

SEMI G75.12-0698 (Reapproved 0706) TEST METHOD FOR MEASUREMENT OF BREAKDOWN STRENGTH OF LEADFRAME TAPE

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1 Summary of Method

1.1 An increasing voltage is applied between electrodes placed on both sides of the leadframe tape until breakdown, a large increase in current and voltage collapse, is observed.

2 Equipment

2.1 *Power Source* — DC High Voltage Generator (50 kv capability)

2.2 *Electrodes* — A brass spherical electrode with a diameter of 12.5 mm and a brass electrode with a diameter of 25 mm, which peripheral edges being rounded off to a radius of 2.5 mm (see Figure 1).

2.3 *Micrometer* — Accuracy 0.001 mm

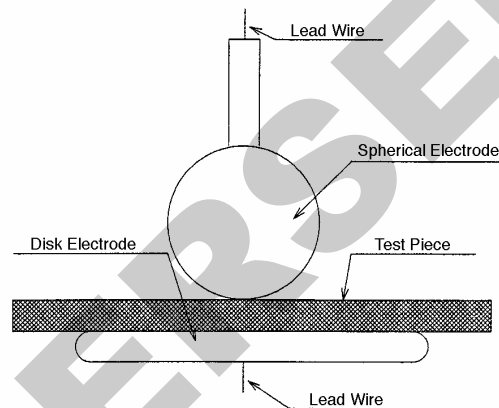


Figure 1
Electrodes for Measurement of Breakdown Strength

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 Cut the specimens from the tape samples so that the size of the specimens is larger than the diameter of the disk electrode.

4.2 The specimens shall be stabilized in $23 \pm 5^\circ\text{C}$ and $50 \pm 5\% \text{ RH}$ for 90 ± 2 hrs.

5 Test Conditions

5.1 *Temperature* — $23 \pm 5^\circ\text{C}$

5.2 *Relative Humidity* — $50 \pm 5\% \text{ RH}$

6 Procedure

6.1 Place the specimens on the disk electrode and place the spherical electrode on the top of the tape. Ensure good contact between electrodes and tape.

6.2 Setup Specimen

6.2.1 Turn on the voltage supply and increase the voltage with constant ramp, until breakdown occurs.

NOTE 1: Note the voltage at breakdown. In subsequent specimens, arrange the voltage ramp so that the breakdown occurs approximately within 10–20 seconds after the beginning of voltage application.

6.3 Repeat the measurements for all the specimens.

6.4 Measure the thickness of the specimens using the micrometer.

6.5 Calculations

6.5.1 Breakdown strength should be calculated by the following equation:

$$\text{Dielectric Strength} \left(\frac{\text{kv}}{\text{mm}} \right) = \frac{V_{BD}}{t}$$

where :

V_{BD} = Breakdown voltage (kv)

t = tape thickness (mm)

7 Related Documents

7.1 ASTM Specification¹

ASTM D 257 — Standard Test Methods for D-C Resistance or Conductance of Insulating Materials

7.2 JIS Specification²

JIS K 6911 — Testing Methods for Thermosetting of Plastics

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