

SEMI G75.6-0698 (Reapproved 0706) TEST METHOD FOR MEASUREMENT OF THE SHRINKAGE FACTOR OF LEADFRAME TAPE

This standard was technically approved by the global Assembly & Packaging Committee. This edition was approved for publication by the global Audits and Reviews Subcommittee on May 16, 2006. It was available at www.semi.org in June 2006 and on CD-ROM in July 2006. Originally published June 1998.

1 Summary of Method

1.1 The length of tape samples is measured before and after exposure to temperatures comparable to those used in the assembly and packaging of IC. The shrinkage is calculated as a percentage in the dimension measured.

2 Equipment

- 2.1 Magnifying projector with 0.01 mm accuracy
- 2.2 Circulating air oven capable of $300 \pm 2^\circ\text{C}$ accuracy
- 2.3 Cutting die for sample preparation
- 2.4 Thermohygrostat
- 2.5 Straight edge
- 2.6 Scribing tool

3 Sampling

3.1 The sampling is one sample per one lot. The vendor must report the definition of lot, if the customer requires it.

4 Preparation of Specimens

- 4.1 Cut specimens out of the samples using the cutting die. The specimen shall be 100 ± 1 mm long and 10 ± 1 mm wide.
- 4.2 Allow the specimen to be stabilized at $23 \pm 2^\circ\text{C}$ and $50 \pm 5\%$ RH for 16 hours minimum. This may be carried out in a climate controlled room or in a thermohygrostat.
- 4.3 Using the straight edge and scribing tool, scribe marks on the specimens as shown in Figure 1. The marks shall be parallel to each edge of the specimen, and the distance to be measured, L , shall be parallel to the long side of the specimen. The mark shall be located within 5 mm of the ends of the specimen.

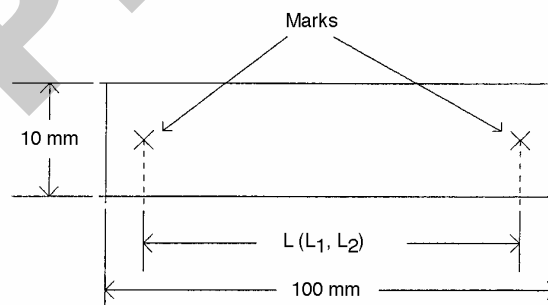


Figure 1
Size of a Marked Specimen

5 Test Conditions

- 5.1 *Baking Condition 1* — 100°C for 60 ± 1 minute.
- 5.2 *Baking Condition 2* — 200°C for 60 ± 1 minute.
- 5.3 *Baking Condition 3* — 300°C for 10 ± 0.5 minutes.

NOTE 1: Alternate temperatures may be used by agreement between vendor and customer.

6 Procedure

6.1 Place a specimen between the glass plates of the magnifying projector and measure the length, L_1 , between two marks (see Figure 1). Repeat this measurement for all specimens.

6.2 Place the specimen in the oven at the appropriate test condition.

6.3 Remove the specimens from the oven and store at $23 \pm 2^\circ\text{C}$ and $50 \pm 5\%$ RH for 16 hours minimum.

6.4 Place the specimens between the glass plates of the magnifying projector and measure the new length, L_2 , between two marks used in § 6.1.

6.5 Calculation

6.5.1 The shrinkage factor, A (%), is determined from the following equation:

$$A(\%) = \frac{(L_1 - L_2) \times 100}{L_1}$$

where :

L_1 is the length (mm) of the specimen
before baking

L_2 is the length (mm) of the specimen
after baking

7 Related Documents

7.1 JIS Specification¹

JIS K 6911 — Testing Methods for Thermosetting Plastics

NOTICE: SEMI makes no warranties or representations as to the suitability of the standard(s) set forth herein for any particular application. The determination of the suitability of the standard(s) is solely the responsibility of the user. Users are cautioned to refer to manufacturer's instructions, product labels, product data sheets, and other relevant literature respecting any materials or equipment mentioned herein. These standards are subject to change without notice.

By publication of this standard, Semiconductor Equipment and Materials International (SEMI) takes no position respecting the validity of any patent rights or copyrights asserted in connection with any item mentioned in this standard. Users of this standard are expressly advised that determination of any such patent rights or copyrights, and the risk of infringement of such rights are entirely their own responsibility.

¹ Japanese Standards Association, 1-24, Akasaka 4 Chome, Minato-ku, Tokyo, Japan