

SEMI G25-89 (Reapproved 0811) TEST METHOD FOR MEASURING THE RESISTANCE OF PACKAGE LEADS

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1 Purpose

1.1 This Test Method defines the equipment, materials, and procedure used to measure the resistance of leads in packaging elements. This Test Method uses a pin grid (cavity down) package as one example of the type of packaging element that can be measured with the method described herein; however, this measurement technique can be applied to other geometries with proper consideration.

2 Equipment and Materials

2.1 DC ohmmeter which uses the four point probe (Kelvin) method with four cables. Minimum accuracy should be $\pm 4 \text{ m}\Omega$.

2.2 Probe station with four probes. Probes should be such that the taper of the probe and the diameter of its point allow two probes to come together within a 5 mil square without touching each other elsewhere. Recommendation: micromanipulator, four each, probe number OON-FPC-6000 with #3 collet or equivalent.

3 Procedure

3.1 Place both probes of the low side of the meter as close together as possible on the shoulder or in the center of the outside lead (see Figure 1, Point A).

3.2 Place both probes of the high side of the meter within 5 mils of the end of the lead on the cavity side of the lead (refer to Figure 1, Point B).

3.3 Set the ohmmeter scale to the lowest setting possible without putting meter in an 'over range' mode.

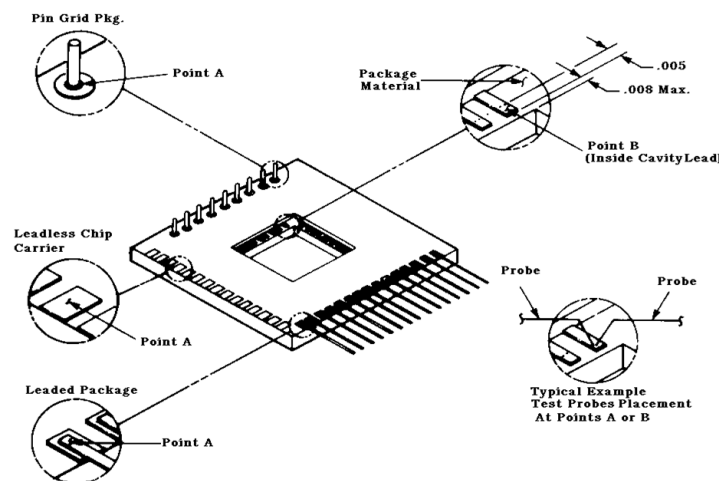


Figure 1
Resistance Measurement

3.4 Take resistance reading. Overall accuracy with this method is $\pm 20 \text{ m}\cdot\Omega$. This accuracy estimate includes basic instrumentation error, probe placement repeatability, and typical package construction (printed pattern accuracy).

4 Application Note

4.1 Readings below $100 \text{ m}\cdot\Omega$ can be made with acceptable repeatability if considerable care in placement is taken. For example, in measuring a conductor made of tungsten 0.010 inch wide, a 0.010 inch variation in the distance between the two sets of probes will result in a $15 \text{ m}\cdot\Omega$ change in the measured reading. The same variation in a gold conductor would result in a 3 to 5 $\text{m}\cdot\Omega$ error.

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