

INCH-POUND

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DEPARTMENT OF DEFENSE
TEST METHOD STANDARD
METHOD 218, BOARD FLEX



AMSC N/A

FSC 59GP



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FOREWORD

1. This standard is approved for use by all Departments and Agencies of the Department of Defense.
2. Comments, suggestions, or questions on this document should be emailed to std202@dla.mil or addressed to: Commander, Defense Logistics Agency, DLA Land and Maritime, ATTN: VAT, P.O. Box 3990, Columbus, OH 43218–3990. Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at <https://assist.dla.mil>.

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METHOD 218 BOARD FLEX

1. SCOPE

1.1 Purpose. This test is performed for verifying that the chip specimens can withstand bending loads that are likely to be applied during normal assembly or handling operations.

2. APPLICABLE DOCUMENTS

This section not applicable to this standard.

3. DEFINITIONS

This section not applicable to this standard.

4. GENERAL REQUIREMENTS

4.1 Mounting. The chip specimen shall be mounted on a 3.94 inches (100 mm) \pm .079 inch (2.0 mm) X 1.57 inches (40 mm) \pm .079 inch (2.0 mm) FR4 printed circuit board (PCB), which is .063 inch (1.6 mm) \pm .008 inch (0.20 mm) thick FR4 or ceramic substrate board. The test board material shall be such that it shall not be the cause of, nor contribute to, any failure of a chip specimen in any of the tests for which it may be used. Epoxy adhesives, if applicable shall be limited to the terminations only. The test board shall be prepared with metallized surface land areas of proper spacing to permit mounting of chips by soldering the terminations of the chips to the test board land areas.

The metallization material shall be compatible with the bonding technique to be employed and the material used on the chip termination. The method of chip mounting for the different termination materials shall be as follows:

a. Solderable terminations. Specimens shall be mounted on a test board by soldering the chip terminations directly to the test board metallized land areas in accordance with the following:

(1) Solder and soldering flux shall be of such a quality as to enable the chip specimens to meet all the requirements of the individual specification and shall be applied to the terminations of each chip.

(2) All specimens shall be placed across the metallized land areas of the test board with contact between the chip terminations and board land areas only. The use of adhesive to keep chips in place during mounting operation is allowable.

(3) Only ambient air cooling shall be used.

b. Palladium/silver alloy terminations. Specimens shall be attached to the substrate with a conductive adhesive. The conductive adhesive shall be cured at a minimum temperature of +150°C. The minimum curing time shall be 30 minutes.

c. Gold terminations. Specimens may be mechanically attached to the substrate with a non-conductive adhesive. The specimens shall then be electrically connected using wire bonds between the termination and the test board metalized lands. Alternately, specimens may be attached to the substrate with a conductive adhesive. The conductive adhesive shall be cured at a minimum temperature of +150°C. The minimum curing time shall be 30 minutes.

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4.2 Procedure. The FR4 PCB shall be placed into a fixture similar to the one shown in figure 1 with the component facing down. The position of the support rails shall be as specified in figure 1 and the chip specimen and loading probe shall be centered between the rails. A force shall be applied which will bend the board .079 inch (2.0 mm), minimum. The force shall be applied only once to the board. At the option of the manufacturer, the configuration of the PCB and fixture may be vertical or horizontal provided the force applied is in the direction specified in figure 1.

4.3 Duration of force. The duration of the applied force shall be 60 seconds -0, + 5 seconds.

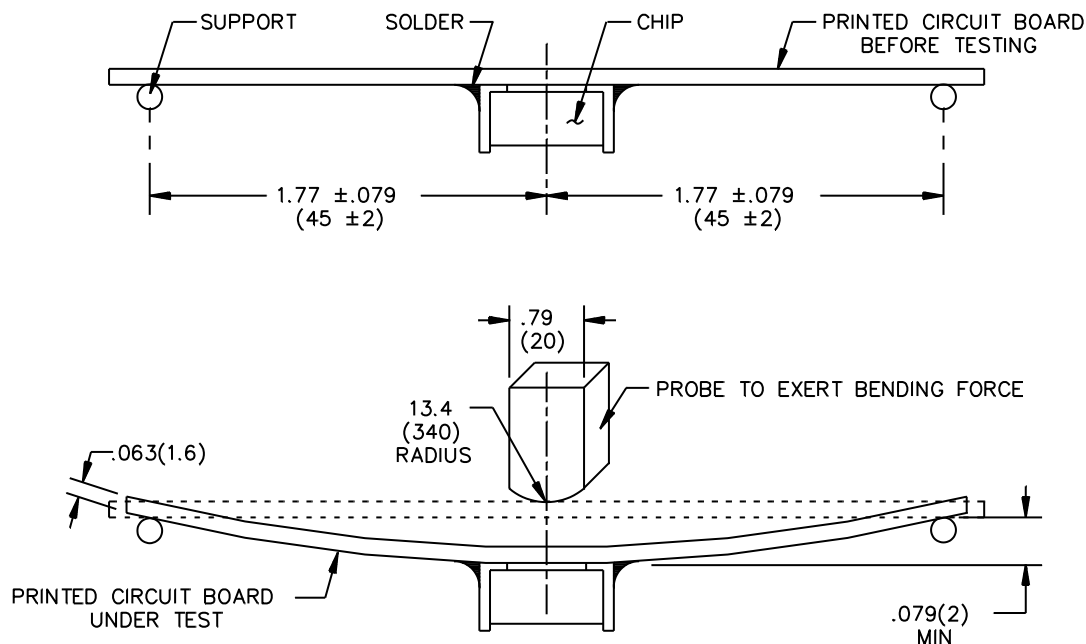
5. DETAILED REQUIREMENTS

5.1 Measurement during test. The parametric to be measured shall be specified in the individual specification. The parametric shall be monitored for the duration of the test. Optionally, the parametric may be measured prior to board flex test and again at the conclusion of the test and while the board is still in the flexed position.

5.2 Examinations and measurements after test. The chip specimen shall be visually inspected for mechanical damage to the chip body, terminals, and body/terminal junction. Measurements shall be as specified in the individual specification.

5.3 Summary. The following details are to be specified in the individual specification:

- a. Parametric to be measured during the test (see 5.1).
- b. Measurements after test (see 5.2).



NOTES:

1. Measurements are in inches. Metric equivalents in millimeters are in parentheses and given for general information only.

FIGURE 1. Board flex.

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6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

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Preparing activity:

DLA - CC

(Project 59GP-2017-003)

Review activities:

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