FUJIFILM

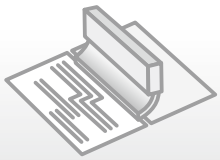
PRESCALE

Pressure Measurement Film

PRESCALE

Application Examples [No.4]

Measured Object



Squeegee Pressure of cream solder printers

Uses

- Installing cream solder printers
- Design of cream solder printers

Benefits

- Fewer defects
- Higher print quality
- Lower inspection costs

Industry

Printed Circuit Board (PCB) electronic component mounting

Applications

Measurement of squeegee pressure distribution during cream solder printing

Challenges

When cream solder is screen printed onto print substrates, any nonuniformity in the squeegee pressure distribution will result in uneven application of the cream solder. This can result in inadequate conduction and insufficient adhesion during subsequent component mounting; and in abnormal conduction when there is excessive solder present.

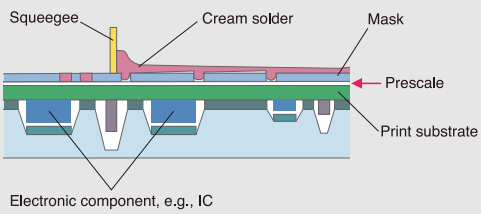
Despite the importance of squeegee pressure distribution, there was previously no method available to measure it.

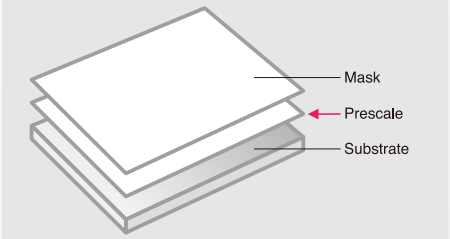
Measure-ment

Used product: Prescale (Extremely low pressure 4LW, Ultra low pressure LLLW)

Insert Prescale (4LW, LLLW) between the print substrate and the mask screen, move the squeegee over the mask screen, and then by examining the resulting color of the Prescale, check whether the pressure was uniformly applied.

- Check at a glance that the screen and squeegee are set parallel to the print substrate and that the print substrate is not warped or has an uneven thickness.
- In the increasingly used process of dual-side mounting, a cushioning support, hollowed out to accommodate the electronic components, is placed at the back of the substrate. If the support is hollowed out for a large number of parts, the pressure at areas where the support is not hollowed out can be significantly higher than that at the hollowed out areas for a given amount of squeegee contact. In this case, in order to ensure uniform application of pressure, it is not sufficient to maintain the squeegee parallel or to adjust the height of the support for uniformity.
- Since Prescale clearly displays the actual pressure between the squeegee and the printer substrate, it can be used to adjust the squeegee pressure and to develop effective guidelines for installing the support.

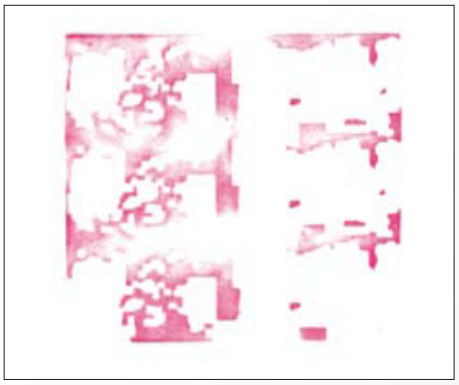




Results (images)

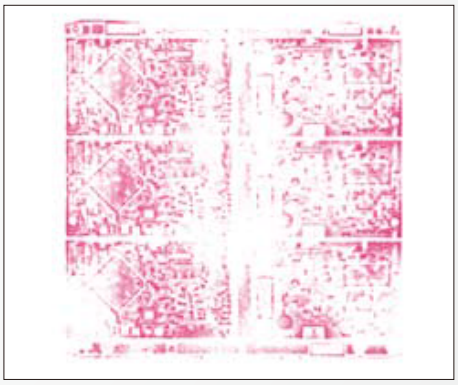
Not good

Squeegee pressure is uneven.



Good

Squeegee pressure is applied evenly.



Benefits of Prescale

Time savings

Without Prescale, applying cream solder uniformly is a time-consuming, trial-and-error process.

Material savings

Without Prescale, there are substantial losses in components and substrates (since this is a final process).

Quality improvement

Without Prescale, if problems are undetected poor quality products will be shipped.

Without using Prescale

If defects result from component mounting when Prescale is not used for pressure checking, **substantial losses in time/material/quality can occur. There is also a risk of shipping defective products.**

Using Prescale

Pressure can be checked when adjusting process conditions, enabling the number of defective products at the time of final inspection to be greatly reduced. As a result, inspection requires much less effort. Also, since checking can be performed offline when designing the support, defects at the manufacturing stage can be dealt with preventively.

*Note that the specifications and performance data described in this catalog are subject to change without notice, for the purpose of improvement. Since images are used for illustration purposes they may differ slightly from the actual product.

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