

**ATTACHMENT 5**  
**AEC - Q200 - 005**  
**BOARD FLEX TEST**

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**METHOD - 005**

**PASSIVE COMPONENT  
SURFACE MOUNTED CERAMIC CAPACITORS  
BOARD FLEX TEST**

**1.0 SCOPE**

**1.1 DESCRIPTION:**

This specification establishes the procedure and criteria to determine the ability of surface mounted device terminations and seals to withstand bending, flexing and pulling forces which occur on printed circuit boards during handling and assembly.

**1.2 Reference Documents:**

Not Applicable

**2.0 EQUIPMENT:**

**2.1 Test Apparatus:**

The total number of components and lots to be tested is listed in Table 1 of AEC-Q200 specification.

**3.0 TEST PROCEDURE:**

**3.1 Sample Size:**

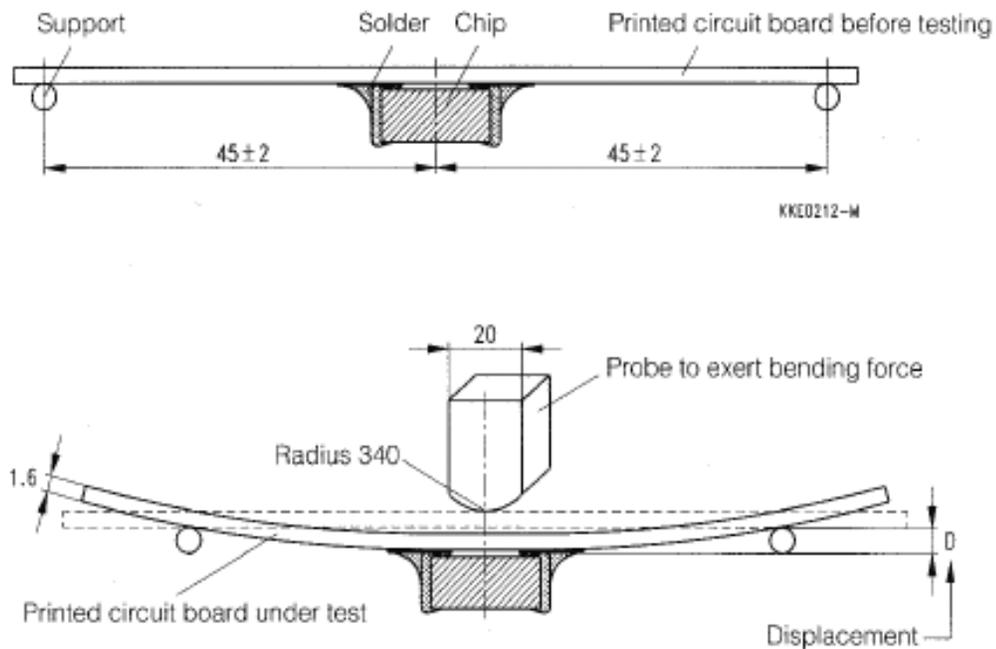
The total number of components and lots to be tested is listed in Table 1 of AEC-Q200 specification.

**3.2 Test Environment:**

1. Part mounted on an FR4 board provided by the Supplier for the part being tested with the following requirements:
2. Land pattern is supplier's standard for part being tested.
3. Part mounted on a 100mm X 40mm FR4 PCB board, which is 1.6mm  $\pm$  0.2 mm thick and as a Layer-thickness 35  $\mu$ m  $\pm$  10  $\mu$ m. Part should be mounted using the following Soldering Reflow profile:  
  
Preheat temperature (125°C  $\pm$  25°C) max 120 sec.  
Time above 183°C, 60 sec. – 150 sec.  
Max. ramp up (183°C to peak)  $\leq$  3°C / sec.  
Peak temperature 235°C + 5°C  
Time in peak temperature 10 sec. – 20 sec.  
Ramp down rate  $\leq$  6°C / sec.

- Place the 100mm X 40mm board into a fixture similar to the one shown in Figure 1 with the component facing down. The apparatus shall consist of mechanical means to apply a force which will bend the board (D) x = 2 mm minimum (or as defined in the customer specification or Q200). The duration of the applied forces shall be 60 (+ 5) Sec. The force is to be applied only once to the board.

Figure 1 Test Fixture



### 3.3 Measurement:

Prior to beam load testing, complete the external Visual test in Q200. A test monitor shall be used to detect when a part cracks or a termination failure occurs. (example: Megohmmeter attached with leads during the time the force is being applied to a Ceramic Capacitor. A crack would cause a deflection of the needle towards zero.)

### 4.0 FAILURE CRITERIA

A failure is when a part cracks or causes a change in the parametric being monitored.

## **Revision History**

<u>Rev #</u>	<u>Date of change</u>	<u>Brief summary listing affected paragraphs</u>
-	February 10, 2005	Initial Release.
A	June 1, 2010	Description Statement and Title Updated To Note Board Flex. Notice Statement (Sheet 2) Added. Format Updated.