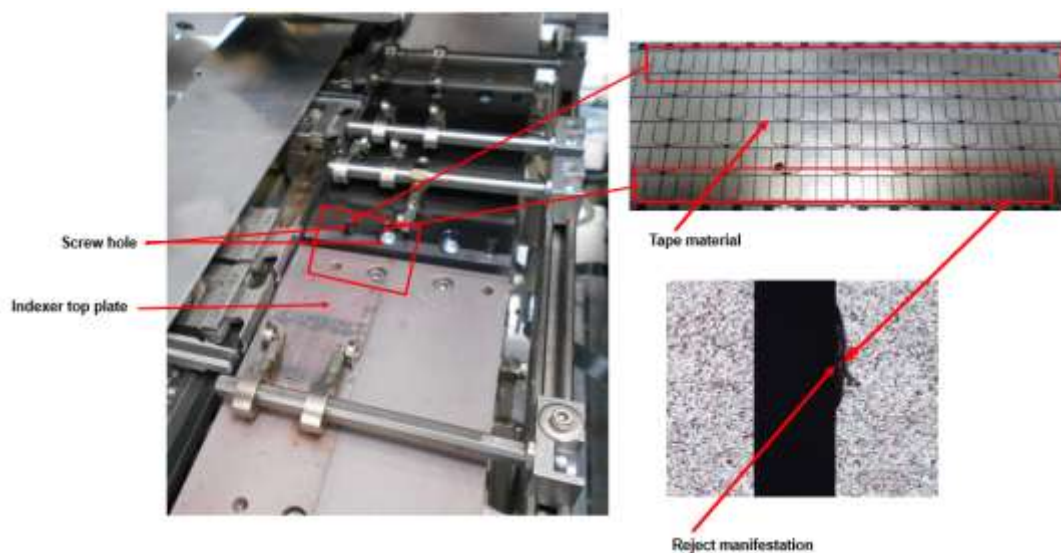


Fig. 2. Indexer top plate and reject manifestation.

With the dents seen, this reject manifestation can also have a high chance of delamination during the reliability testing of the product and the rising volume of this product in the market is a very big challenge to resolve this issue.

## III. SEMICONDUCTOR PACKAGE DESIGN SOLUTION

This improved semiconductor indexer top plate design is shown in Fig. 3 wherein the screw hole is already remove to eliminate the occurrence of dents on the tape.

**New improved indexer top plate**



Fig. 3. New improved indexer top plate

The advantage of this new improved indexer top plate design will have a better planarity during set up and less planarity calibration. This will also have a better response in reliability testing and no delamination occur.