

MIL-PRF-19978J

4.7.14 Solderability (wire leads only, see 3.1) (see 3.18). Capacitors shall be tested in accordance with method 208 of MIL-STD-202. The following details shall apply:

- a. Number of terminations to be tested: Both leads of the capacitor shall be subjected to the solderability test.
- b. Depth of immersion in flux and solder: The leads shall be immersed to within .125 inch (3.18 mm) of the capacitor body.

4.7.15 Shock (specified pulse) (see 3.19). Capacitors and retainers shall be tested in accordance with method 213 of MIL-STD-202. The following details shall apply:

- a. Mounting: The body of the capacitor shall be securely fastened by mounting retainers. The leads shall be soldered to rigidly supported terminals so spaced that the length of each lead from the capacitor shall be .5 inch \pm .125 inch (12.7 mm \pm 3.18 mm) from the edge of the supporting terminal.
- b. Test condition letter: 1 (100 g's).
- c. Electrical loading during shock: During the test, a potential of 125 percent of the dc voltage rating shall be applied between the terminals of the capacitor.
- d. Measurements during shock: During the test, observations shall be made to determine intermittent contact or arcing or open-circuiting or short-circuiting. Detecting equipment shall be sufficiently sensitive to detect any interruption with a duration of 0.5 ms or greater.
- e. Examinations after test: Capacitors shall be visually examined for evidence of breakdown, arcing, fractures, or any other visible mechanical damage. Retainers shall be visually examined for mechanical damage.

4.7.16 Terminal strength (see 3.20). Capacitors shall be tested in accordance with method 211 of MIL-STD-202. The following details and exceptions shall apply:

- a. Test condition letter: As specified (see 3.1).
- b. Examination after test: The capacitors and terminals shall be examined for mechanical damage.

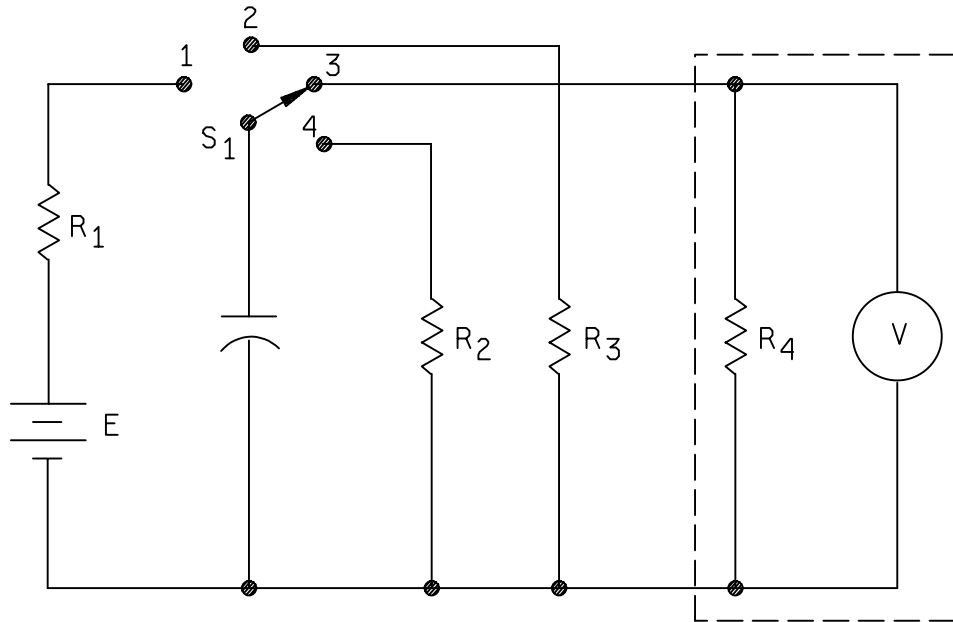
4.7.17 Dielectric absorption (see 3.21), (when specified, see 3.1). The capacitor shall be charged at the dc voltage rating for 1 hour \pm 1 minute. The initial surge current shall not exceed 50 milliamperes. At the end of this period, the capacitor shall be disconnected from the power source and discharged through a 5 ohm \pm 5 percent resistor for 10 seconds \pm 1 second. The discharge resistor shall be disconnected from the capacitor at the end of the 10 second discharge period, and the voltage remaining on the capacitor (recovery voltage) shall be measured with an electrometer or other suitable device having an input resistance of 10,000 megohms or greater. Recovery voltage shall be read at the maximum voltage within a 15 minute period. The dielectric absorption shall be computed from the following formula.

$$d = \frac{V_1 \times 100}{V_2}$$

Where: d = Percent dielectric absorption.
 V_1 = Maximum recovery voltage.
 V_2 = Charging voltage.

For an alternate production test method see figure 1.

MIL-PRF-19978J



- E = dc rated dc voltage or 100 volts dc, whichever is less (± 2 percent).
 R_1 and R_2 = 1,000 ohms ± 20 percent. (This is not critical.)
 R_3 = 5 ohms ± 1 percent.
 R_4 = 10,000 megohms, minimum.

Suggest use of $\pm 1230A$ GR electrometer or equivalent set to 10,000 megohms range input resistance.

NOTES:

1. Charge for 5 minutes ± 10 seconds with switch in position 1.
2. Switch in position 2 for 5 seconds ± 0.5 second.
3. Switch in position 3 for 1 minute.
4. After 1 minute read recovery voltage and compute as a percentage of charge voltage.
5. Switch to position 4, discharge and remove.

FIGURE 1. Typical production dielectric absorption test method.

4.7.18 Stability at low and high temperatures (see 3.22). Capacitors shall be placed in a chamber maintained at $-65^\circ\text{C} + 0^\circ\text{C}$, -5°C or $-55^\circ\text{C} + 0^\circ\text{C}$, -5°C (as applicable, see 3.1), and a potential equal to the dc rated voltage shall be applied at this condition for 48 hours ± 4 hours. The air within the conditioning chamber shall be circulated. Before capacitors are moved from the conditioning chamber, capacitance shall be measured at the applicable low temperature (see 3.1) as specified in 4.7.9. Capacitance shall then be measured at the following temperature as specified in 4.7.9. (The measurement at each temperature shall be recorded when two successive readings taken at 5-minute intervals indicate no change in capacitance.)

$25^\circ\text{C} \pm 5^\circ\text{C}$

High ambient test temperature (see 3.1)

$25^\circ\text{C} \pm 5^\circ\text{C}$

After the test, capacitors shall be visually examined for evidence of breakdown, arcing, open-circuiting and short-circuiting, and other visible mechanical damage.