

### 12 High Voltage

This section provides the unique criteria for soldered connections that are subject to high voltages, see 1.5.4. These criteria are applicable to wires or leads attached to terminals, bare terminals, and through-hole connections. The requirements are to assure that there are no sharp edges or sharp points that could initiate arcing.

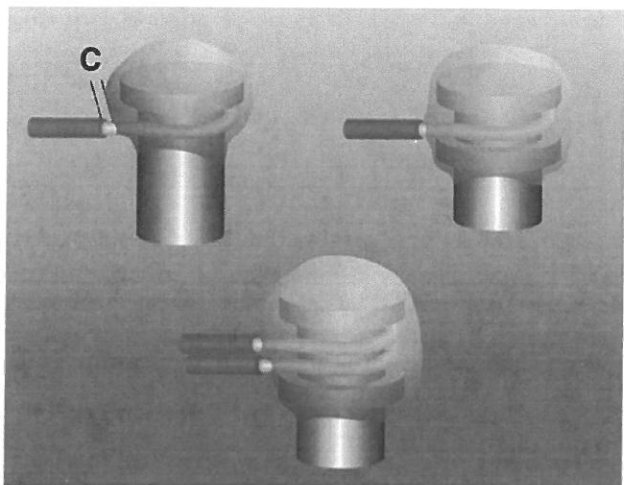


Figure 12-1

#### Target - Class 1,2,3

- Balled solder connection has a completely rounded, continuous and smooth profile.
- No evidence of sharp edges, solder points, icicles, inclusions (foreign material) or wire strands.
- Insulation clearance as close to the solder connection as possible without interfering with formation of the required solder ball.
- All edges of the terminal are completely covered with a continuous smooth layer of solder forming a solder ball.
- Balled solder connection does not exceed specified height requirements.
- Insulation clearance (C) is minimal so that insulation is close to the solder connection without interfering with formation of the required solder ball.

## 12 High Voltage (cont.)

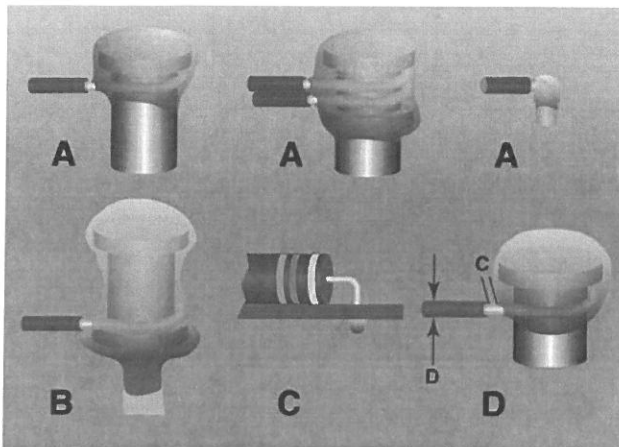


Figure 12-2

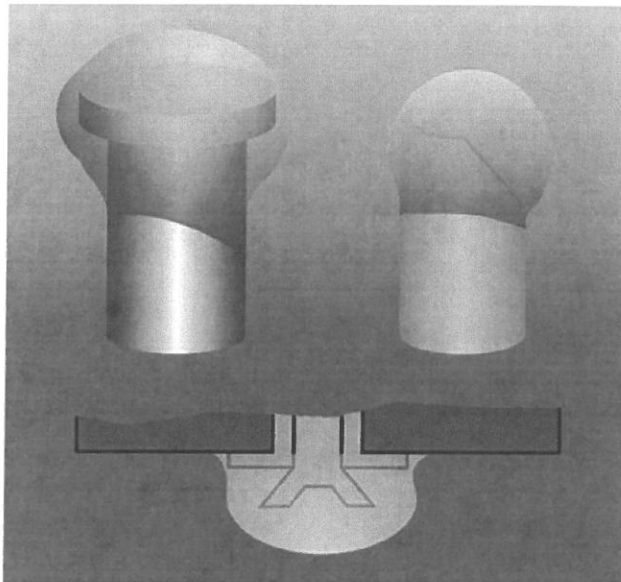


Figure 12-3

### Acceptable - Class 1,2,3

Solder connection has an egg-shaped, spherical or oval profile that follows the contour of terminal and wire wrap, Figure 12-1.

All sharp edges of the component lead and terminals are completely covered with a continuous smooth rounded layer of solder forming a solder ball, Figures 12-1 and 12-2 (A).

Solder connections may have evidence of some layering or reflow lines, see 5.2.8.

No evidence of sharp edges, solder points, icicles, inclusions (foreign material) or wire strands.

Wire/lead outline is discernible with a smooth flow of solder on wire/lead and terminal. Individual strands may be discernible, Figure 12-2 (B).

Straight-through leads facilitate ball soldering, Figure 12-2 (C).

All sharp edges of the terminal's radial split are completely covered with a continuous smooth layer of solder forming a balled solder connection.

There is no evidence of burrs or frayed edges on the hardware.

Insulation clearance (C) is less than one overall diameter (D) away from the solder connection, Figure 12-2 (D).

No evidence of insulation damage (ragged, charred, melted edges or indentations).

Balled solder connection does not exceed specified height requirements.

## 12 High Voltage (cont.)

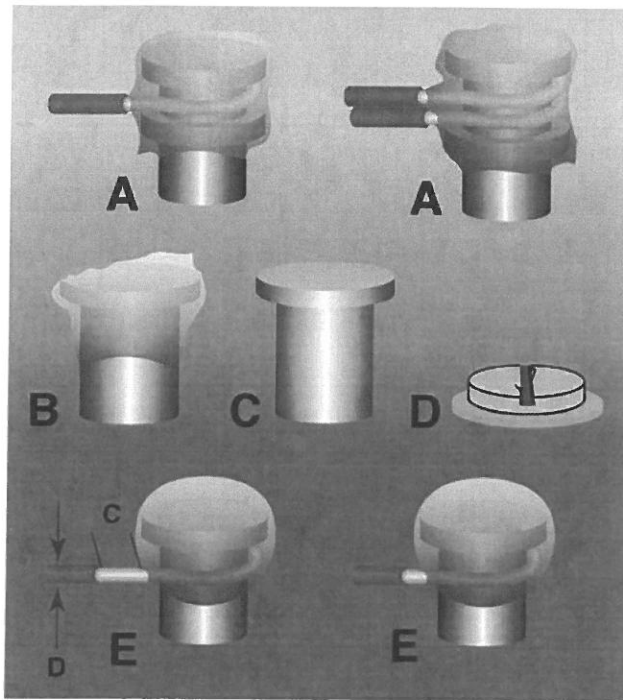


Figure 12-4

### Defect - Class 1,2,3

- Solder follows contour of terminal and wire wrap but there is evidence of the sharp edge of the terminal protruding, Figure 12-3 (A, B).
- Discernible sharp edges, solder points, icicles, or inclusions (foreign material), Figure 12-3 (A, B).
- Evidence of edges not smooth and round with nicks or crevices (not shown).
- Evidence of wire strands not completely covered or discernible in the solder connection (not shown).
- Terminal lug is void of solder, Figure 12-3 (C).
- Hardware has burrs or frayed edges, Figure 12-3 (D).
- Insulation clearance (C) is one overall diameter (D) or more, Figure 12-3 (E).
- Evidence of insulation damage (ragged, charred, melted edges or indentations) (not shown).
- Balled solder connection does not comply with height or profile (shape) requirements (not shown).

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