

SEMI G75.7-0698 (Reapproved 0706) TEST METHOD FOR MEASUREMENT OF THERMAL DECOMPOSITION TEMPERATURE OF LEADFRAME TAPE AND ADHESIVE

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 A thermogravimetric (TG) analyzer is used to monitor the weight of a tape sample as the temperature increases to 700°C. It should be made to measure the leadframe tape or the base film and the adhesive separately. The results are obtained as a plot of Weight Retention versus Temperature, from which the thermal decomposition temperature for both the base film and the adhesive may be obtained.

2 Equipment

2.1 Thermogravimetric (TG) analyzer capable of 0.01 mg accuracy.

2.2 Thermohygrostat

3 Sampling

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

4 Preparation of Specimens

4.1 Allow the samples to be stabilized at $23 \pm 5^\circ\text{C}$ and $50 \pm 5\%$ RH for 16 hours minimum. This may be carried out in a climate controlled room or in a thermohygrostat.

4.2 Cut specimens from the sample. The specimen shall weigh 10–20 mg.

NOTE 1: The base film before coating with the adhesive can be used for the test. The vendor has to ship the base film before coating with the adhesive, if customer requires it.

NOTE 2: The adhesive sample can be obtained by scraping the adhesive.

5 Equipment Setup and Calibration

5.1 Refer to Thermogravimetric Analyzer manufacturer's manual for setup and calibration procedures.

5.2 The ambient in the measurement shall be air.

6 Procedure

NOTE 3: The measurement of TG should be made to measure the leadframe tape or the base film and the adhesive separately.

6.1 Place the specimen in the platinum vessel.

6.2 Set the thermal ramp to $10 \pm 1^\circ\text{C}/\text{minute}$ and maximum temperature to 700°C.

6.3 Repeat for all specimens.

7 Method of Reading TG Curve

7.1 In Figure 1, the thermal decomposition is determined by the temperature at 5% of the weight loss.

8 Related Documents

8.1 *ASTM Specification*¹

ASTM D 3850 — Standard Test Method for Rapid Thermal Degradation of Solid Electrical Insulating Materials by Thermogravimetric Method

¹ American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428-2959, USA.
Telephone: 610.832.9585, Fax: 610.832.9555; Website: www.astm.org

8.2 JIS Specification²

JIS K 7120 — Testing Methods of Plastics by Thermogravimetry

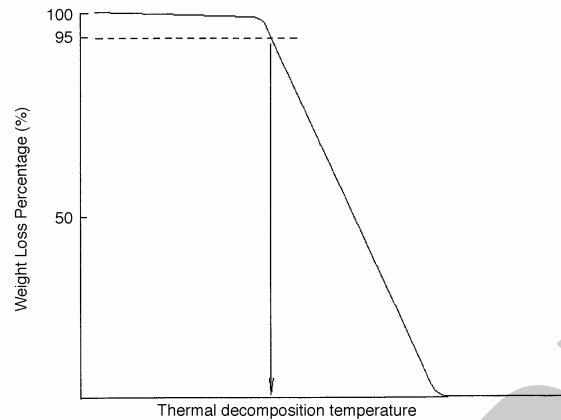


Figure 1
TG Curve of the Leadframe Tape

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.

² Japanese Standards Association, 1-24, Akasaka 4 Chome, Minato-ku, Tokyo, Japan