METHOD 2001.2

CONSTANT ACCELERATION

1. PURPOSE. This test is used to determine the effects of constant acceleration on microelectronic devices. It is an accelerated test designed to indicate types of structural and mechanical weaknesses not necessarily detected in shock and vibration tests. It may be used as a high stress test to determine the mechanical limits of the package, internal metallization and lead system, die or substrate attachment, and other elements of the microelectronic device. By establishing proper stress levels, it may also be employed as an in-line 100 percent screen to detect and eliminate devices with lower than nominal mechanical strengths in any of the structural elements.

2. APPARATUS. Constant acceleration tests shall be made on an apparatus capable of applying the specified acceleration for the required time.

3. PROCEDURE. The device shall be restrained by its case, or by normal mountings, and the leads or cables secured. Unless otherwise specified, a constant acceleration of the value specified shall then be applied to the device for 1 minute in each of the orientations X_1, X_2, Y_2, Y_1, Z_1, and Z_2. For devices with internal elements mounted with the major seating plane perpendicular to the Y axis, the Y_1 orientation shall be defined as that one in which the element tends to be removed from its mount. Unless otherwise specified, test condition E shall apply.

Test condition	Stress level (g)
A	5,000
B	10,000
C	15,000
D	20,000
E	30,000
F	50,000
G	75,000
H	100,000
J	125,000

4. SUMMARY. The following details shall be specified in the applicable acquisition document:

a. Amount of acceleration to be applied, in gravity units (g) if other than test condition E (see 3).

b. When required, measurements to be made after test.

c. Any variations in duration or limitations to orientation (e.g., Y_1 only) (see 3).

d. Sequence of orientations, if other than as specified (see 3).