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Leo Lambert
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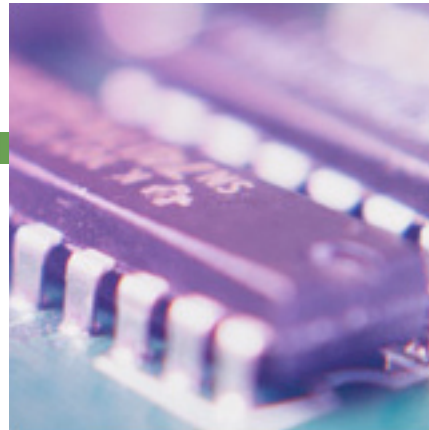


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Top 5 Manufacturing Issues for August 2009

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#1 Cleaning Methods

- Question:
 - *Does the flux manufacturer certify their flux and define how it performed against SIR test procedures?*
 - *Should I test the flux internally?*
 - *Are there any other type of cleaning test which can be done?*



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#1 Cleaning Test Methods

- IPC-TM-650 2.6.3.3, SIR Flux Test
- Solvent extract test, Omega Meter

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#1 Cleaning Methods

- The cleaning process must be based upon the flux types being used
- Entrapment areas must be checked

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#2 Toe Fillets

- The main question is: Are toe fillets required by specifications 001 and 610?
- Specifications require end joint width requirements but none require the solder to be on the end of the lead.
 - Why?

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#3 Applying Adhesive to Secure Components

- Do the specifications cover this requirement?
- I've got radial caps but they are a different style than what is shown in IPC-A-610, what can I do?

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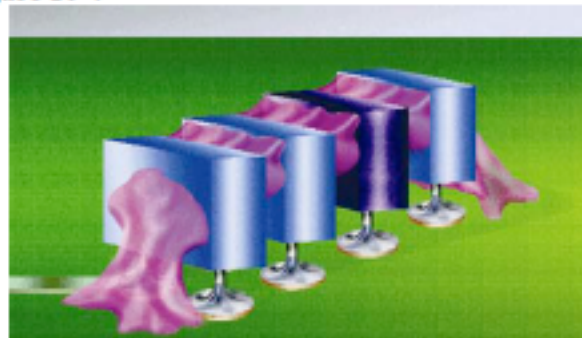


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#3 Applying Adhesive to Secure Components

- 001 DS covers this requirement for Class 3 products

Figure 10-4



Acceptable

- Two outside ends - fillet height: 25%H to 100%H.
- Inner surfaces - fillet is in contact with both surfaces for 50% of component width.

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#4 Wetting is Evident?

- What does that mean?
 - 001 para 7.6.4 Dim G states that “wetting is evident”
- Is it implied or specified the amount of the joint that must show wetting?

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#4 Wetting is Evident?

- Wetting is the metallurgical bond of two separate metals with a third metal, i.e. solder.
- Wetting implies the surfaces are clean and oxide free

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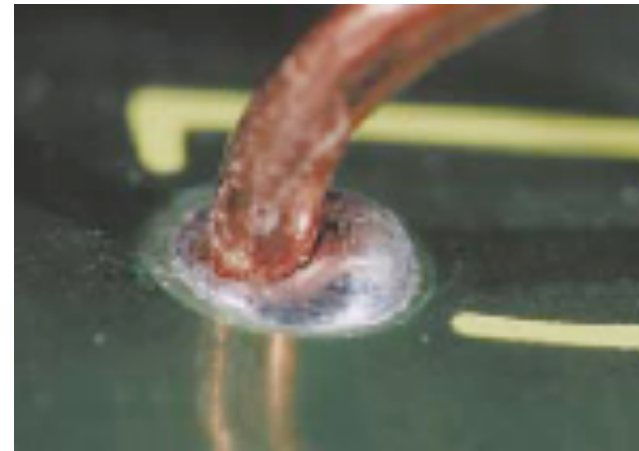


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#4 Wetting is Evident?



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Side Joint Width

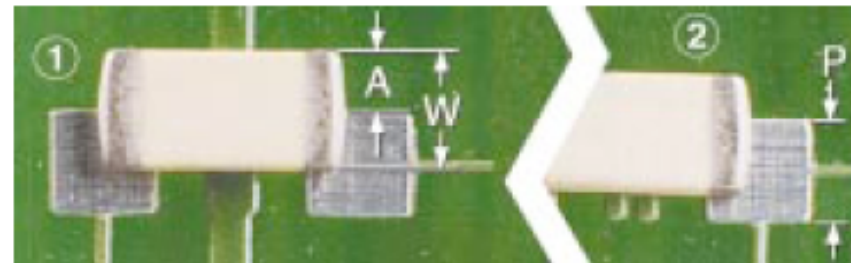
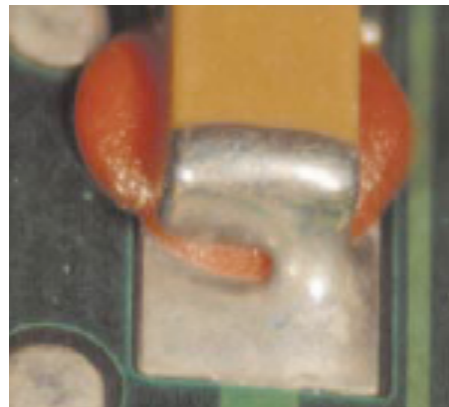


Figure 8-12
1. Class 2
2. Class 3

Reject, Less than 50%
Soldered and epoxy on pad

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Side Joint Width

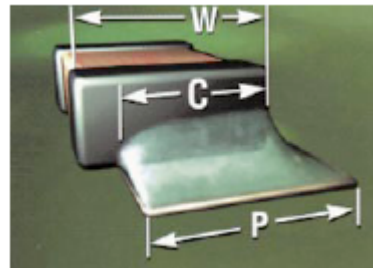


Figure 8-20

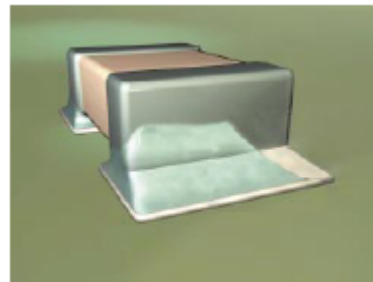


Figure 8-21

Class 3 Acceptable

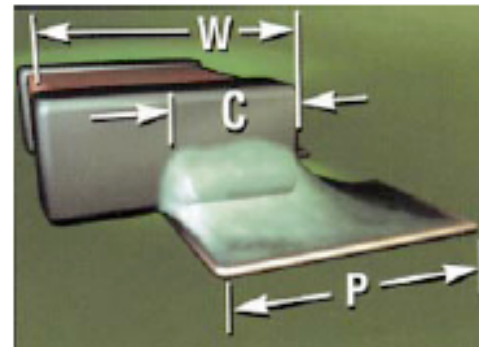


Figure 8-19

Class 1, 2 Acceptable

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#5 Icicles or Solder Projections

- If Icicles does not violate any height requirements or electrical spacing are they ok?
- IPC-A-610 does not mention any of this topic

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#5 Icicles or Solder Projections

- They are ok but keep in mind the following:
 - Safety, they are sharp
 - Can puncture ESD bags
 - Can create ESD events when placed on metal shelving
 - If microwave products, can act as an antennae.



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Further Information

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