Surface Mount:
Pros and Cons

Another Fat Bloke Presentation

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A quick history

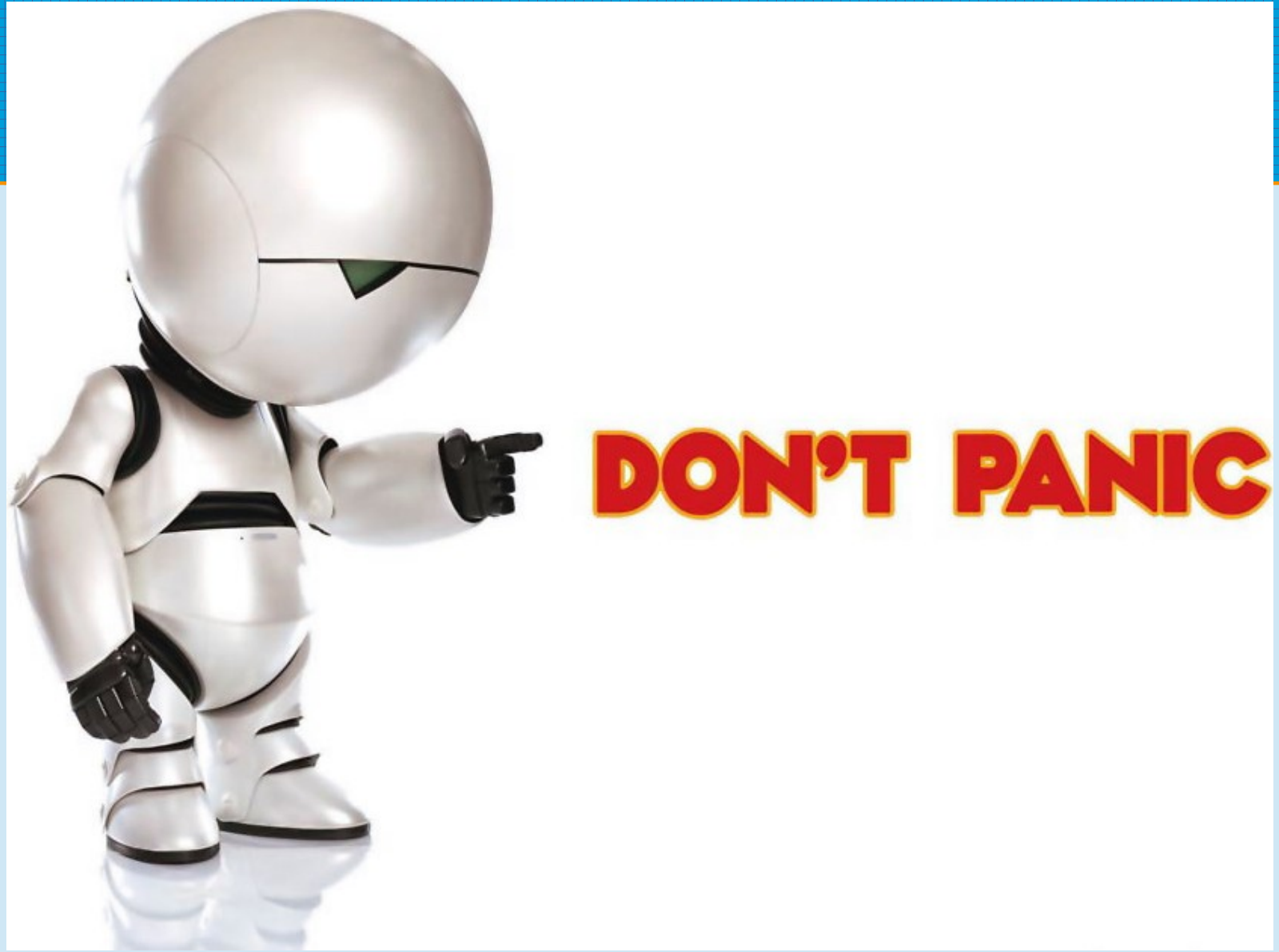
- SMD / SMT became reality back in the 1960’s
- Primarily developed by IBM
- Previously known as “Planar Mounting”
- By 1986 10% of the worlds components were SMD

The Advantages of SMD

- Smaller package size. Ideal for VLSI
- Easily reworkable with Hot Air re-flow processes
- CHEAP – Really Cheap
- Less Holes to drill out = Cheaper

The Cons of SMD

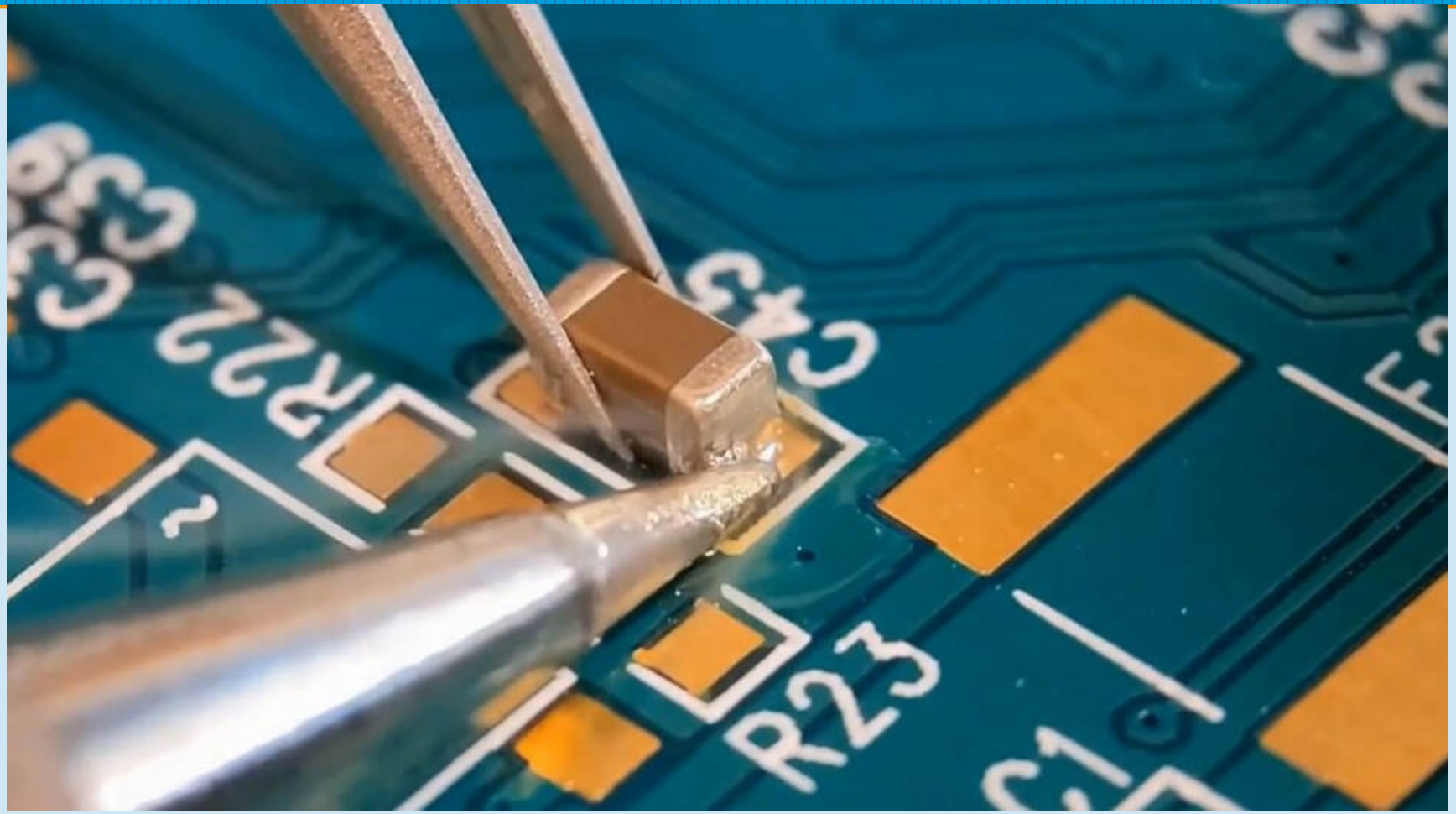
- Intimidation of the size (Larger parts available)
- Not “Ideal” for older Hobbyists (Preference)
- Reliability in repeated thermal / stress cycles (Mil Spec)
- Suitability – High Power Parts – RF Amps – Voltage Regs Etc


DON'T PANIC

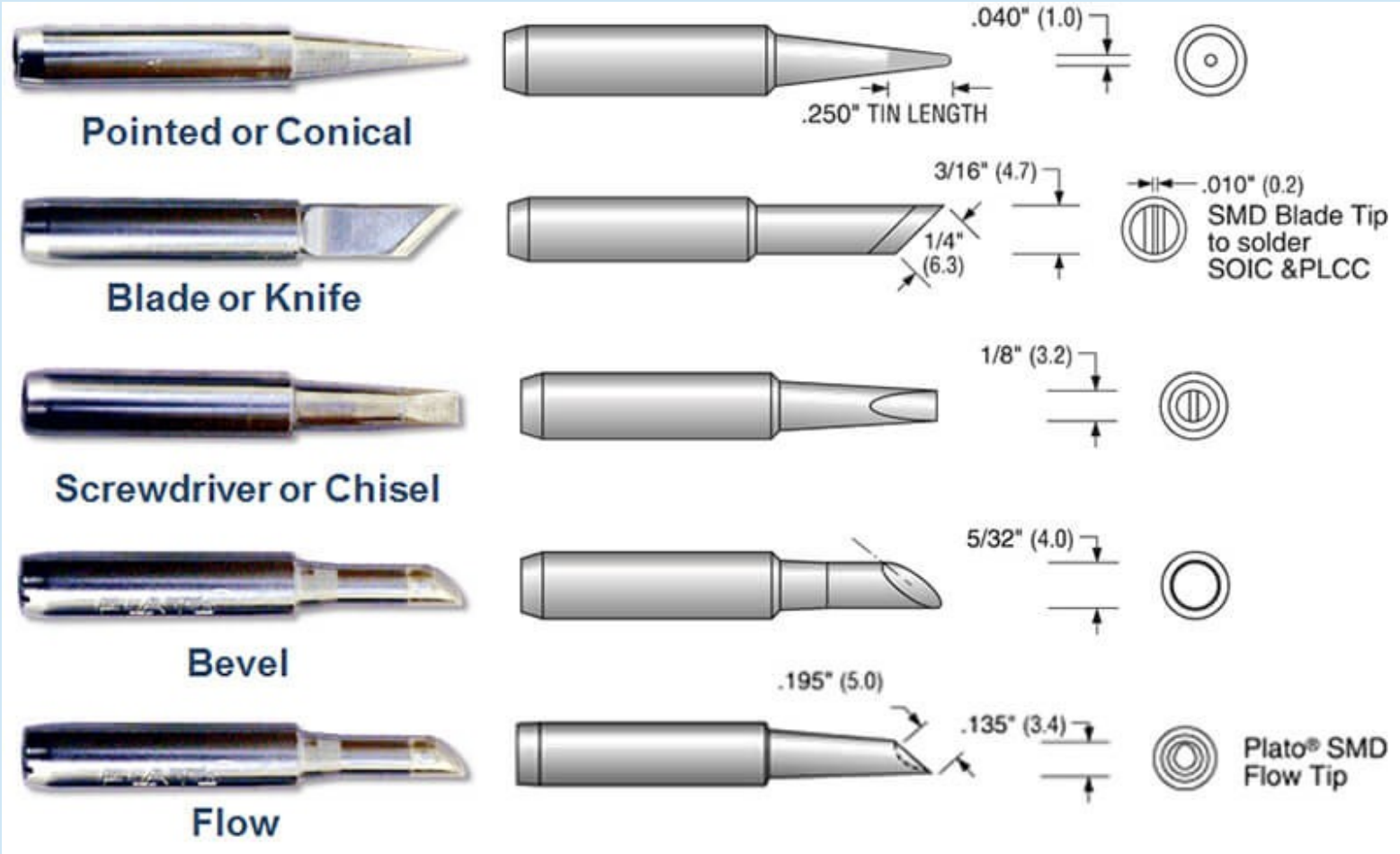
Don’t be scared

- You CAN use normal soldering tips on SMD
- Use a LITTLE Flux and decent Eutectic solder (63/37)

Don’t be scared



Soldering Iron Tips



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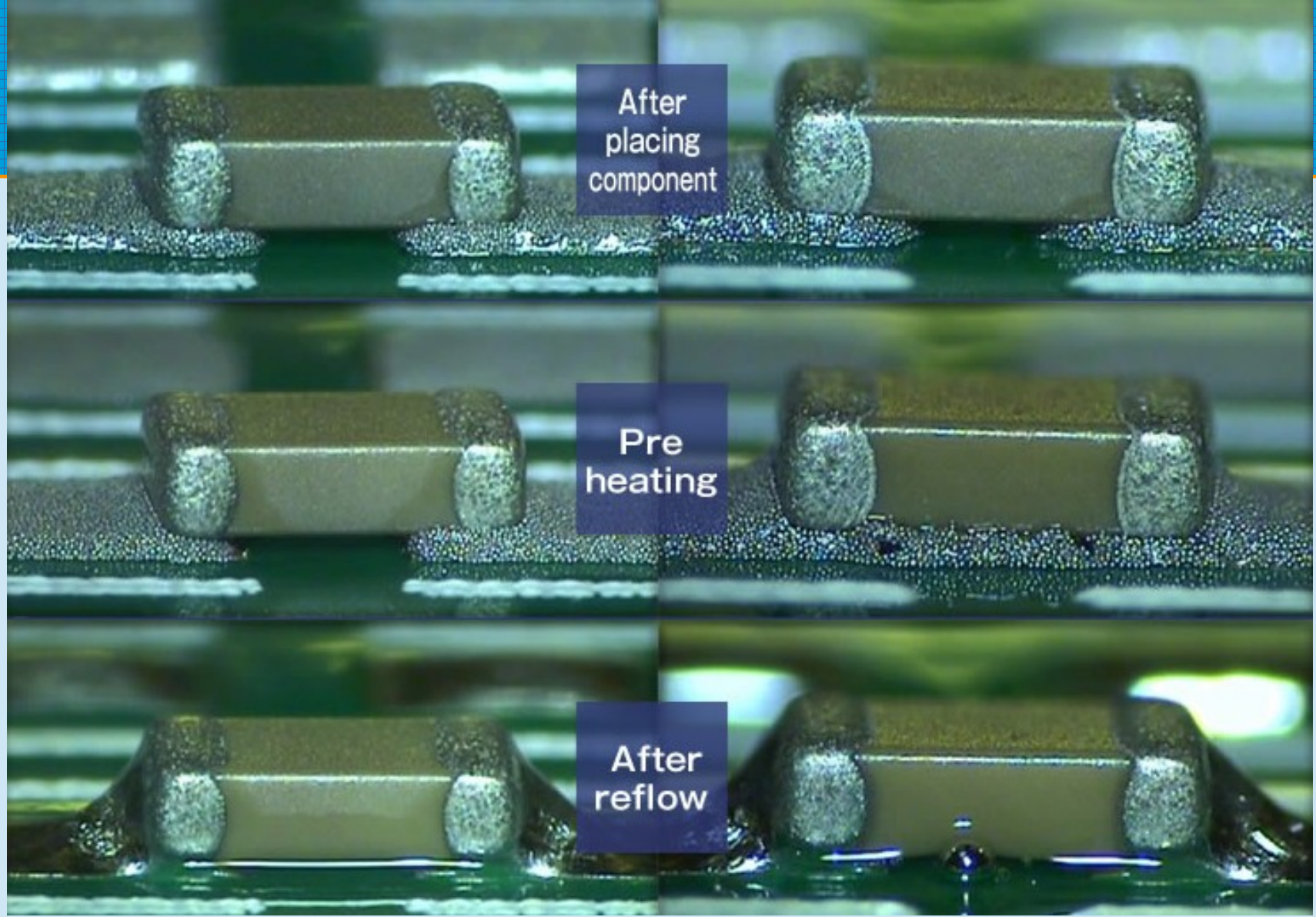
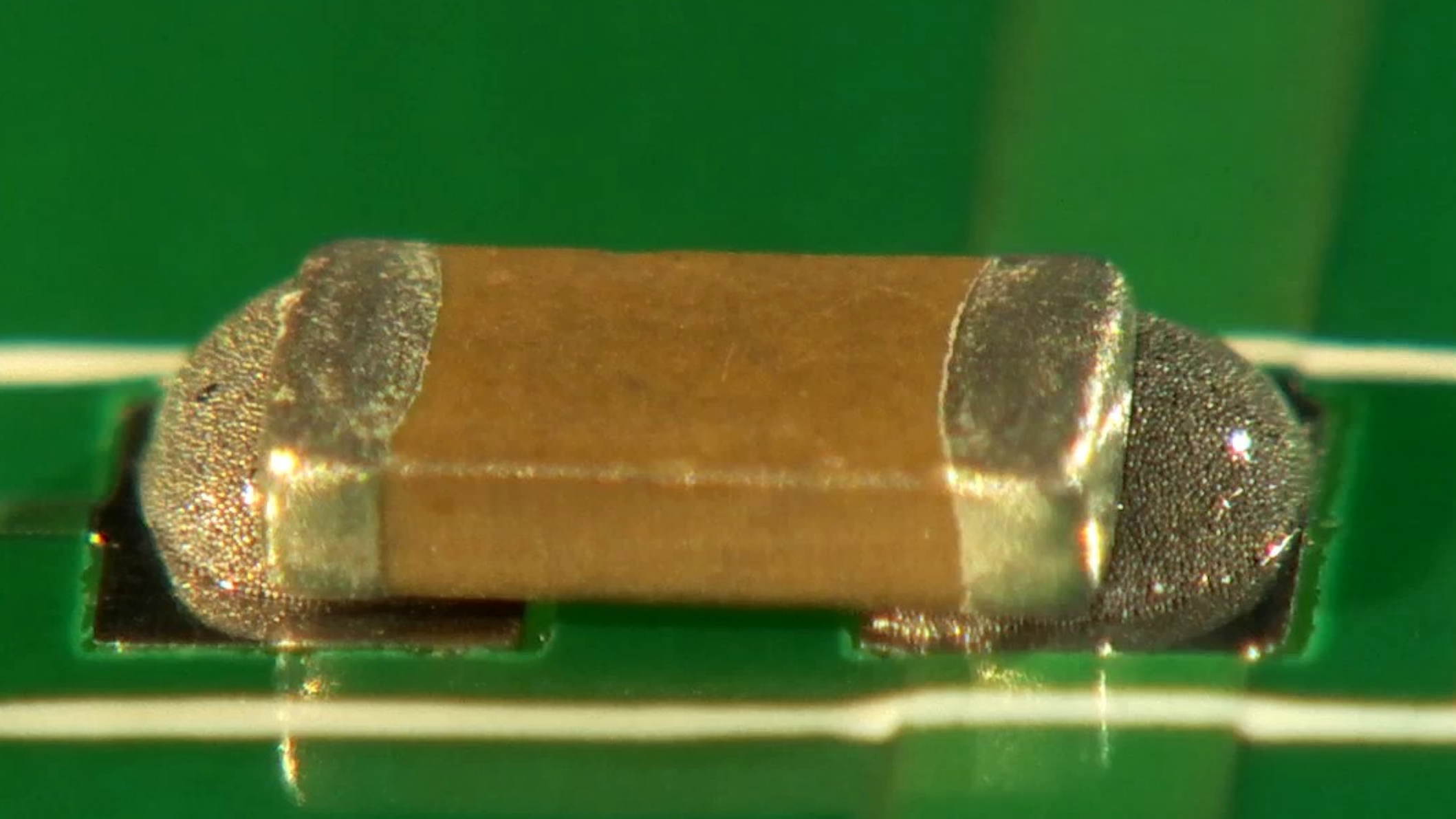
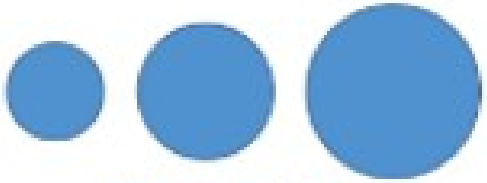
Slump Values – WTF ???

- Slump is the temperature point where flux becomes active
- The term is only used in SMD solder paste
- Solder Paste must not be confused with Flux!
- Solder Paste comes in Tubes or Pots for manual application

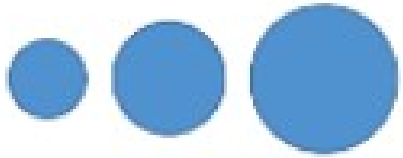

After placing component
Pre heating
After reflow



Small Balls are Best !



Type 3
25-45 µm



Type 4
20-38 µm

Type 5
15-25 µm

Ball Sizes

Type	Less than 0.5% larger than (µm)	10% Max. between (µm)	80% Min. between (µm)	10% Max. less than (µm)
3	60	45 - 60	25 - 45	25
4	50	38 - 50	20 - 38	20
5	40	25 - 40	15 - 25	15