The Institute for Interconnecting and Packaging Electronic Circuits
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IPC-TM-650
TEST METHODS MANUAL

Number	
2.4.30	
Subject	
Impact Resistance, Polymer Film	
Date	Revision
10/86	
Originating Task Group	
N/A	

1 Scope This test method is to determine the impact resistance of polymer film circuitry when exposed to a series of falling ball impingements. The method is used to evaluate the resistance to chipping, flaking, convolution or other forms of separation of the polymer film from either the conductor or base laminate material surfaces.

2 Applicable documents None

3 Test specimen IPC-B-25 Multi-Purpose Test Board

4 Equipment/Apparatus

4.1 A suitable electromagnetic apparatus to precisely control the height and the point of impact of the falling ball (see Figure 1)

4.2 The test ball shall be 25 mm diameter, 67 gram precision steel ball.

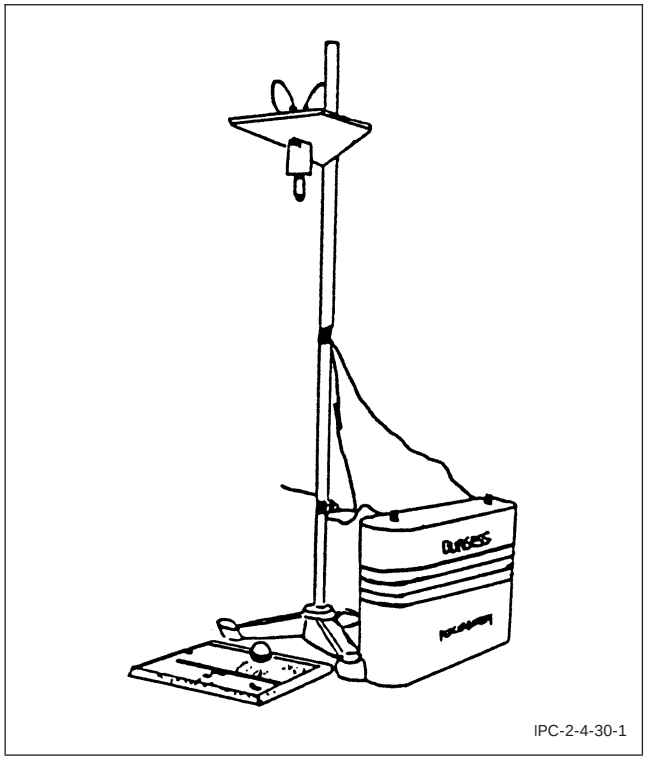

Figure 1 Falling Ball Impact Test Apparatus

4.3 When testing flexible circuits, the test specimen shall be placed on a hard smooth surface. Use of at least 0.6 cm cold rolled steel sheet stock.

5 Procedure

5.1 Preparation

5.1.1 Adjust the fall height by setting the solenoid core at 53 cm ± 0.3 cm from the top surface of the test specimen.

5.2 Test

5.2.1 Place the steel ball on the underside of the solenoid core with the solenoid energized.

5.2.2 Place the test specimen below the falling ball in such a manner as to strike the center of feature (L) on test specimen IPC-B-25.

5.2.3 Release the falling ball by de-energizing the solenoid magnet.

5.2.4 It is necessary to catch the ball immediately after impact so as not to permit more than one blow at a time.

5.2.5 Repeat this procedure for 10 cycles and observe the test specimen after each blow.

5.2.6 Perform the same test (also for l0 cycles)on any area of the test specimen having no circuitry.

5.2.7 Repeat the same test in such a manner as to strike the edge of the feature (L) 10 times.

5.3 Evaluation Visually examine the test specimen for chipping, flaking, convolution, or other forms of separation of the polymer film.

6 *Notes*

6.1 The test apparatus shown in Figure 1 can easily be assembled using a standard laboratory stand and clamps, a 12 volt DC Solenoid, and a 12 Volt battery.