

MIL-STD-883G

3.3.4 Package Body/Lid Finish

- a. Defective finish (peeling, flaking, pitting, blistering, or corrosion). Discoloration that does not exhibit these conditions is acceptable.
- b. Scratches, mars, or indentations, either due to damage or processing, that expose base metal. Exposed underplate is acceptable.

3.3.5 Leads

- a. Broken leads.
- b. Leads or terminals that are not intact or aligned in their normal location, free of sharp or unspecified lead bends, or twisted more than 20° from the normal lead plane.
- c. Leads with pits and/or depressions that exceed 25% of the width (diameter for round leads) and are greater than 50% of the lead thickness in depth.
- d. Leads with burrs exceeding a height greater than 50% of the lead thickness.
- e. Lead misalignment to the braze pad to the extent that less than 75% of the lead braze section is brazed to the pad.
- f. Metallization (including solder lead finish) in which the isolation between leads or between lead and other package metallization is reduced to less than 50% of lead separation (pad separation for brazed leads) but in no case less than the case outline minimum.
- g. Braze material that increases the lead dimensions to greater than 1.5 times the lead thickness above the design maximum between the seating plane and the ceramic body or that increases the lead dimensions to greater than the design maximum below the seating plane.
- h. Scratches that expose base metal over more than 5% of the lead surface area. Exposed base metal on the cut lead ends is acceptable and does not count in the 5%.

3.3.6 Package body/lid - leaded devices

- a. Broken packages or cracks in the packages. Surface scratches shall not be cause for failure except where they violate other criteria stated herein for marking, finish, etc.
- b. Any chipout dimension that exceeds 0.060 inch in any direction on the surface and has a depth that exceeds 25% of the thickness of the affected package element (e.g., cover, base, or wall).
- c. External lead metallization stripe forming a conductor to a brazed lead that exhibits voids greater than 25% of the conductor width.
- d. Evidence of cracks, delamination, separation, or voiding on any multilayer ceramic package.

3.3.7 Package body/lid - leadless devices

- a. Ceramic chip-outs that dimensionally exceed 50% of the distance between terminals in any direction on the affected surface (edge or corner), and exceed a depth of 25% of the thickness of the affected package element (e.g., cover, lid, base, or wall).
- b. Evidence of cracks, delamination, separation, or voiding on any package element.
- c. Castellations to solder pad misalignment. The metal in the castellations, exclusive of the angular ring, shall be within the visually extended boundaries of the solder pad (see figure 2009-1).

METHOD 2009.9  
19 August 1994



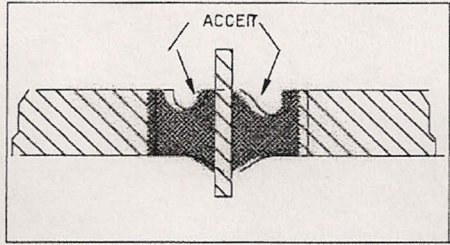


FIGURE 2009-7a. Surface bubbles.

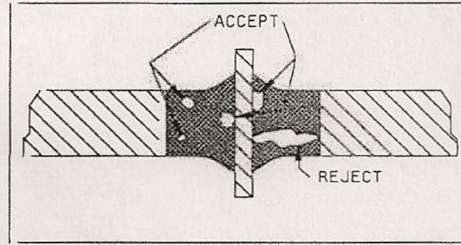


FIGURE 2009-7b. Subsurface bubbles.

e. Surface bubbles that exceed the following:

1. Open bubbles in the glass seal that exceed 5 mils in diameter (see Figure 2009-7a). For packages with a glass-filled header (i.e., TO-5), open bubbles that exceed 10 mils diameter, or an open bubble that exceeds 5 mils diameter situated closer than 10 mils to a lead.
2. Open bubbles in strings or clusters that exceed  $2/3$  of the distance between the lead and the package wall.

f. Subsurface bubbles that exceed the following:

1. Large bubbles or voids that exceed  $1/3$  of the glass sealing area (see Figure 2009-8a).
2. Single bubble or void that is larger than  $2/3$  of the distance between the lead and the package wall at the site of inclusion (see Figures 2009-7b and 2009-8b).
3. Two bubbles in a line totaling more than  $2/3$  distance from pin to case (see Figure 2009-8c).
4. Interconnecting bubbles greater than  $2/3$  the distance between pin and case (see Figure 2009-8d).

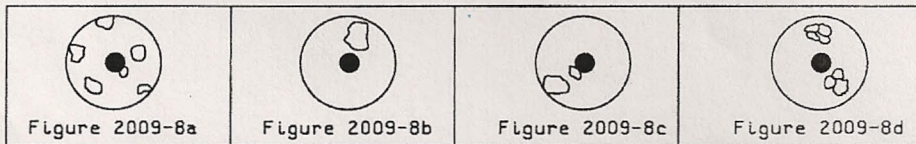


FIGURE 2009-8. Subsurface bubbles.

g. Reentrant seals that exhibit non-uniform wicking (i.e., negative meniscus) at the lead and/or body interface (see Figure 2009-9).



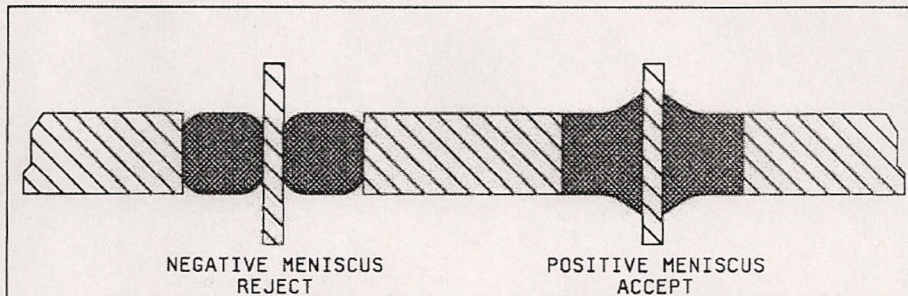


FIGURE 2009-9. Reentrant seals.

4. SUMMARY. The following details shall be specified in the applicable acquisition document:
- Requirements for markings and the lead (terminal), or pin identification.
  - Any additional detailed requirements for materials, design, construction, and workmanship.

METHOD 2009.9  
19 August 1994

MIL-STD-883G

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METHOD 2009.9  
19 August 1994

8