Enkle grep for en produksjonshverdag med bedre løsninger
Team robust 310523

Norautron

PROCESS
makes
PERFECT

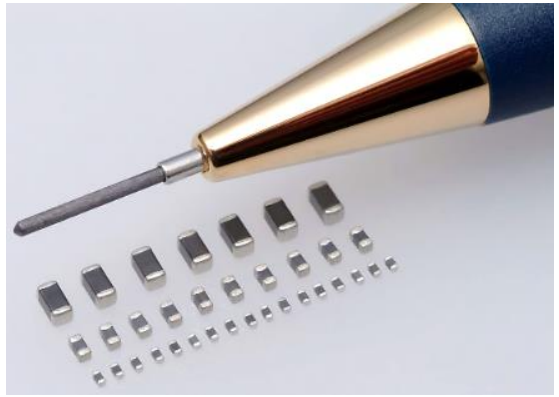
Drømmedokumentasjonspakken (!)

- *Alle dokumenter under må ha med egen revisjon på fil eller i mappe.*
- *BOM: (Excel)*
- *Med kryss ref. (Customer part no/Manufacturer part no, Qty, Description, Reference)*
- *Singel bom med posisjoner*
- *Assy tegning (PDF)*
- *El skjema (PDF)*
- *Gerber (RS274D)*
- *CAD (ODB++)*
- *Pick & Place (CSV)*
- *Mekaniske tegninger (PDF og STEP)*
- *Produksjons prosedyre*
  - *Test instruksjon (PDF)*
  - *Lakk prosedyre (PDF)*
  - *Sammenstilling (PDF)*
- *Endringsmelding/Diff. bom (PDF, Excel)*

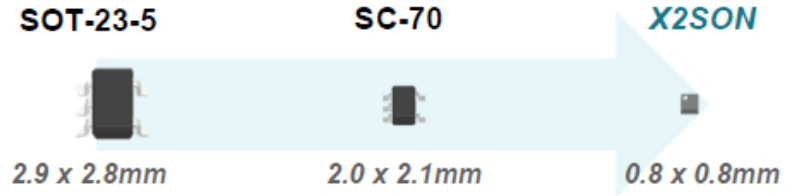
All dokumentasjon leveres i en komprimert fil(Zip,Rar,7z) med produkt no/navn og revisjon som filnavn.

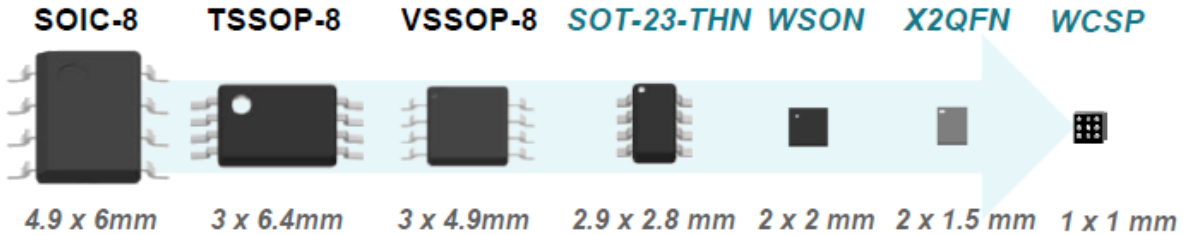
Kapseltyper

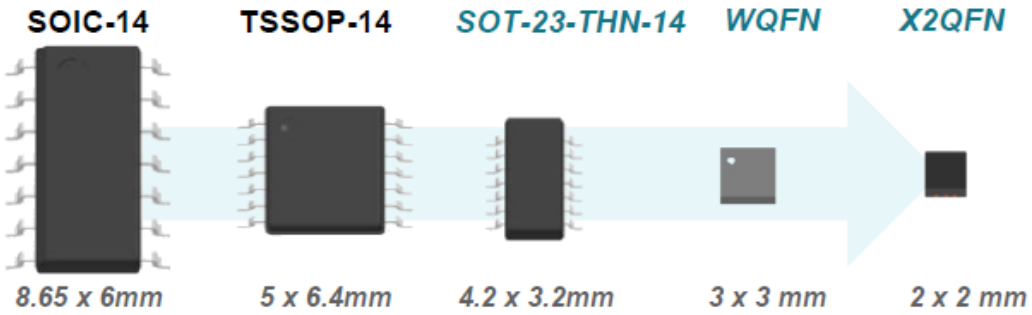
Comment identifier les composants SMD? (ou comment identifier tout composant) (stackovercoder.fr)



Evolution in size – more functions in smaller spaces





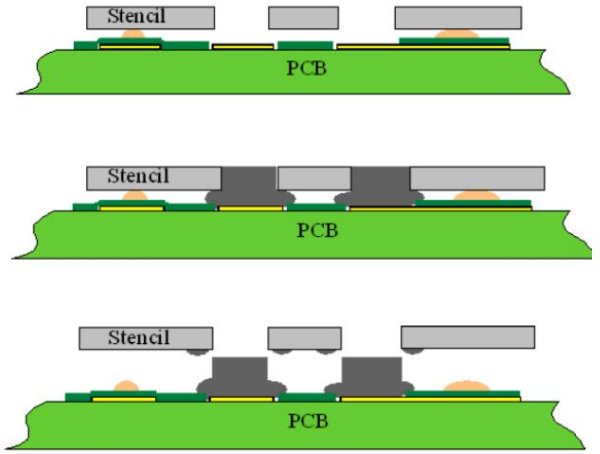


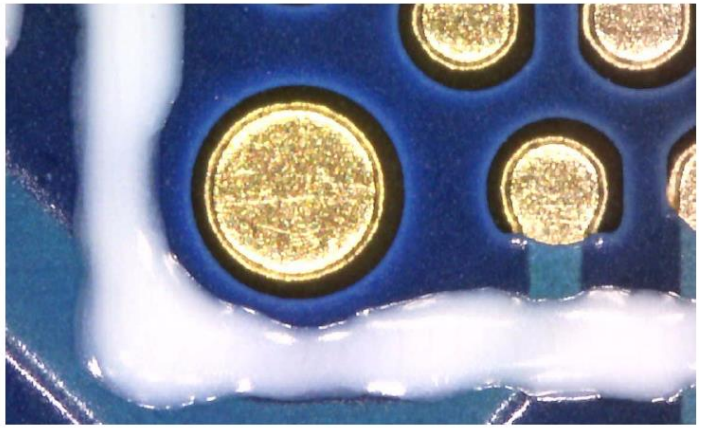
Silketrykk

(Direct legend printing) (DLP)

(Laser direct Imaging) (LDI)

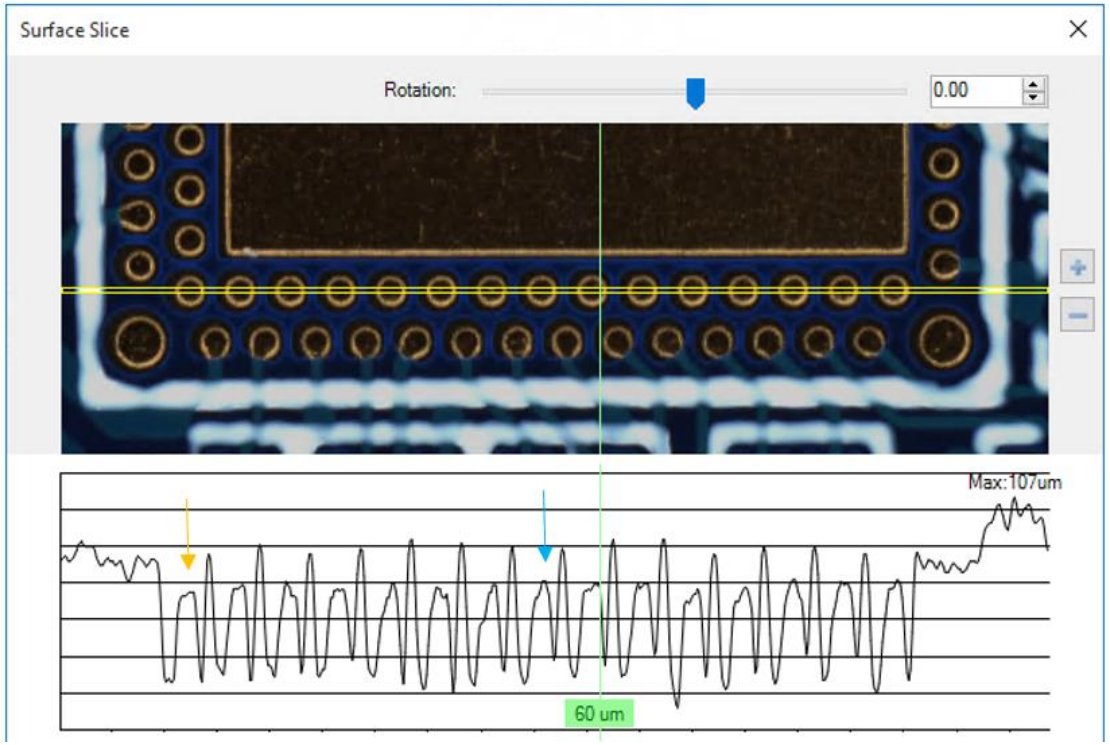
Feiltyper stensiltrykk: «Fat silkscreen»





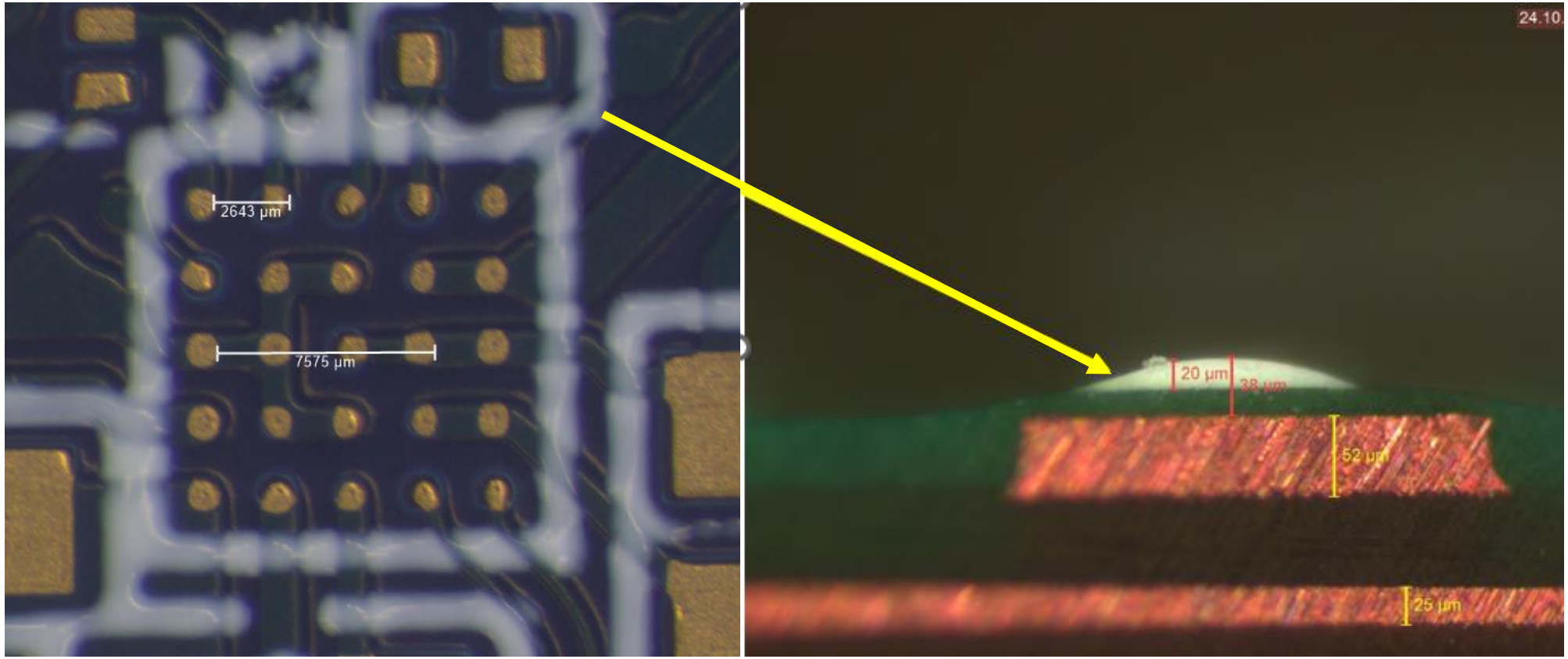
Layer Stack Legend

Layer	Material	Thickness	Dielectric Material
Top Overlay			
Top Solder	Surface Material	0.050mm	Solder Resist
Top Surface Finish	Nickel, Gold	0.003mm	
Top Layer	Copper	0.035mm	



Silketrykk

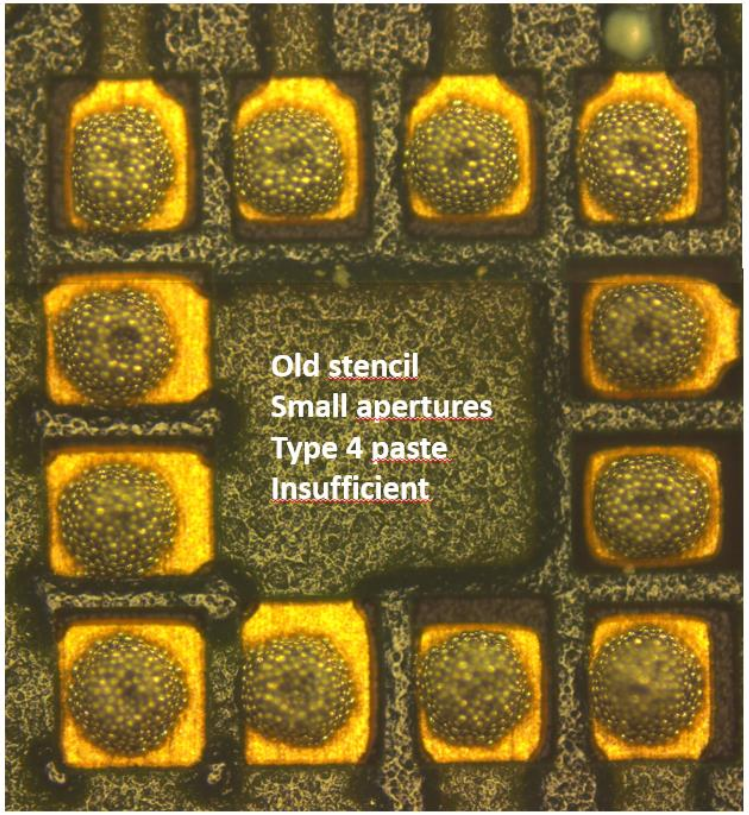
- Silketrykk må være «flat»
- (Direct legend printing) (DLP), eller (Laser direct Imaging)(LDI)
- Eventuelt fjernes helt rundt komponenter med svært tett pitch !



Valg råvarer: Loddepasta (Type 4 / type 5)

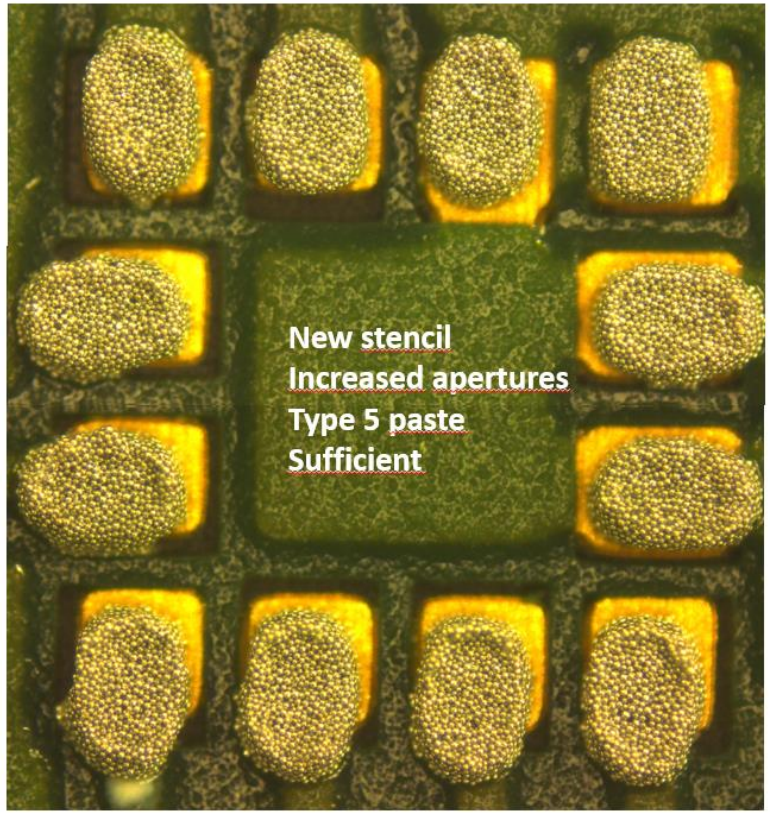
Activity level ROL0
Type 4 (20 – 38)µm particle size

The "larger" particle size (type 4) provide a less stable deposit of solder material through the smallest aperture openings.
There is a risk for partial "clogging" of the solder stencil aperture opening during solder paste screen printing.

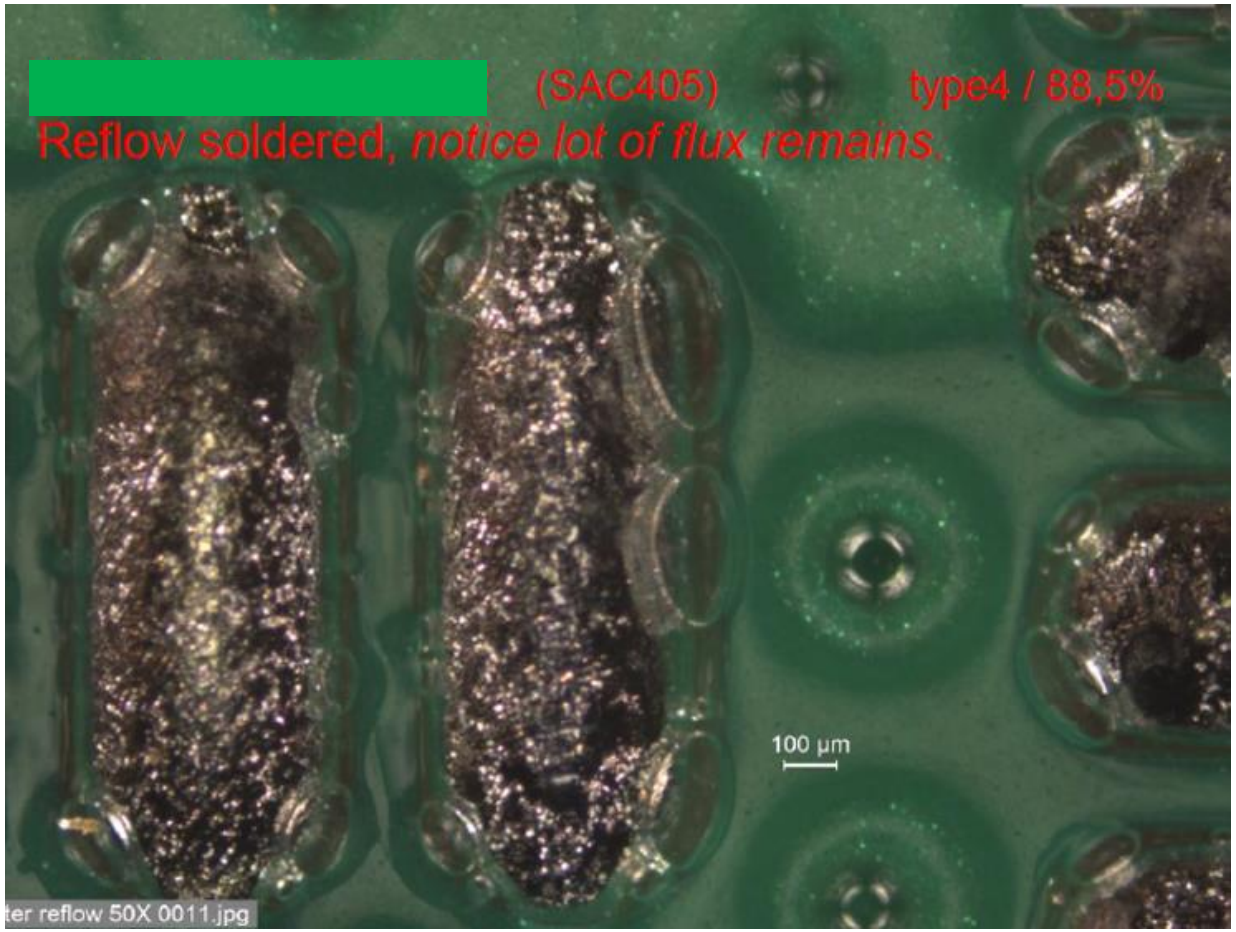


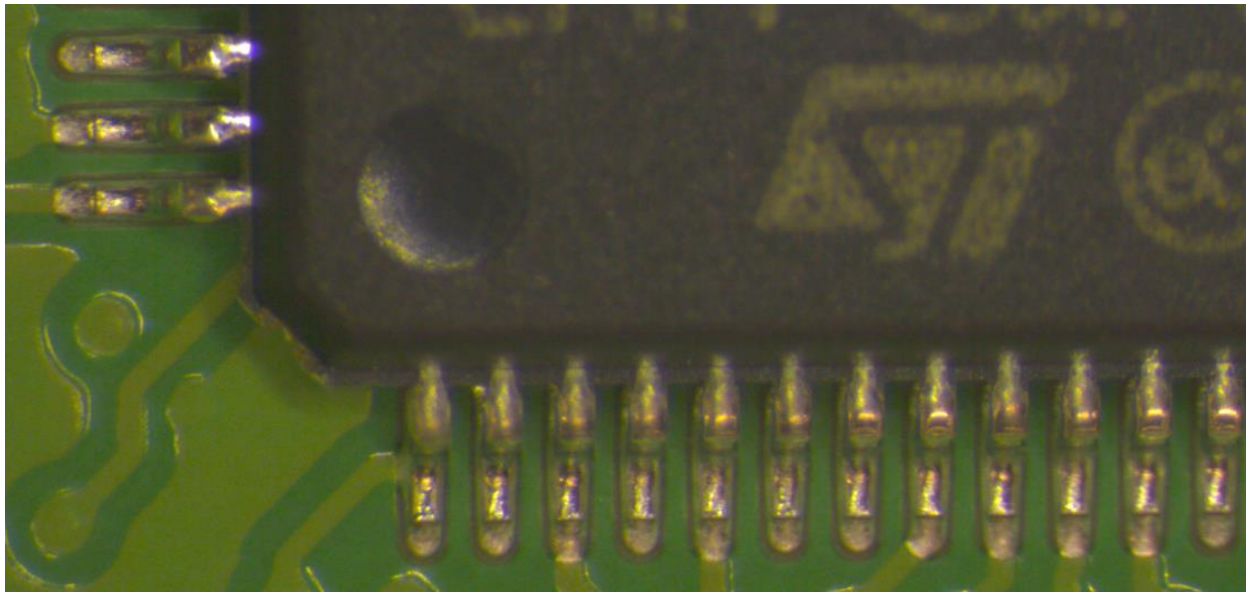
Activity level ROL0
Type 5 (15 – 25)µm particle size

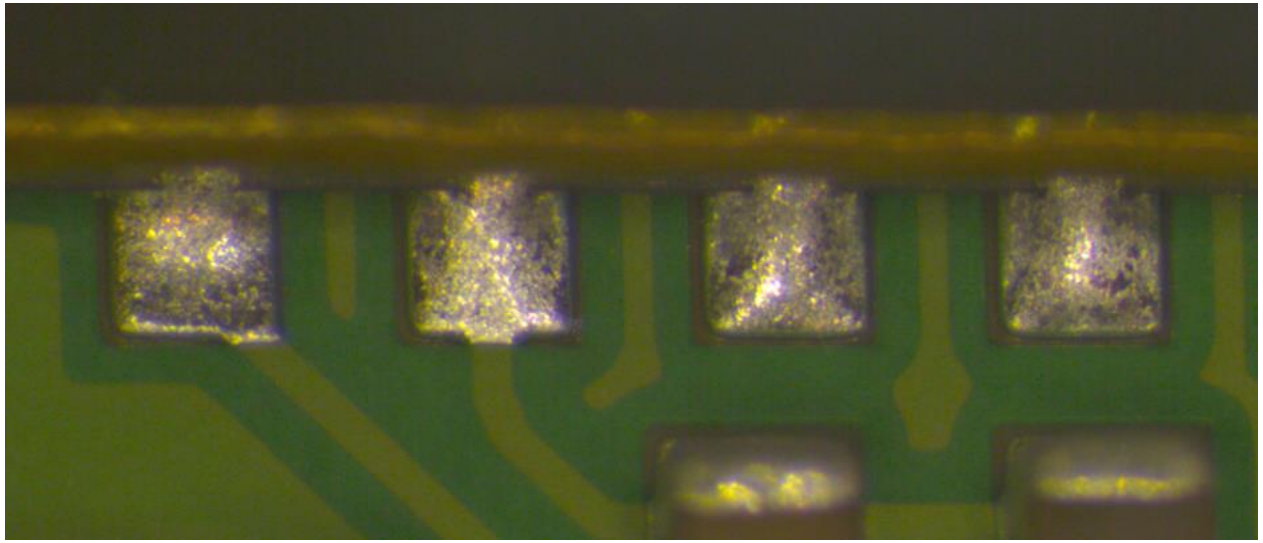
The smaller particle size (type 5) ensures the solder material is passed through the aperture opening and deposited on the solder pad terminal.



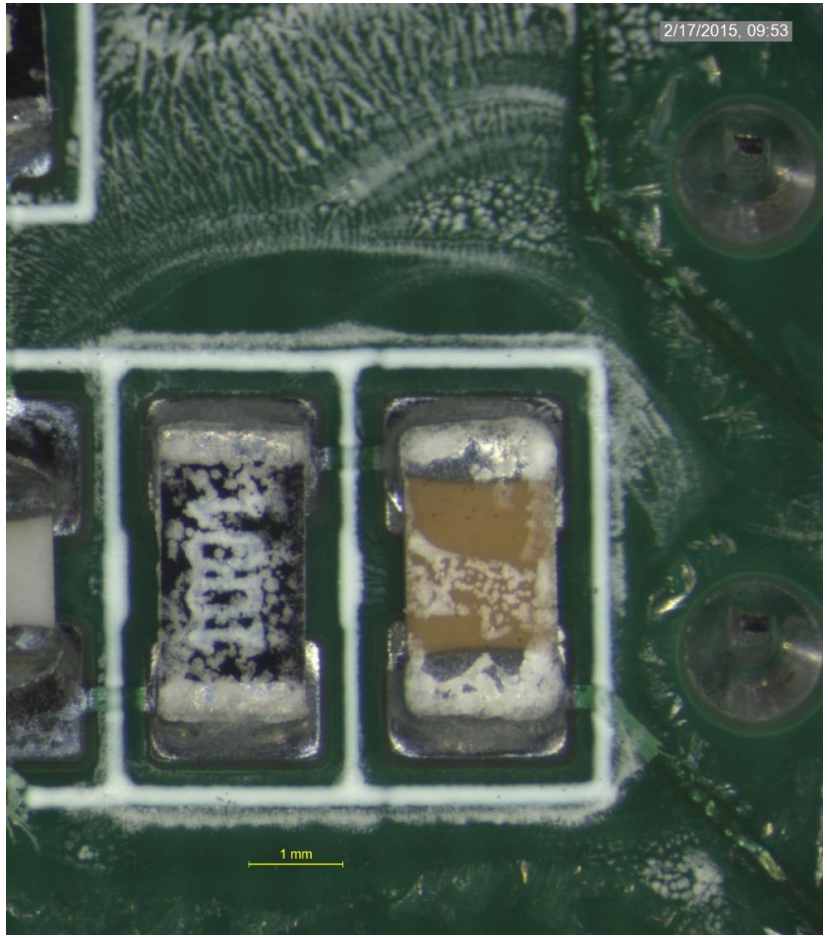
Valg råvarer: Flussrester loddepasta *(Begge metallinnhold 88,5%)*

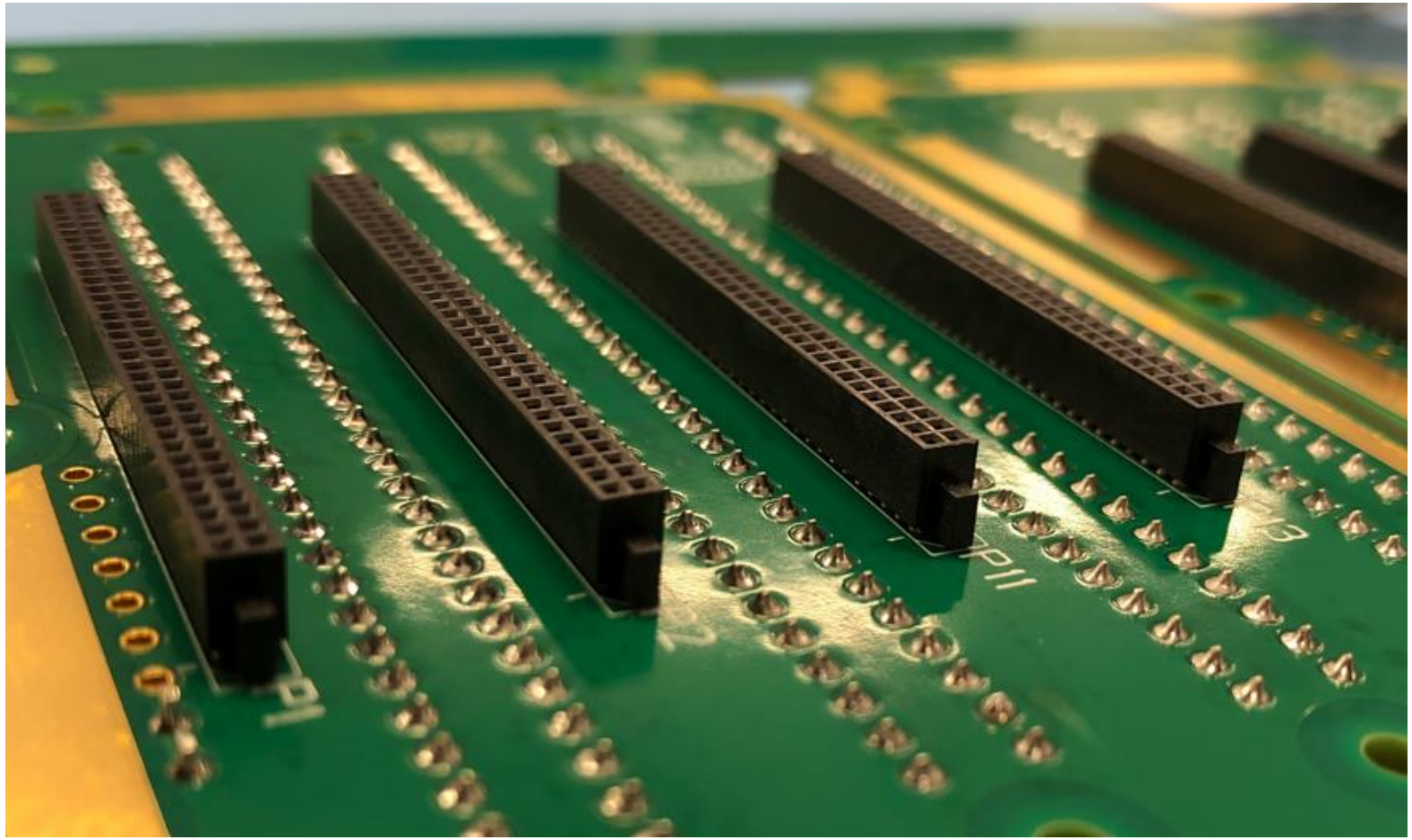






Valg råvarer: Fluss (Selektiv) Begge (ORL0)



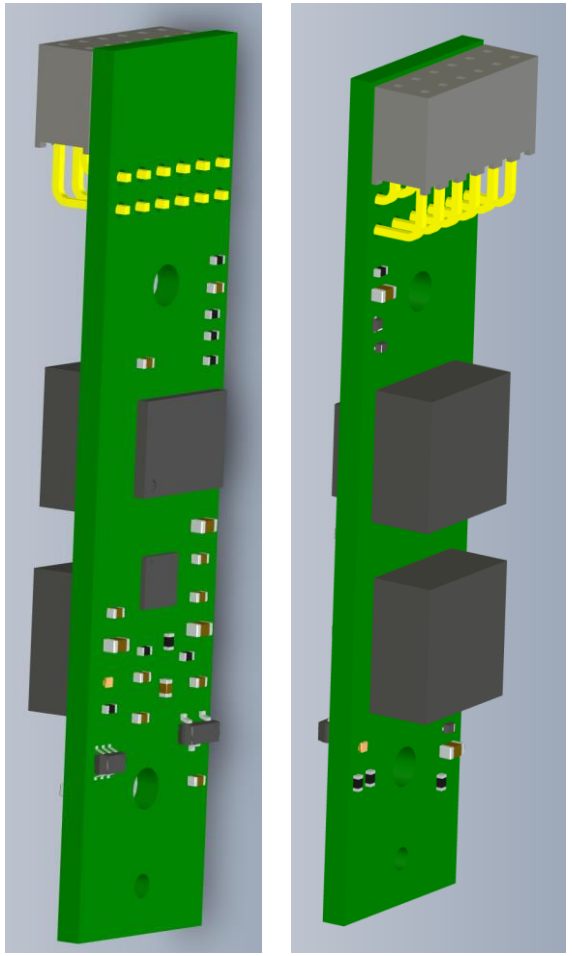


Laminat

- Valg av «riktig» laminat for krevende miljø !

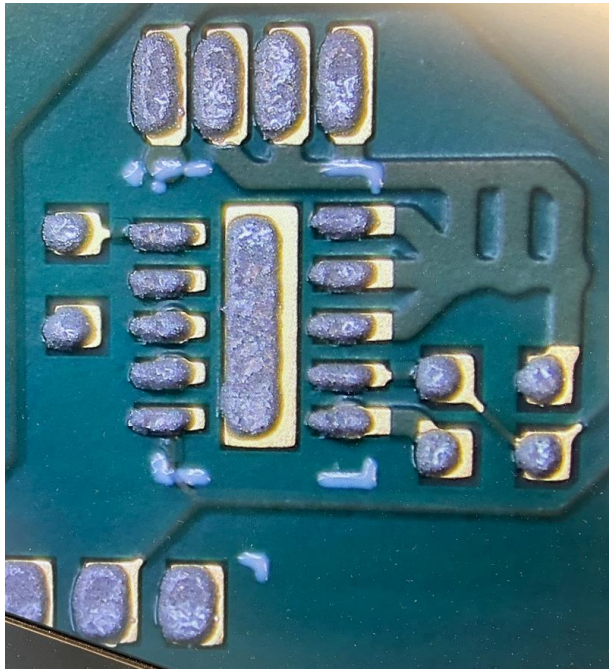
Ventec International Group Co., Ltd. is pleased to announce that its VT-901 polyimide material is now fully qualified by ESA in ACB Belgium's manufacturing process for rigid and rigid-flex polyimide PCBs and HDI PCBs.

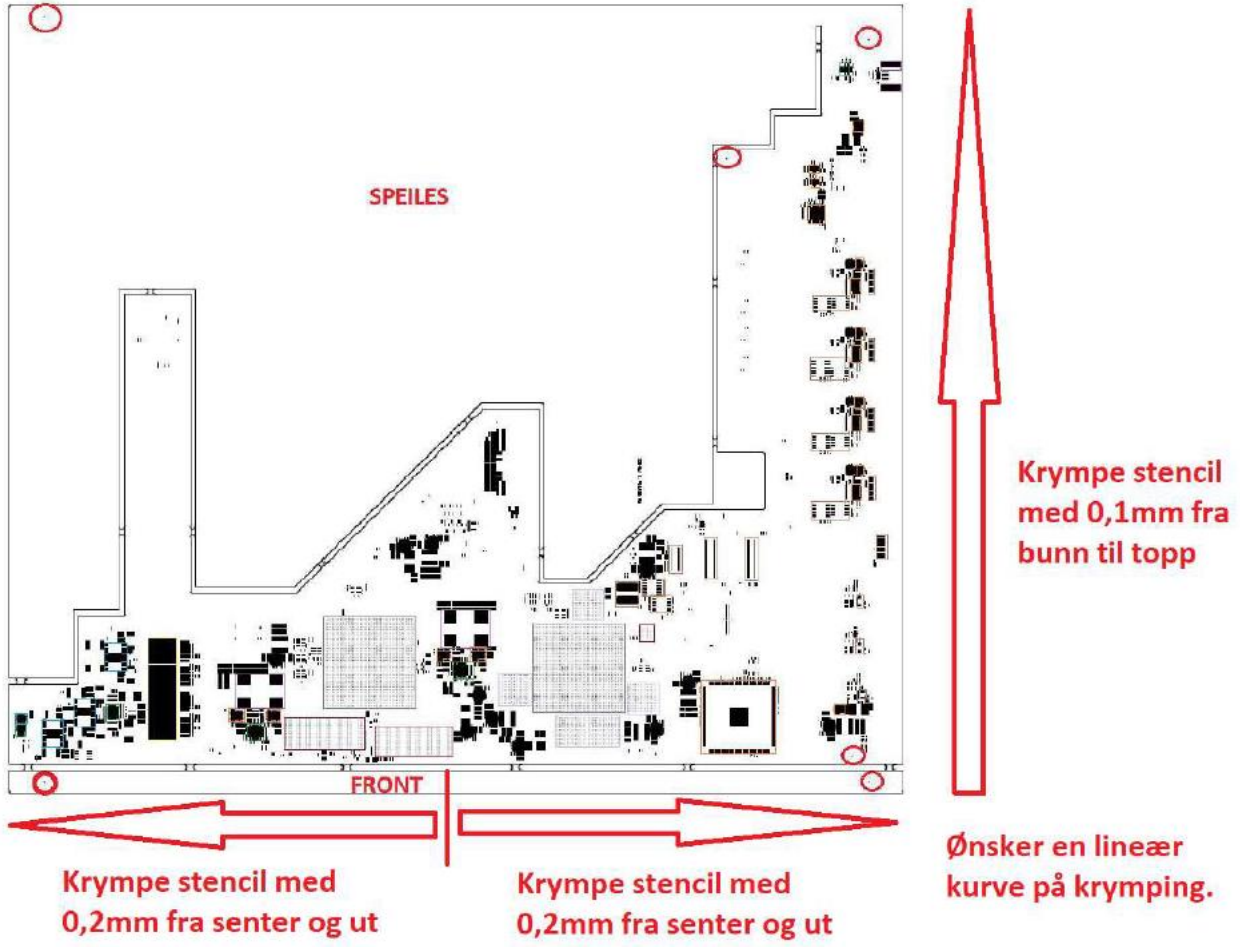
With high Td (395°C), a Tg of 250°C and Low-Axis CTE (50), Ventec's VT-901 polyimide material provides the extremely high reliability performance demanded by ACB's flex & flex-rigid and HDI PCB manufacturing process that meets ESA requirements.

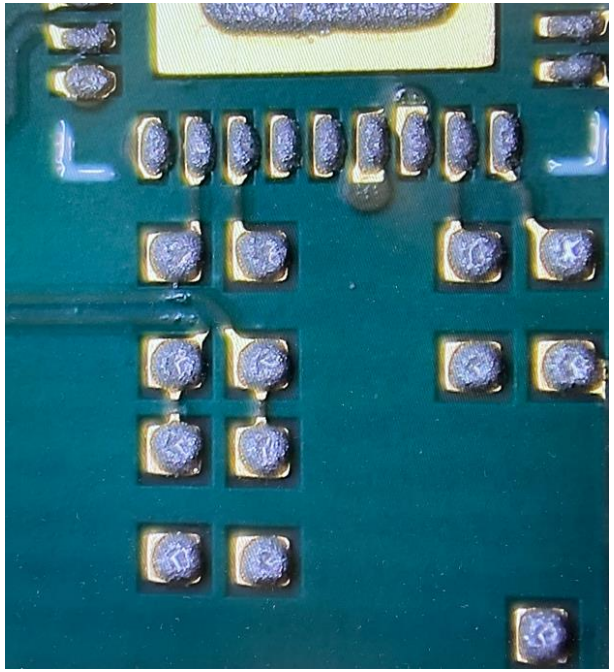


Laminat

- Enkelte laminater «krymper» etter første loddeprosess. Eksempel 0,5mm !

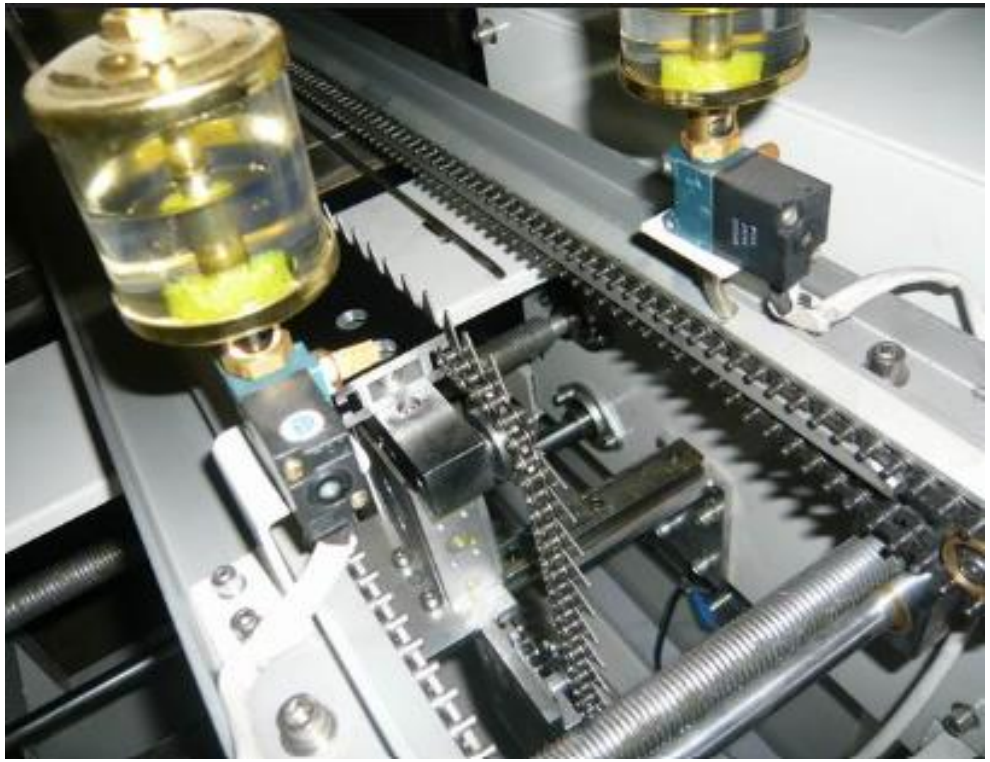


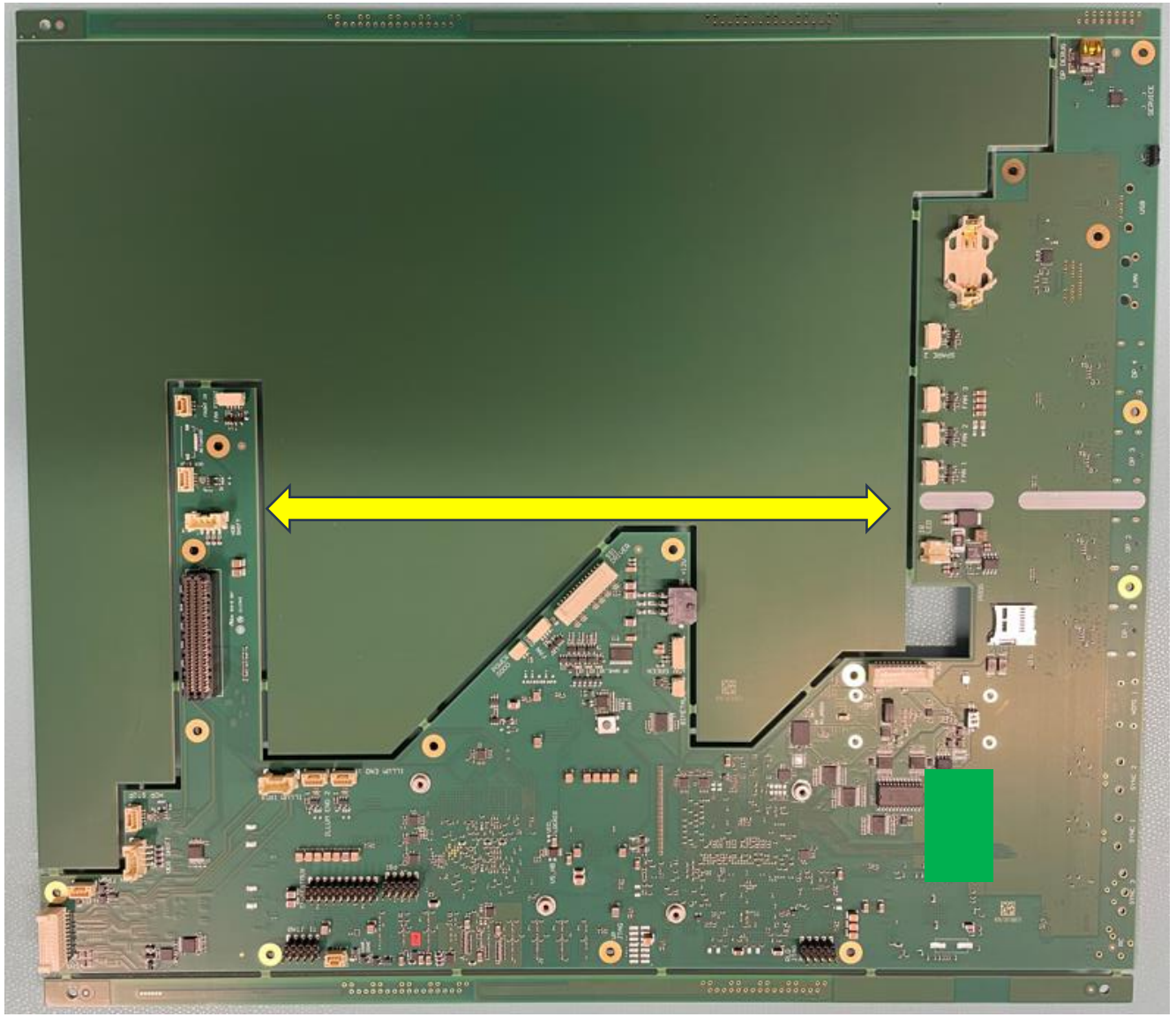




Plass for «Midtstøtte”

Legg inn plass for
midtstøtte på BREDE kort/paneler





Mønsterkortfarge, resist, fiducials

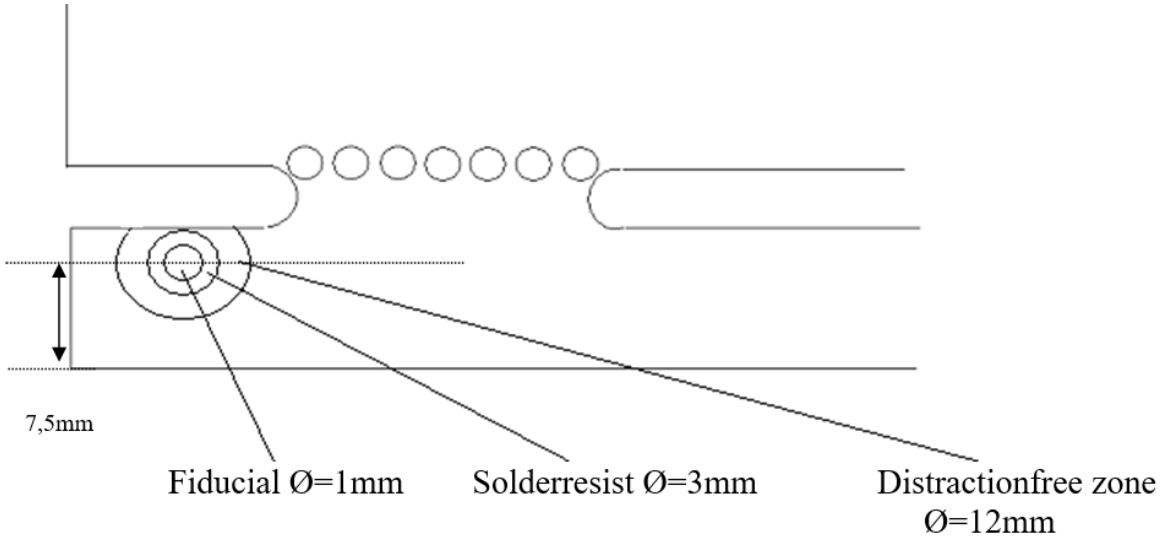
Lodderesist, farge: Grønn *(På grunn av AOI)*

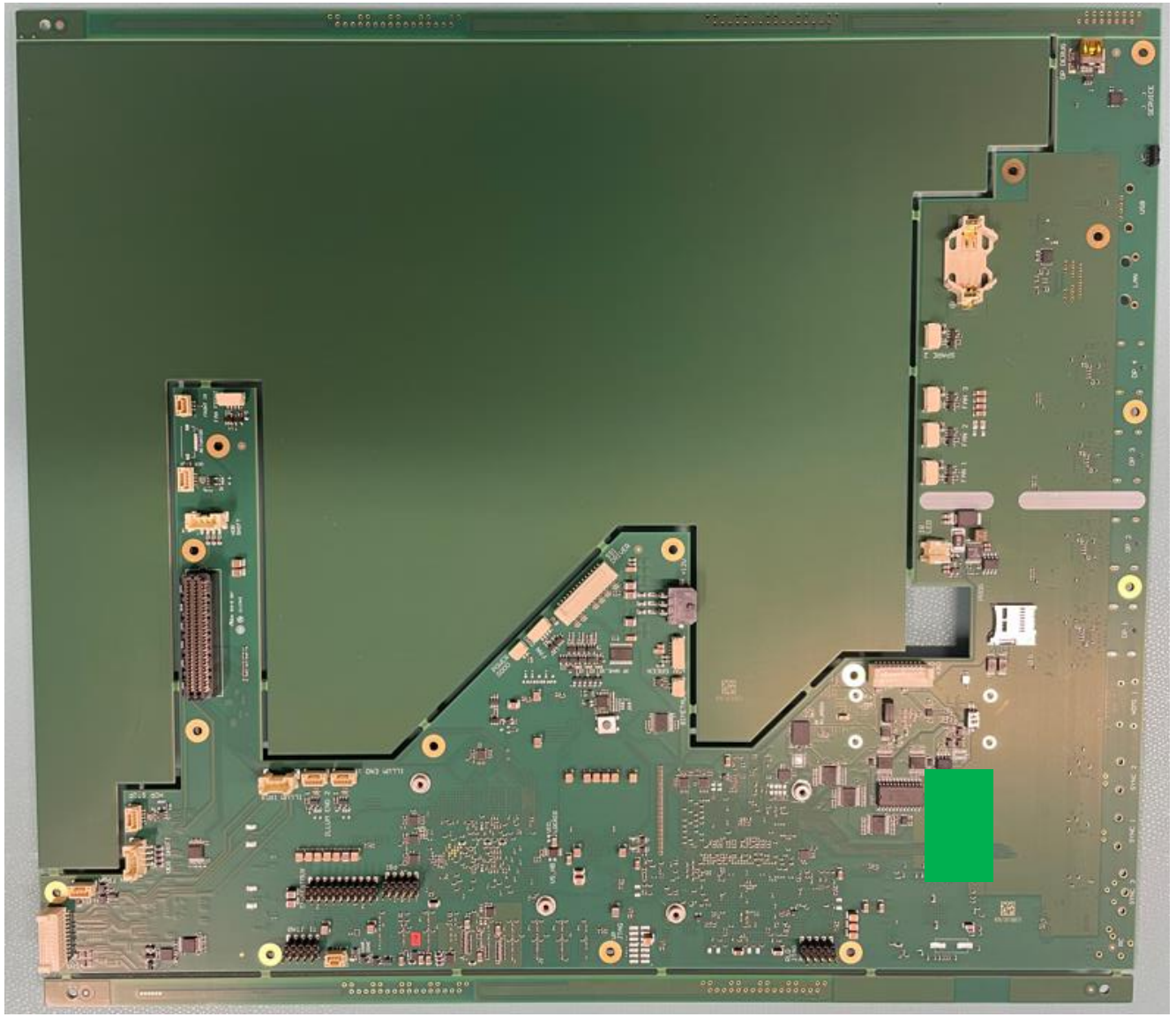
Opprettingsmerker: (*Fiducials*)

Plasseres asymmetrisk i hvert hjørne

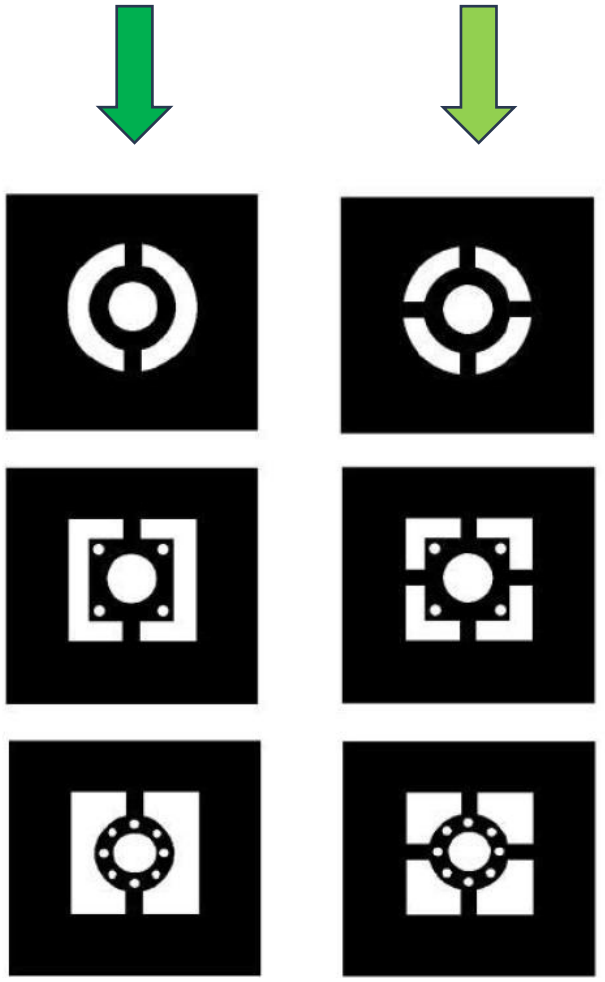
Lag som:

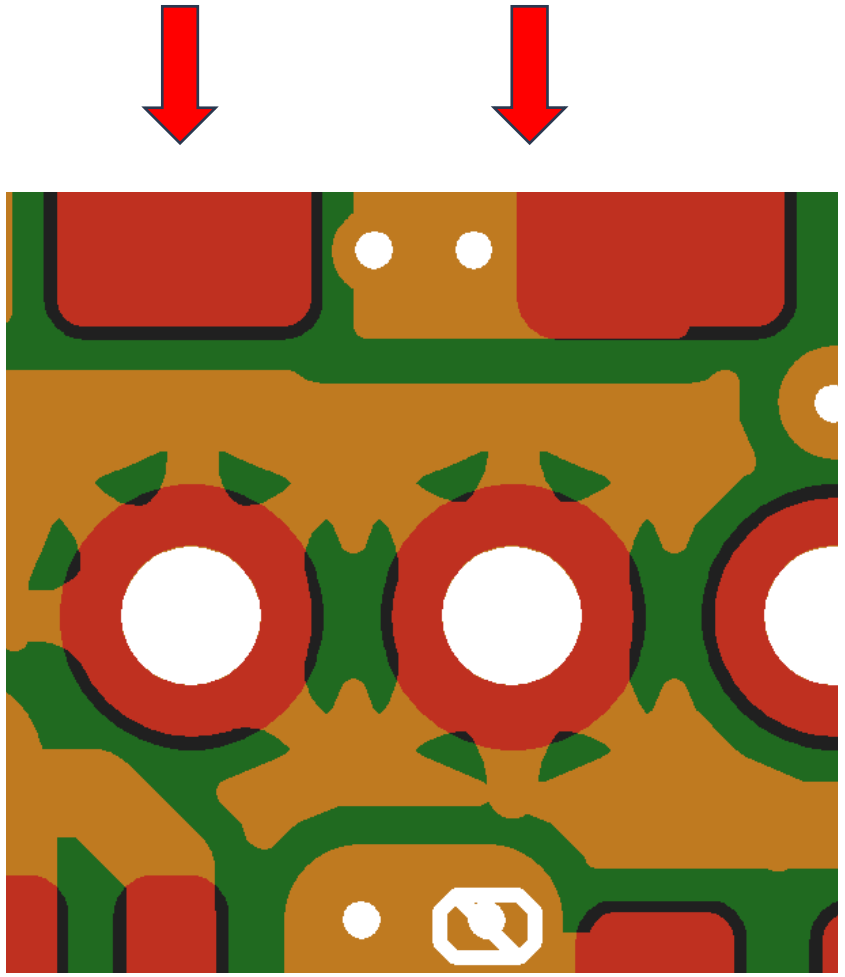
Sirkel	Ø=1,0mm
Åpning i resist	Ø=3,0mm

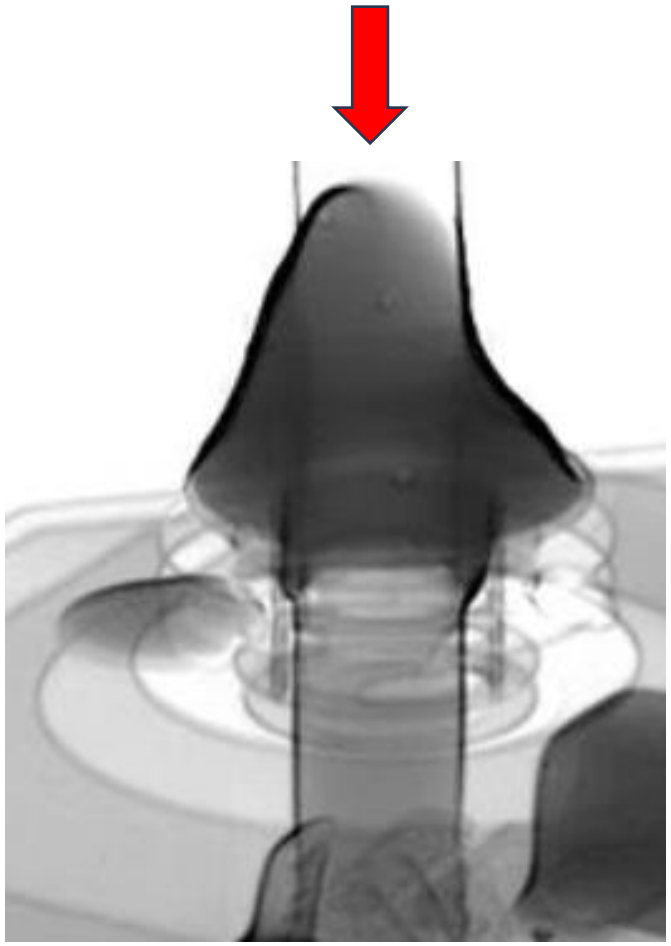




Termisk avkobling

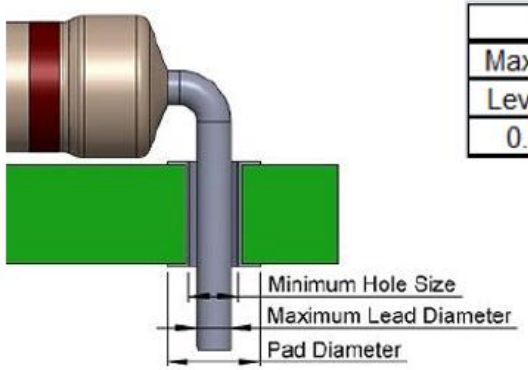






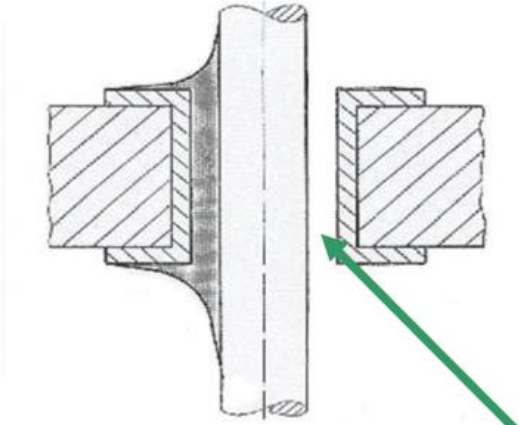
Termisk avkobling, hulldiameter

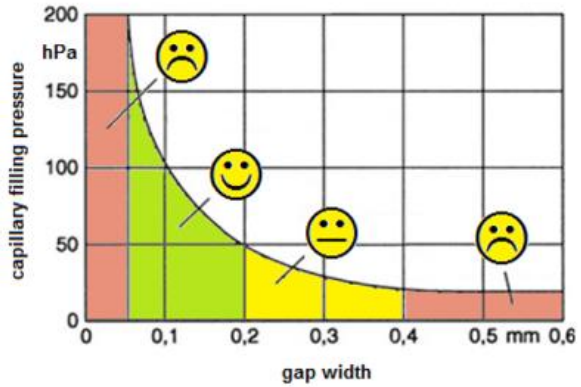
Hole sizes and tolerances



IPC-2222 Table 9-3		
Max Lead + Level = Min Hole		
Level A	Level B	Level C
0.25	0.2	0.15

Ratio of diameter pin – through-hole





capillary gap

To increase the transfer of heat into the plated through-hole, it is recommended to work on the upper limit of the capillary gap.

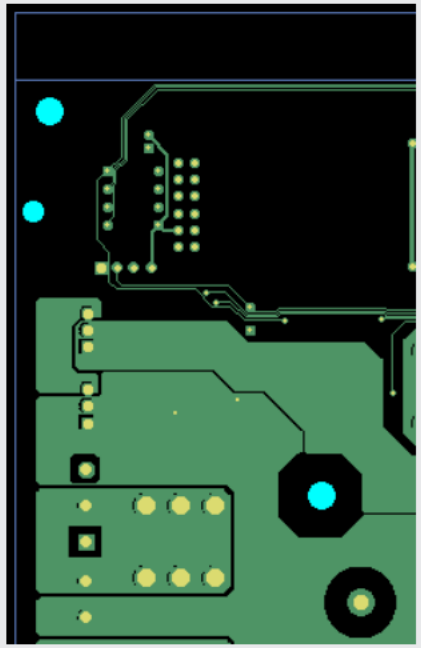
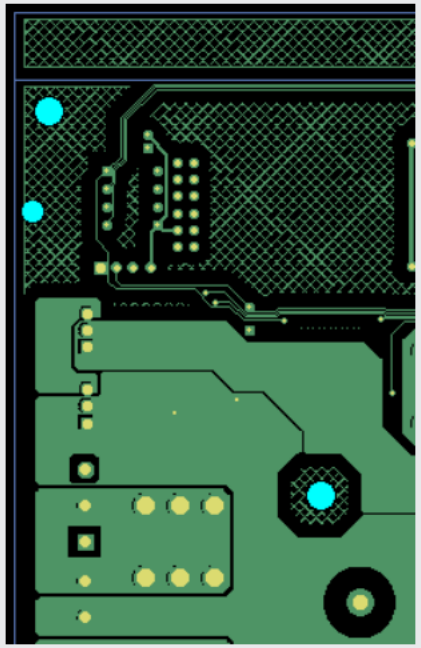
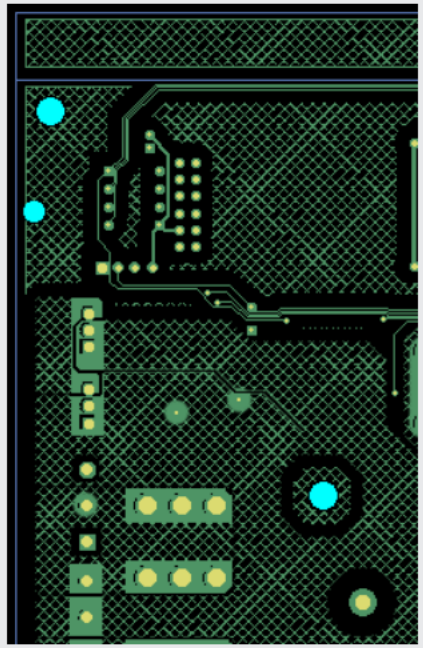
Table 9–5 PTH Diameter to Lead Diameter Relationships, mm [in]

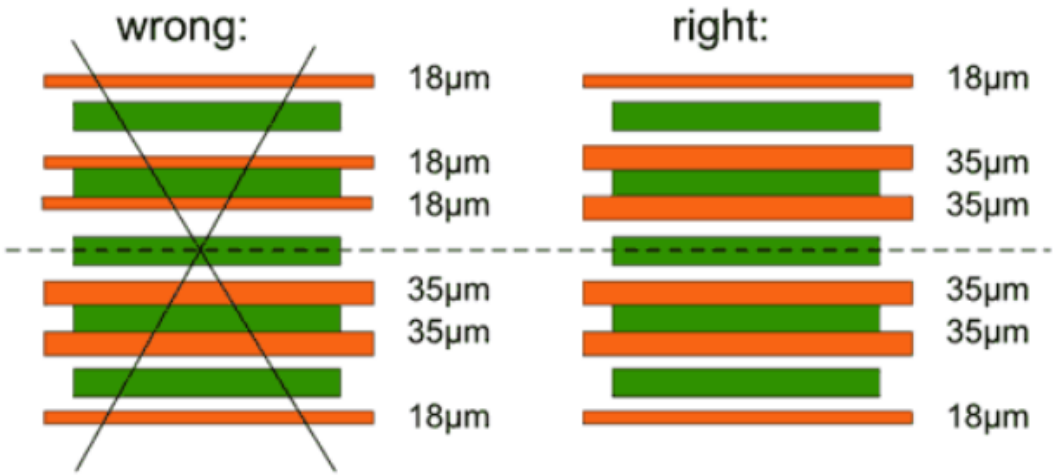
Lead Diameter	Level A	Level B	Level C
Maximum hole to minimum lead diameter	No greater than 0.7 [0.028] over minimum lead diameter	No greater than 0.7 [0.028] over minimum lead diameter	No greater than 0.6 [0.024] over minimum lead diameter
Minimum hole to maximum lead diameter	No less than 0.25 [0.0098] over maximum lead diameter	No less than 0.20 [0.0079] over maximum lead diameter	No less than 0.15 [0.006] over maximum lead diameter

Kobberbalansering

- Prevents twist & bow of the circuit board.

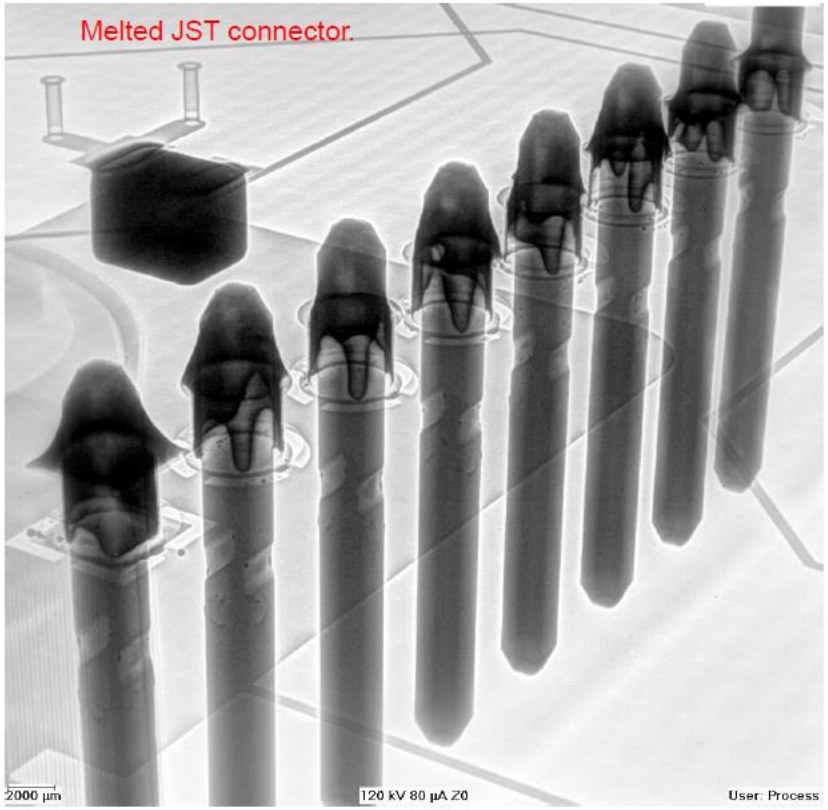
Design example of copper areas

OK	Better	Perfect
		
Without fill/grid	Filled areas	Filled areas + grid

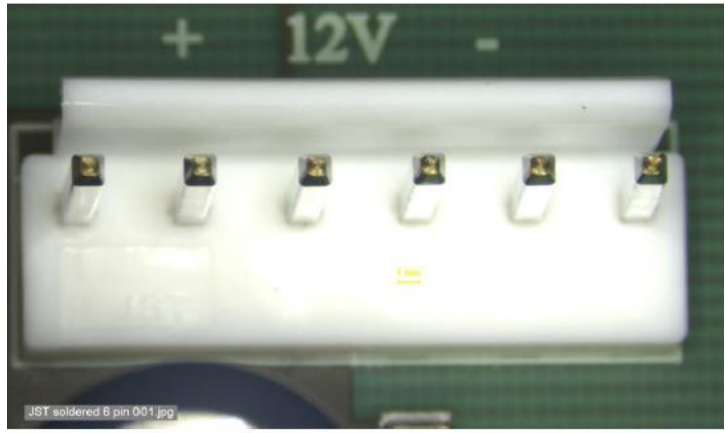


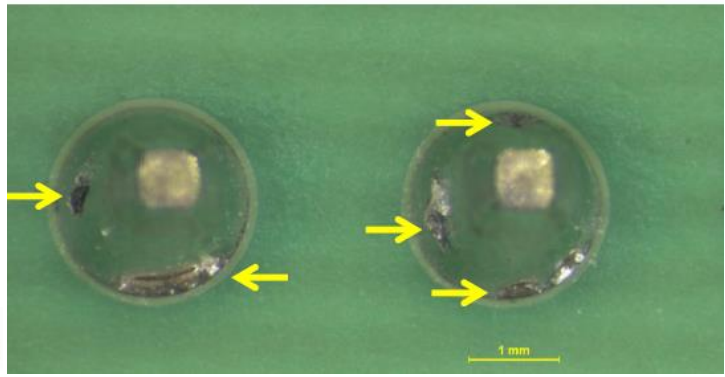
Plasttype i konnektorhus

- Type plast i plastkomponenter, (*konnektorhus*), bør tåle en varm loddeoperasjon !



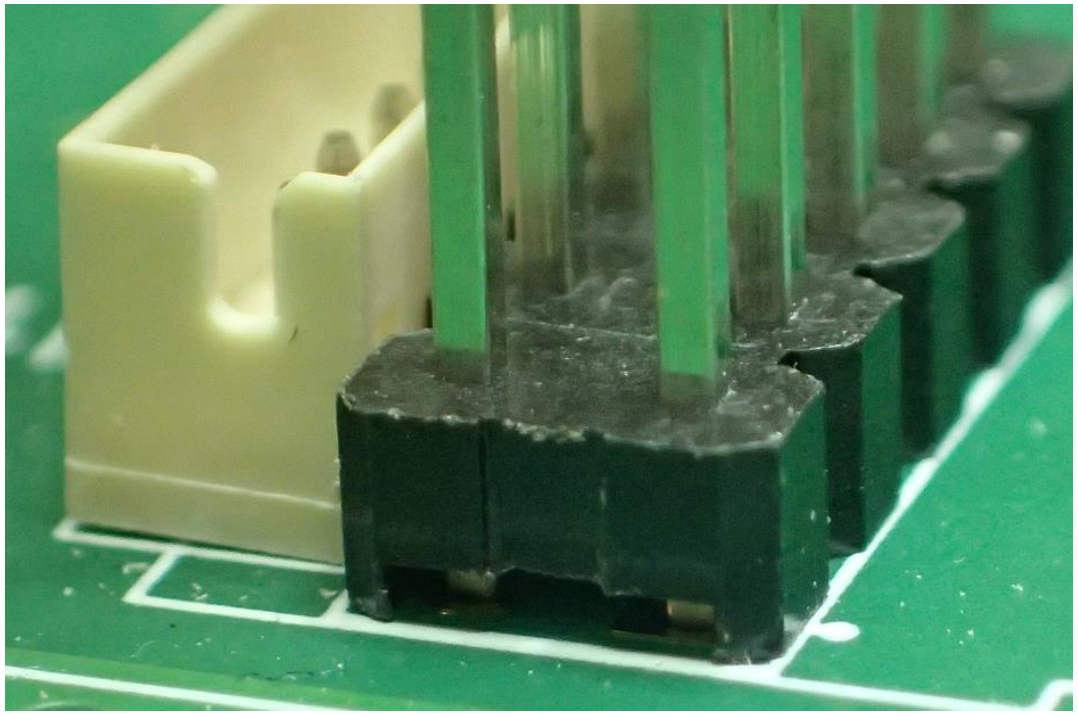
Operating Temperature	-25 to 105 °C
Max Processing Temp	240|260|265
Housing Material	Polybutylene Terephthalate

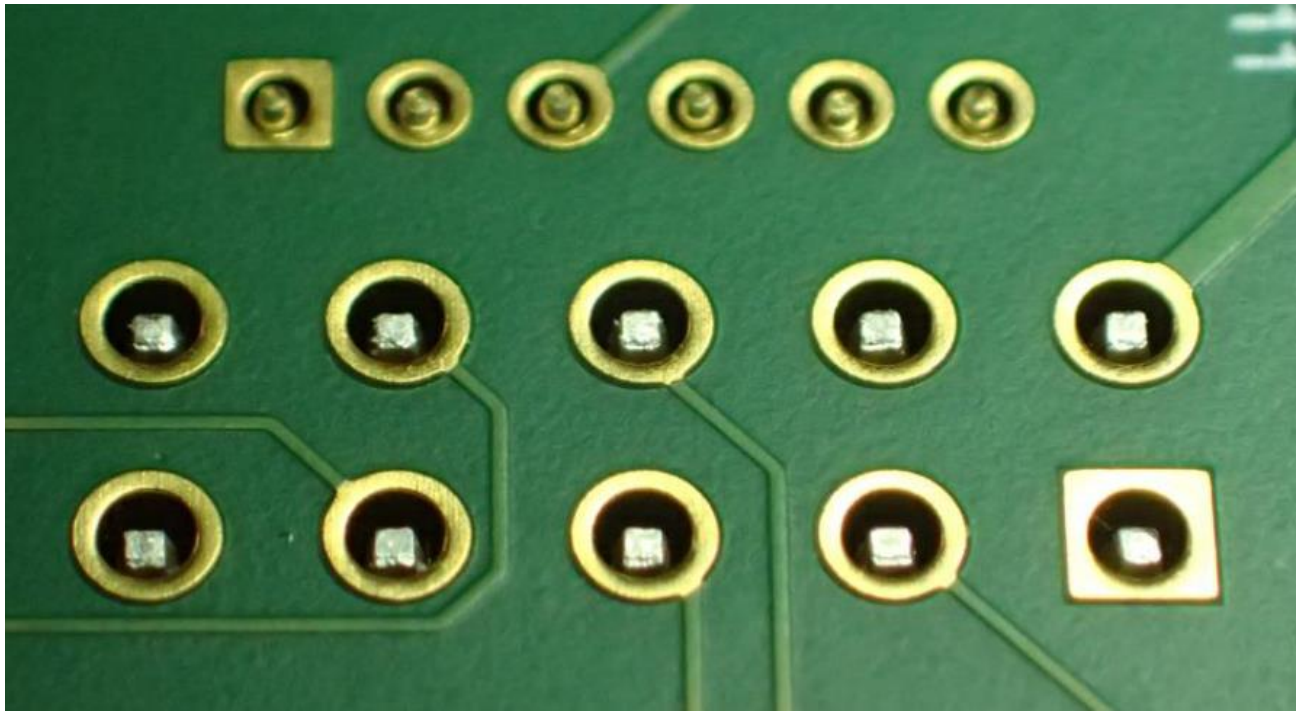




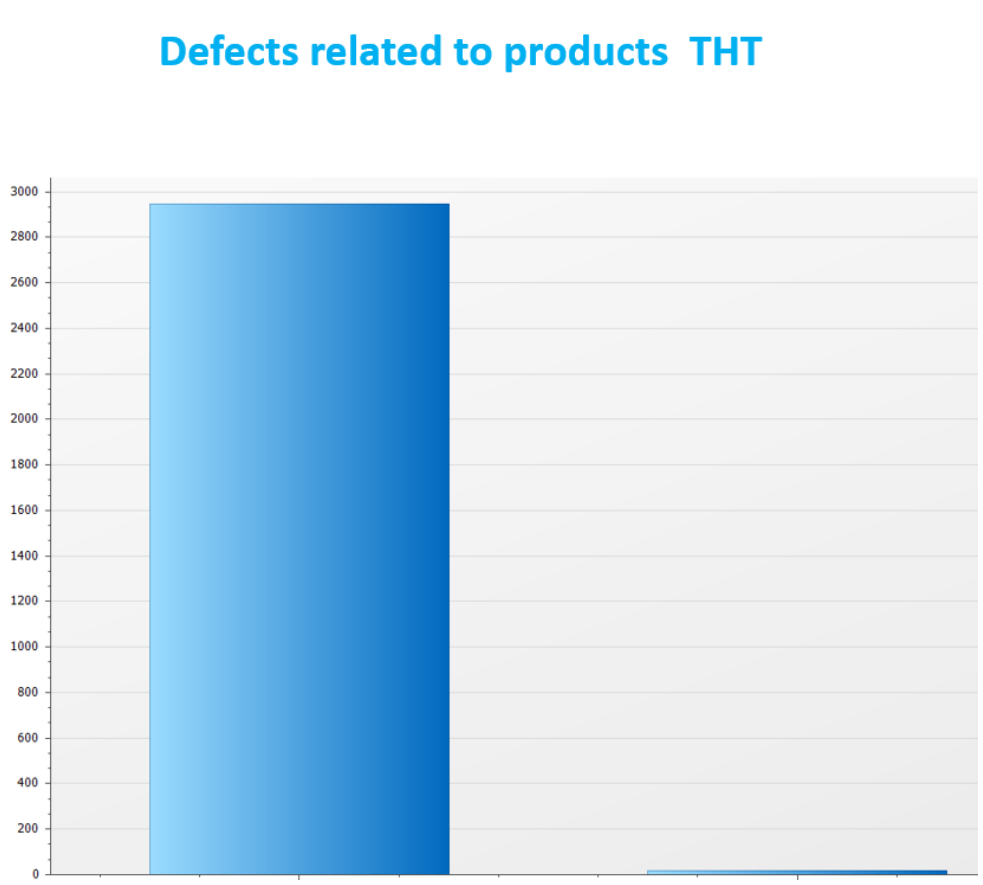
Terminallengde

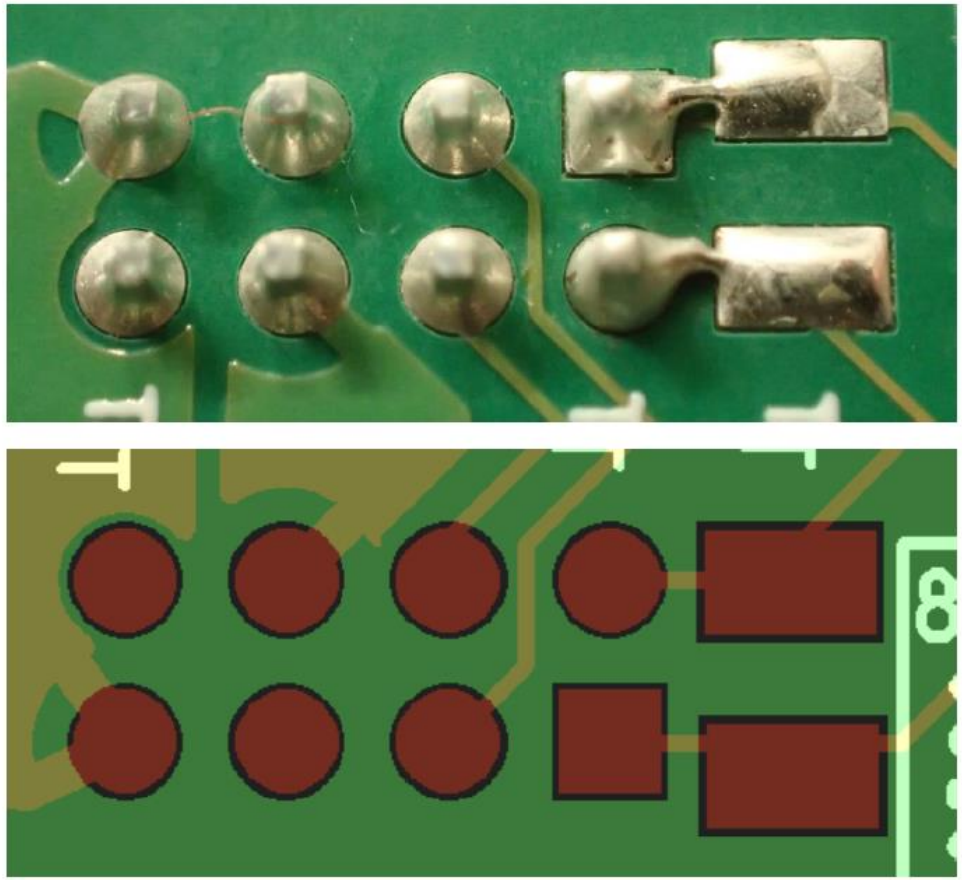
- *Korte terminaler på konnektor gir ikke kortslutninger under produksjon !*





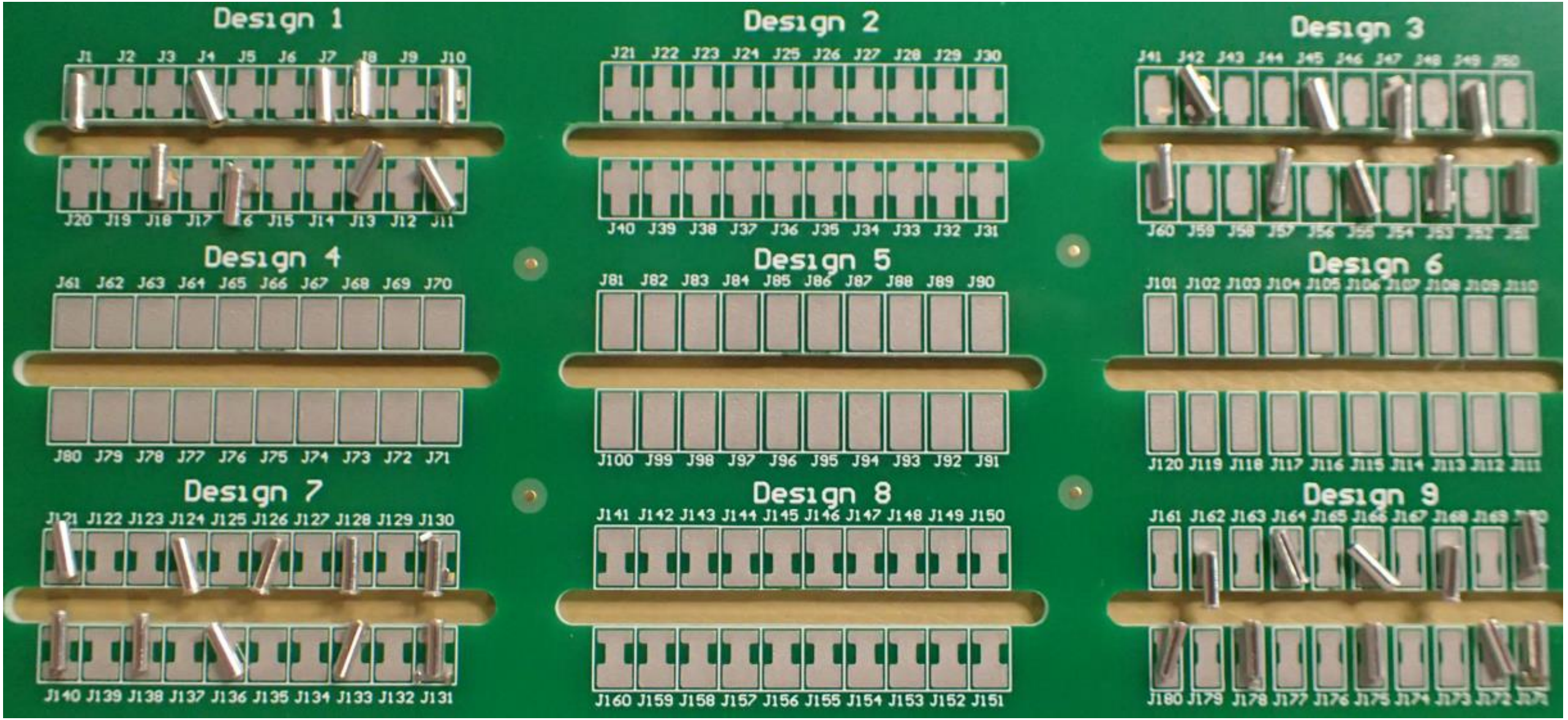
Loddefeller i design hindrer «Rework»



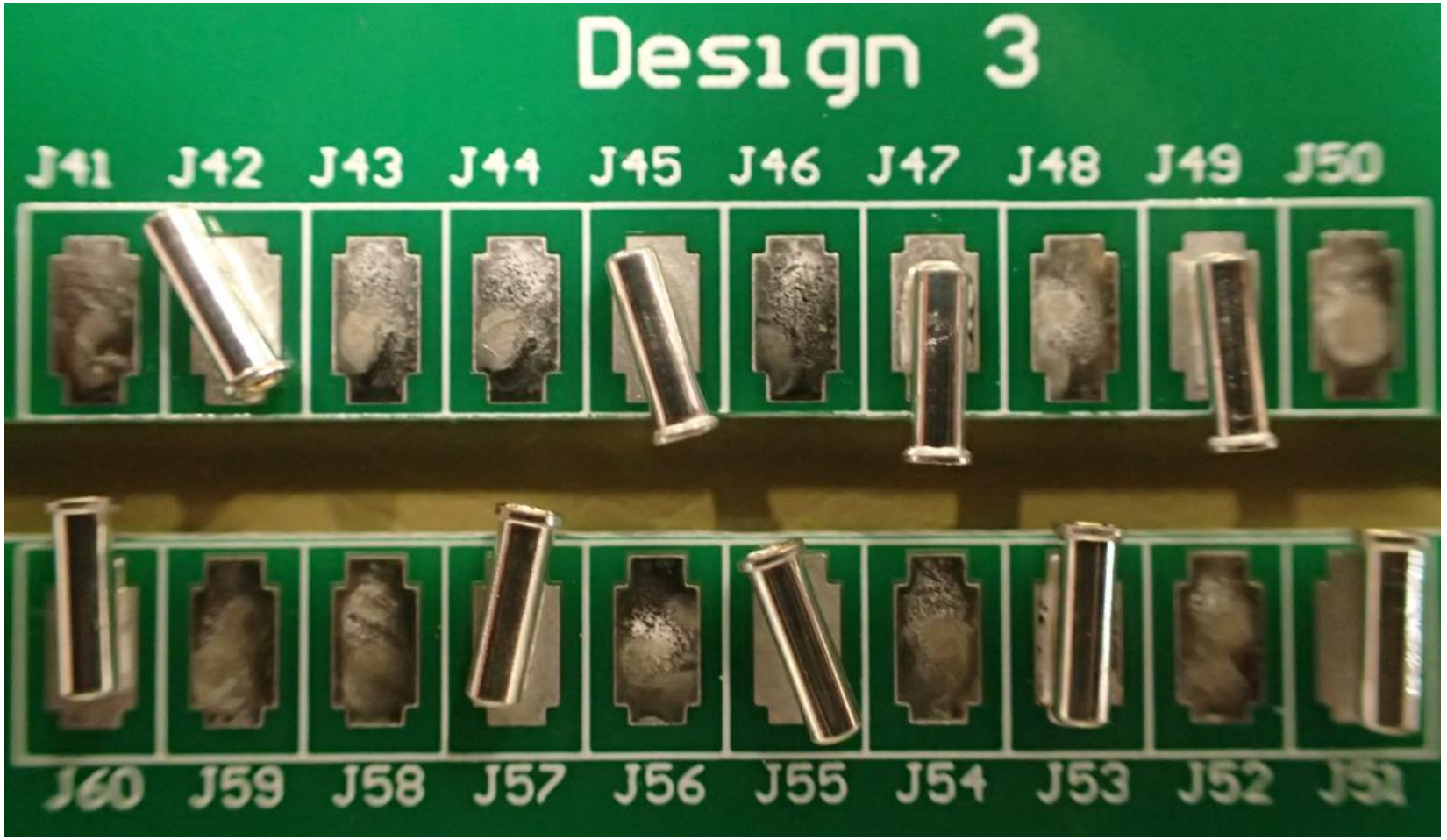


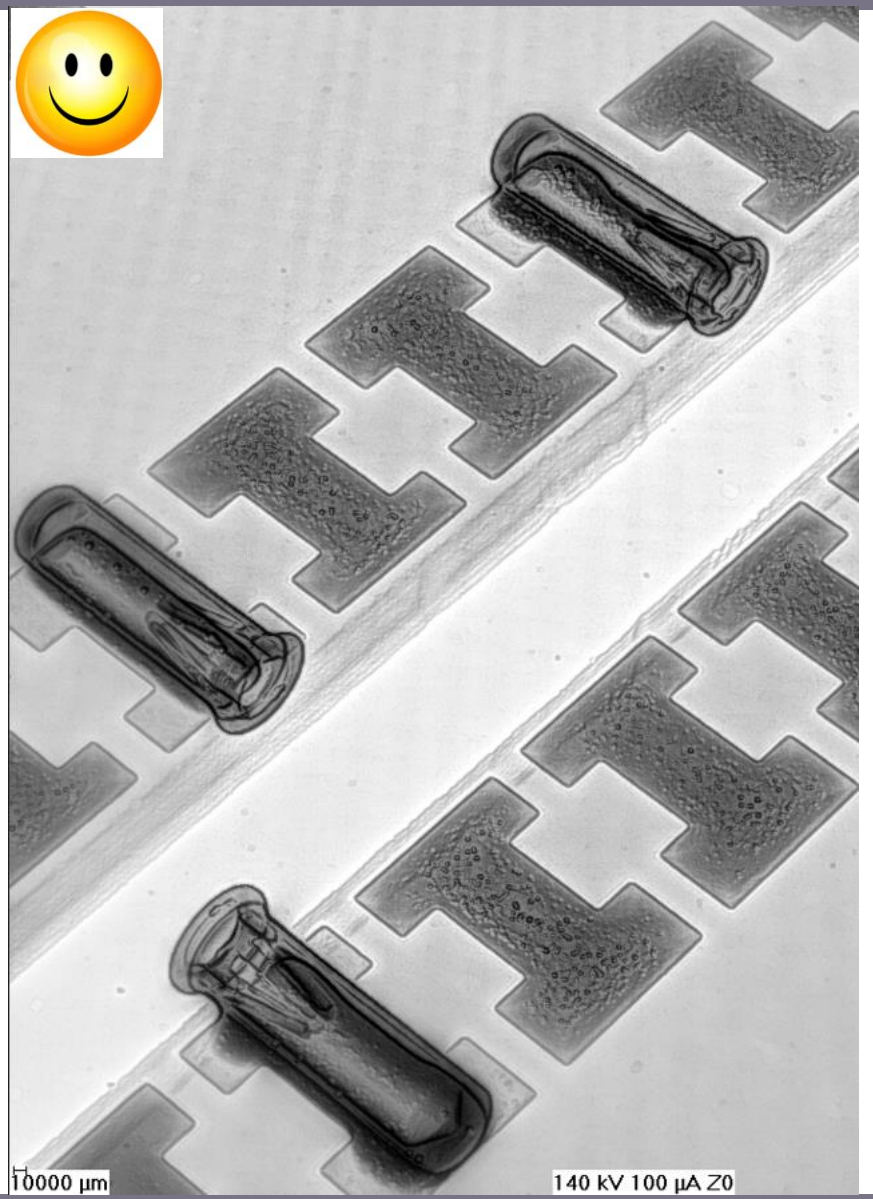
Retning selektiv nozzle

Selvsentrerende padutlegg

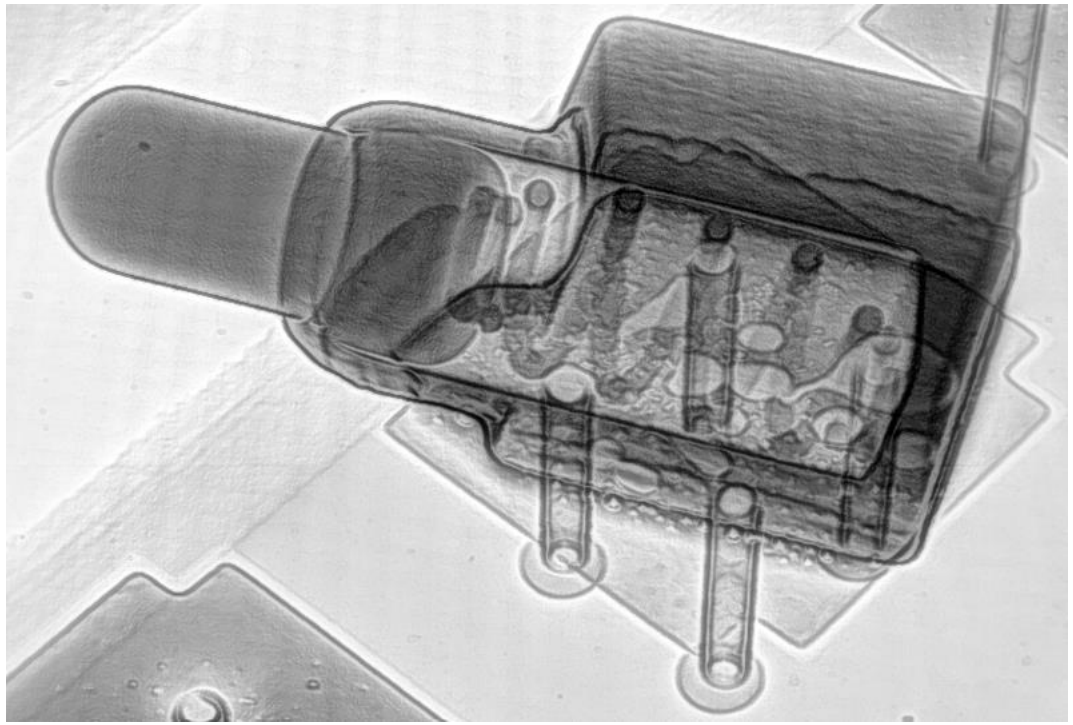


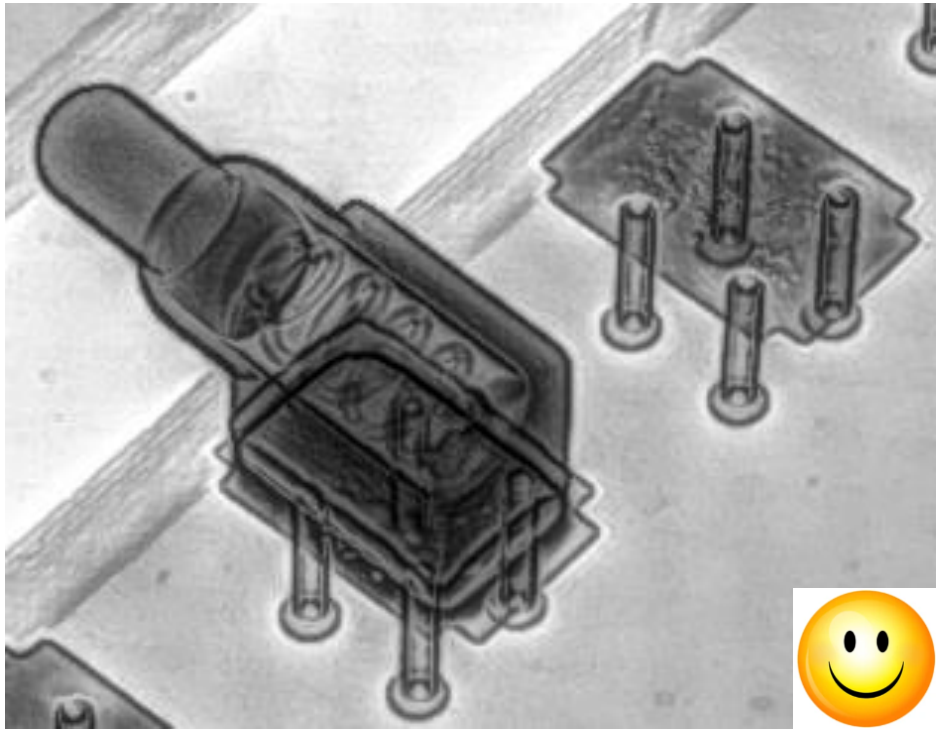
Selvsentrerende padutlegg

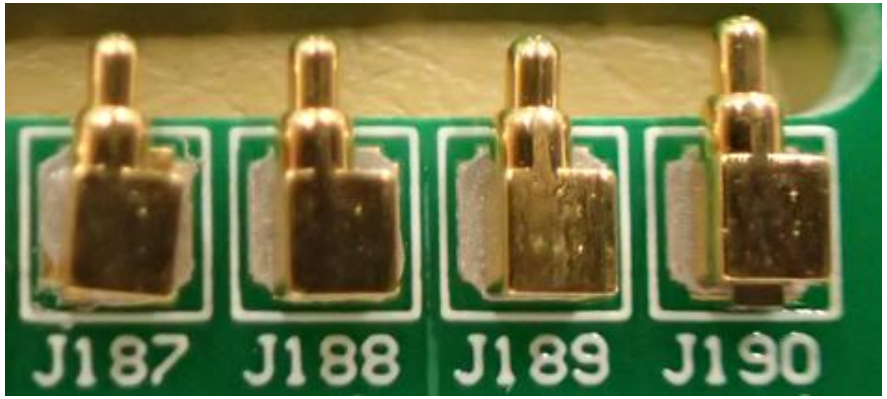


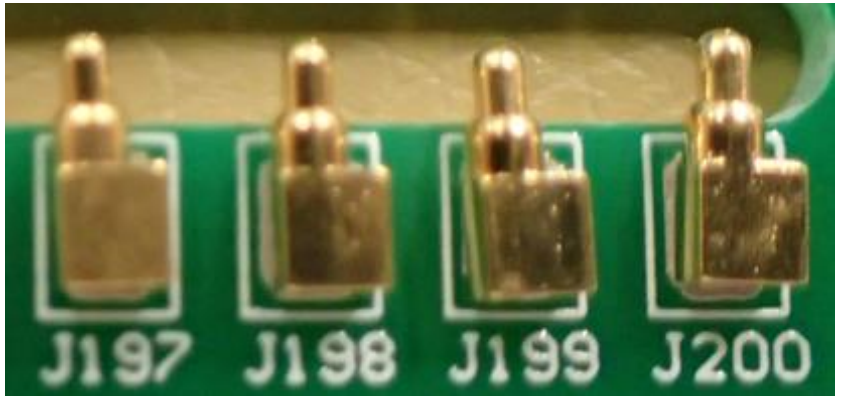


Selvsentrerende padutlegg

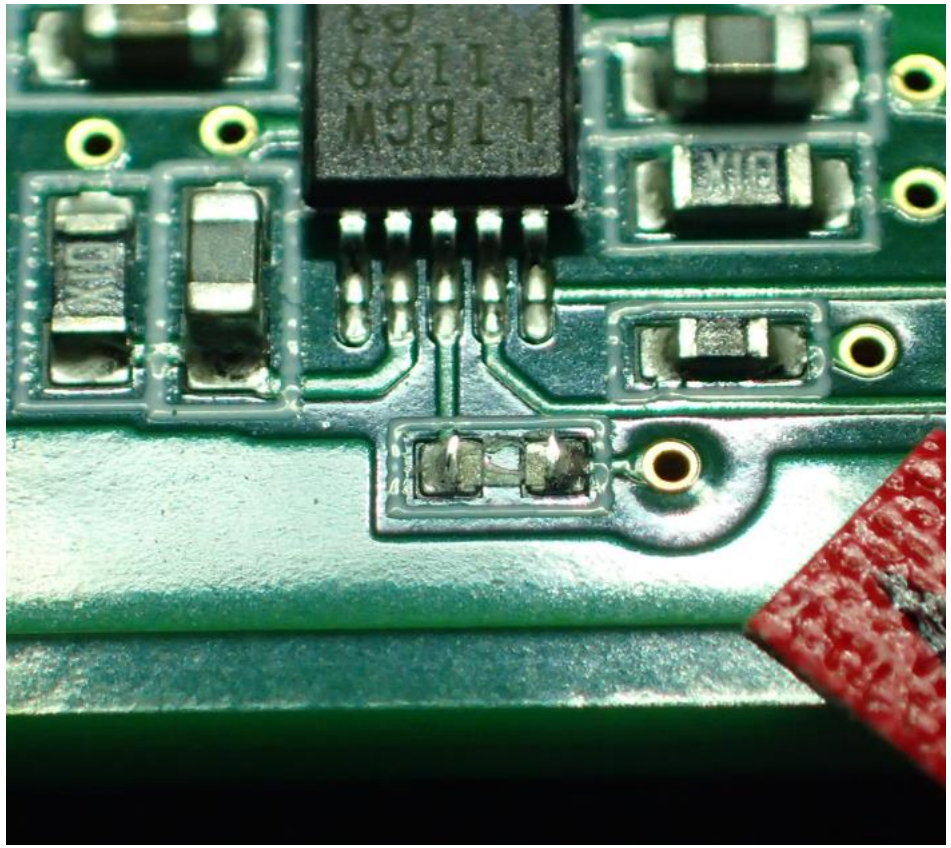


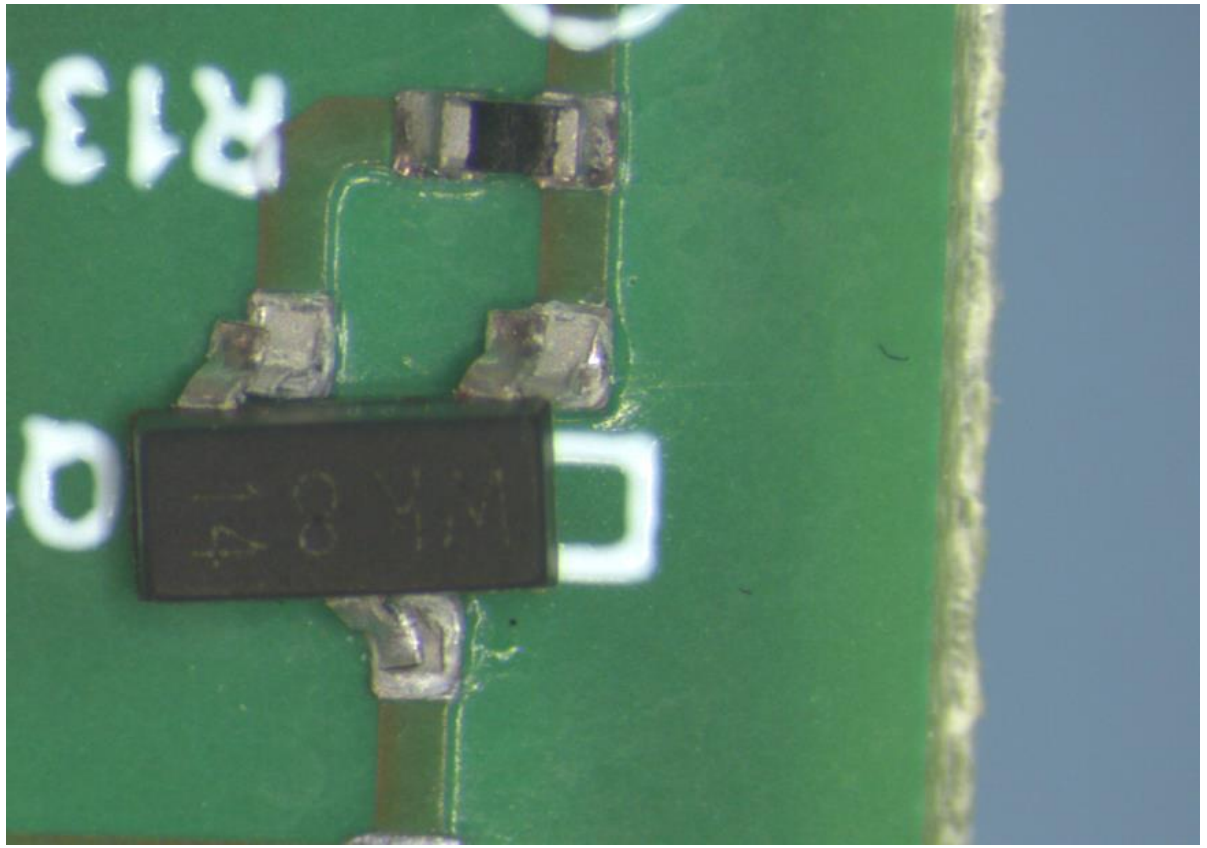




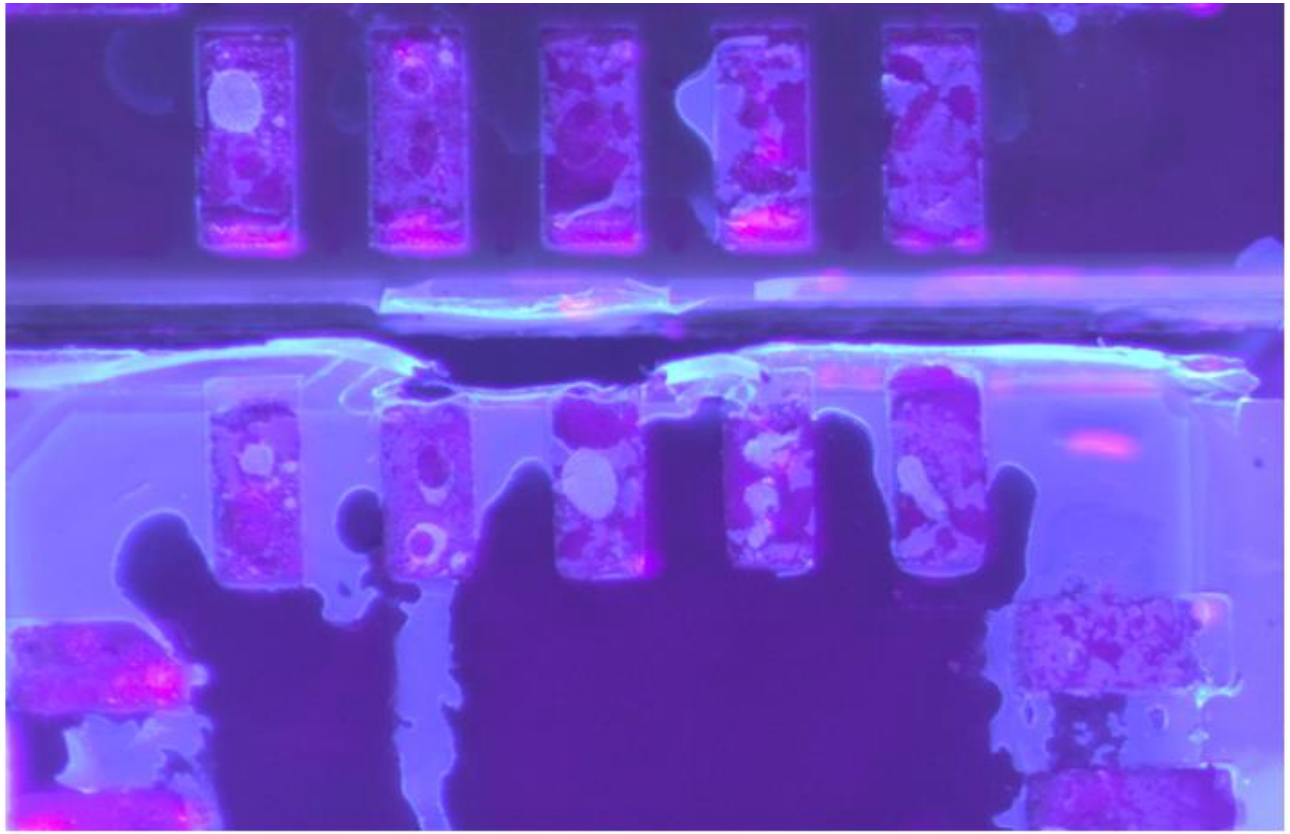


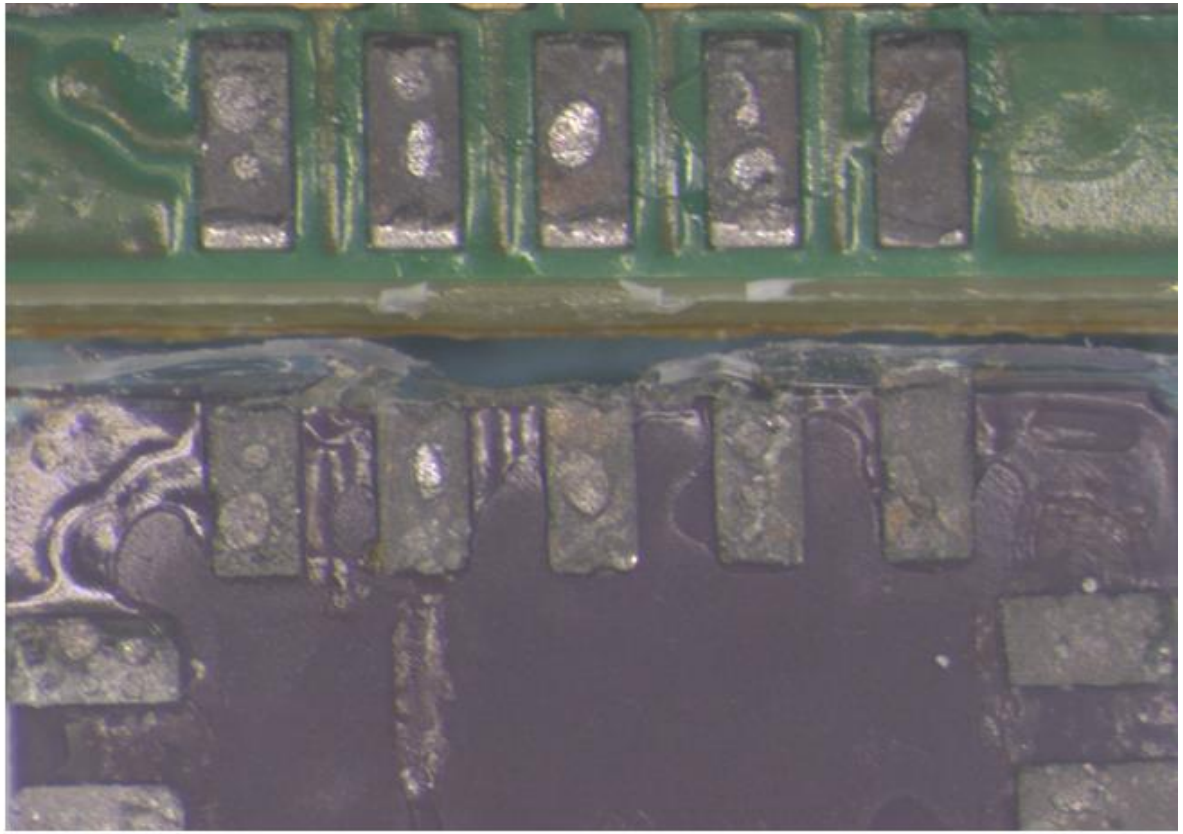
Komponenter nær kortkant





Komponenter nær kortkant (V-cut)





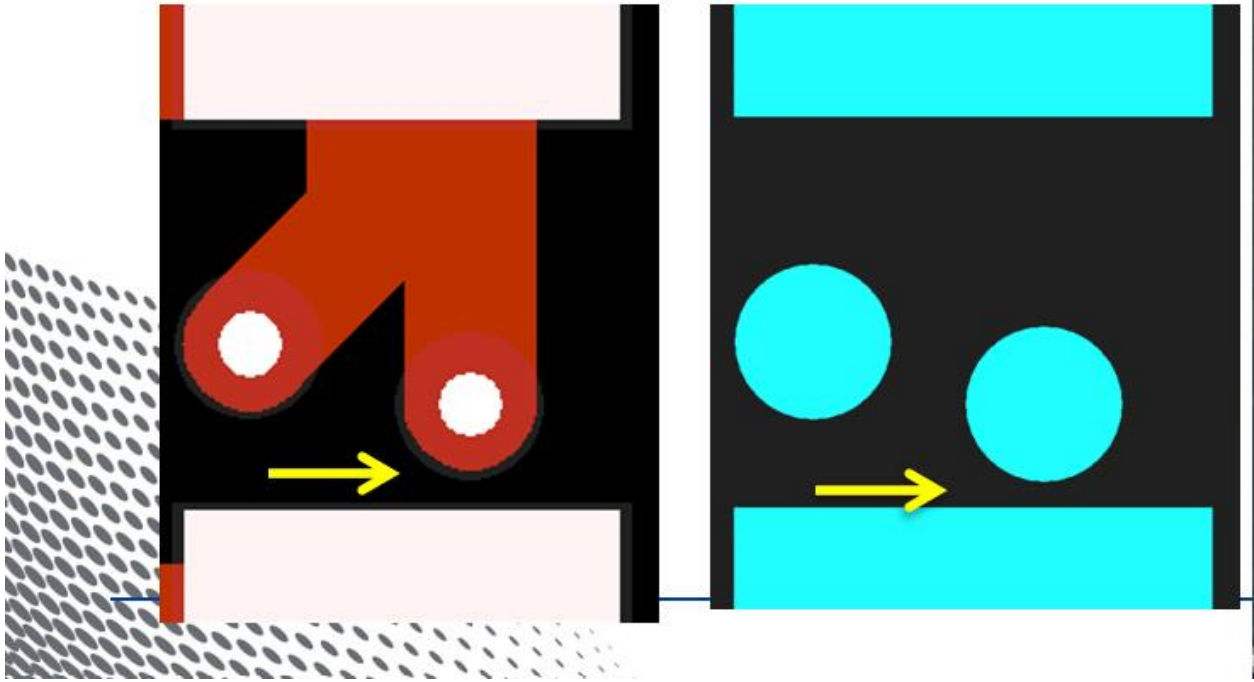
Bildene viser mønsterkort øverst, v-cut så er komponenten «vippet» 180 grader og lagt mot kortkant.

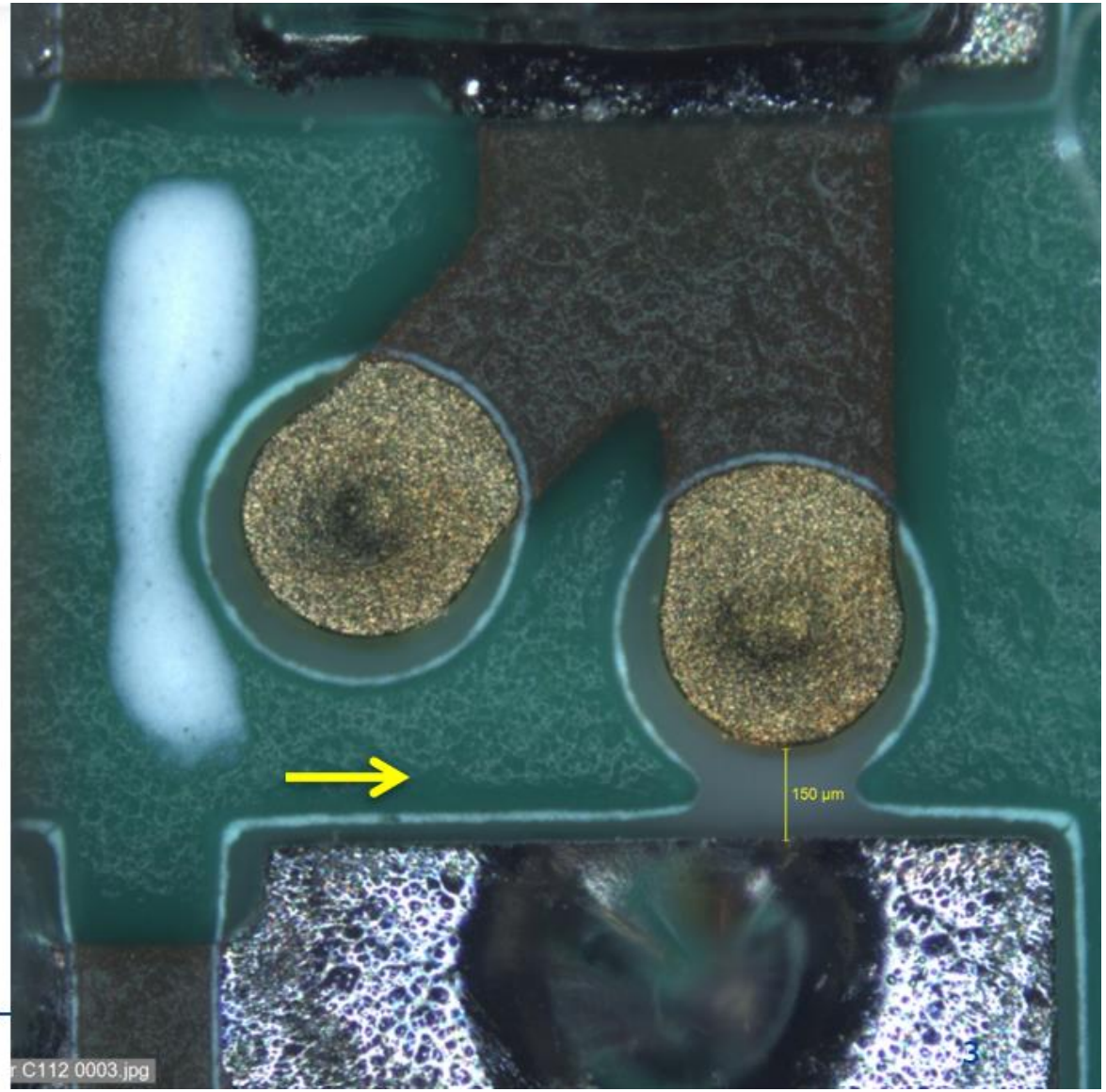
Resist

Picture show terminals after removal of chip component notice breech in the resist between the via and the terminal.

According to resist file (below middle), there should have been a narrow resist barrier in place between pad and via.

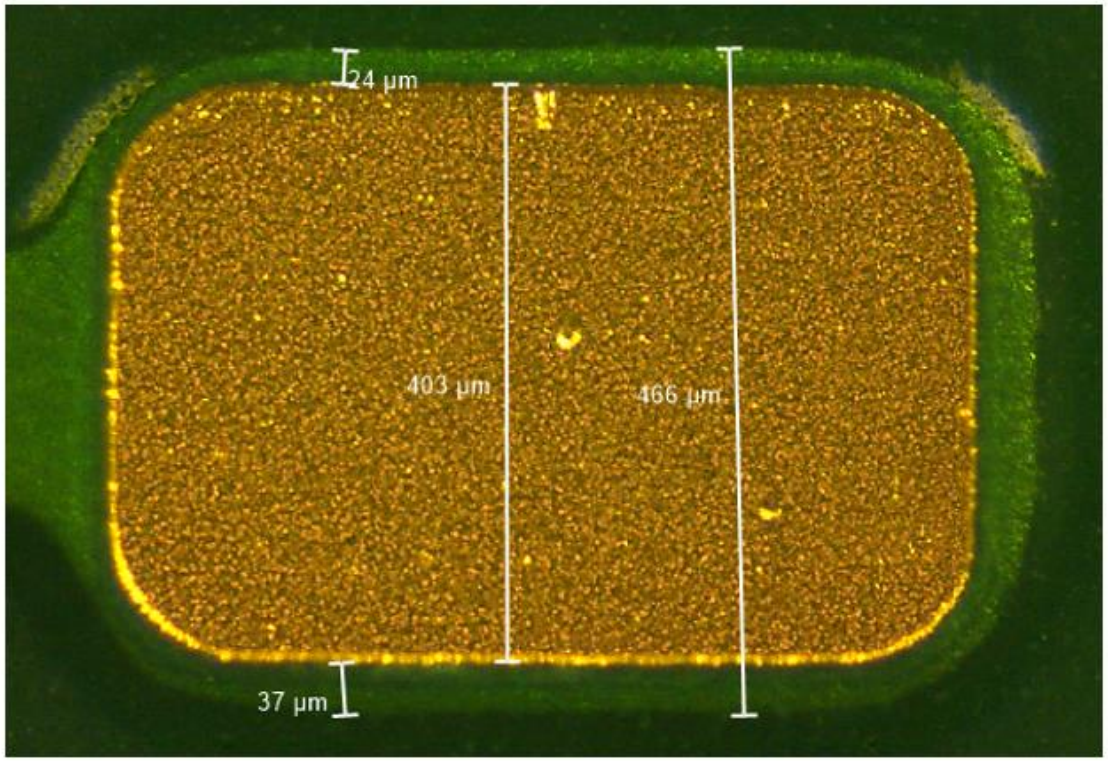
PCB manufacturers sometimes «customize» the resist design in order to avoid production problems (of the pcb).

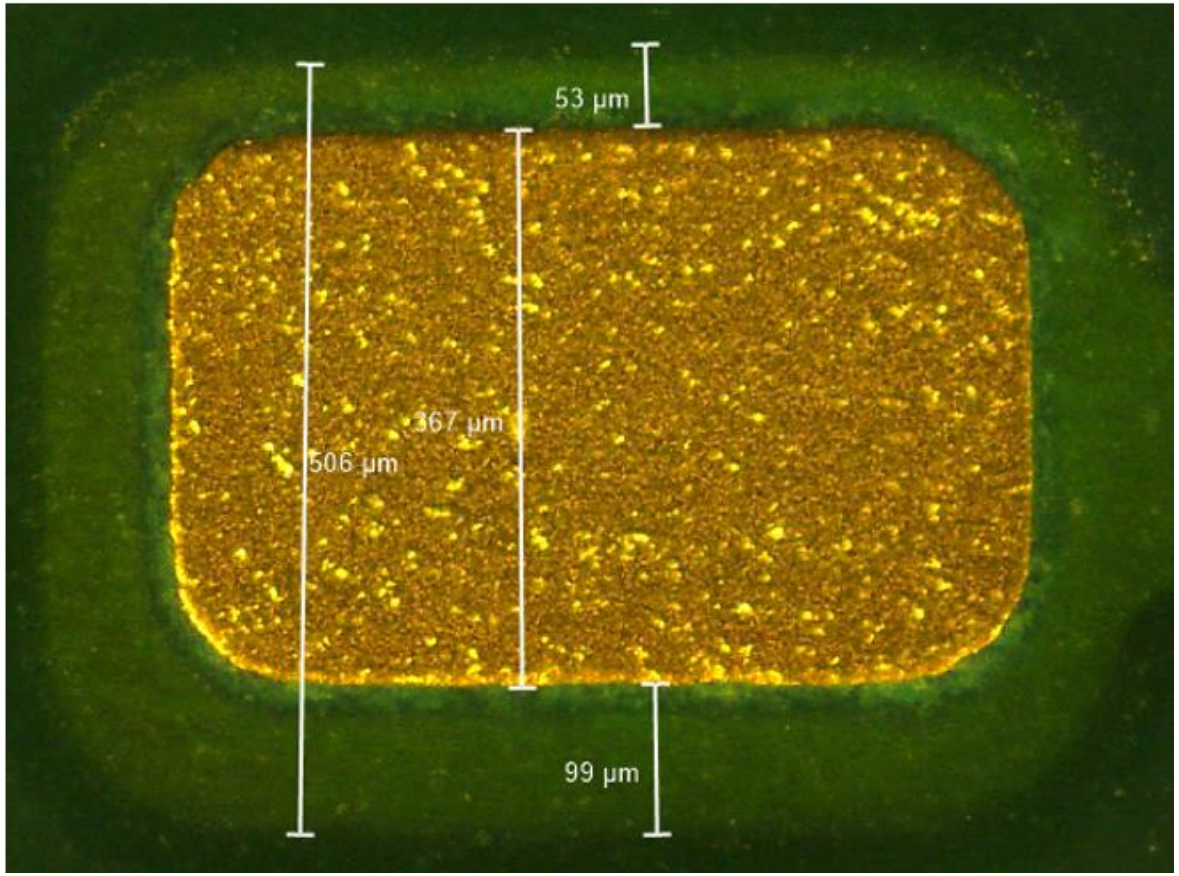




Resist (Misregistrering)

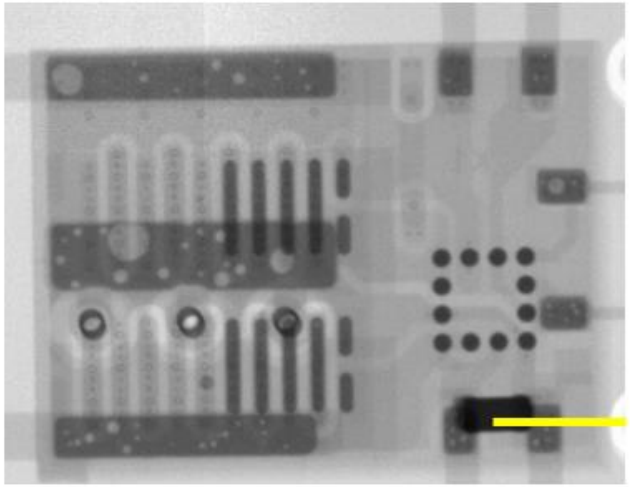
- Manufacturer A: Copper width 466µm, resist opening 403µm
- Manufacturer B: Copper width 506µm, resist opening 367µm

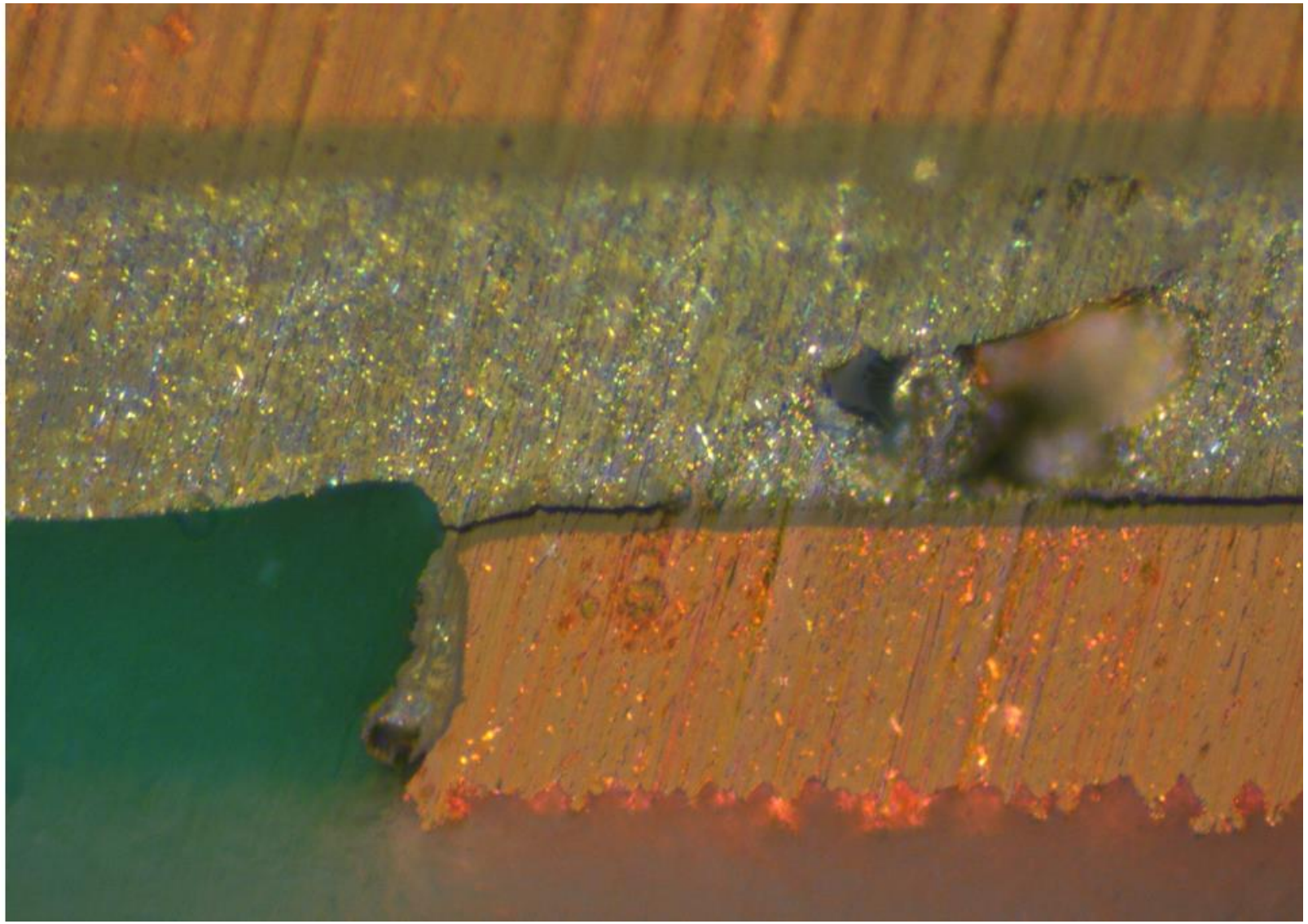




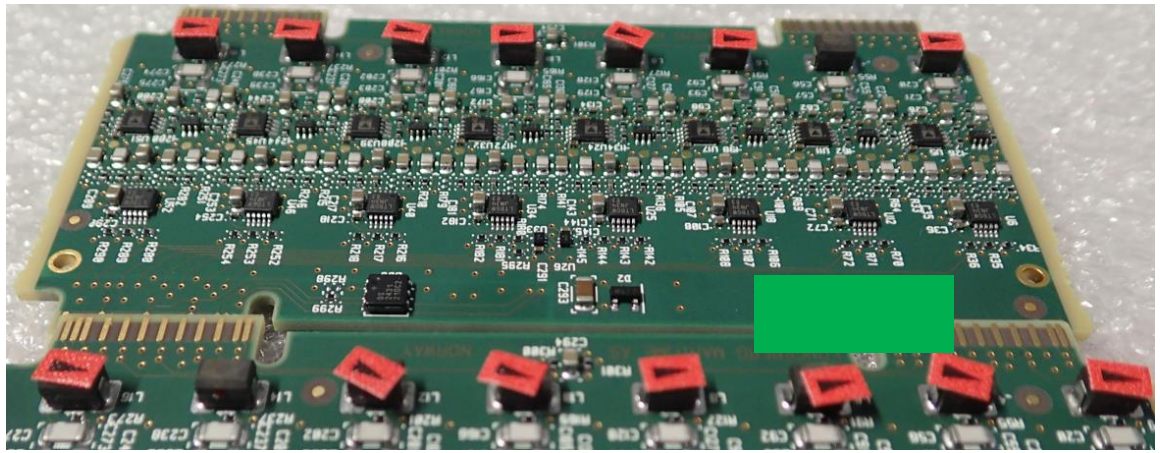
Resist (Misregistrering)

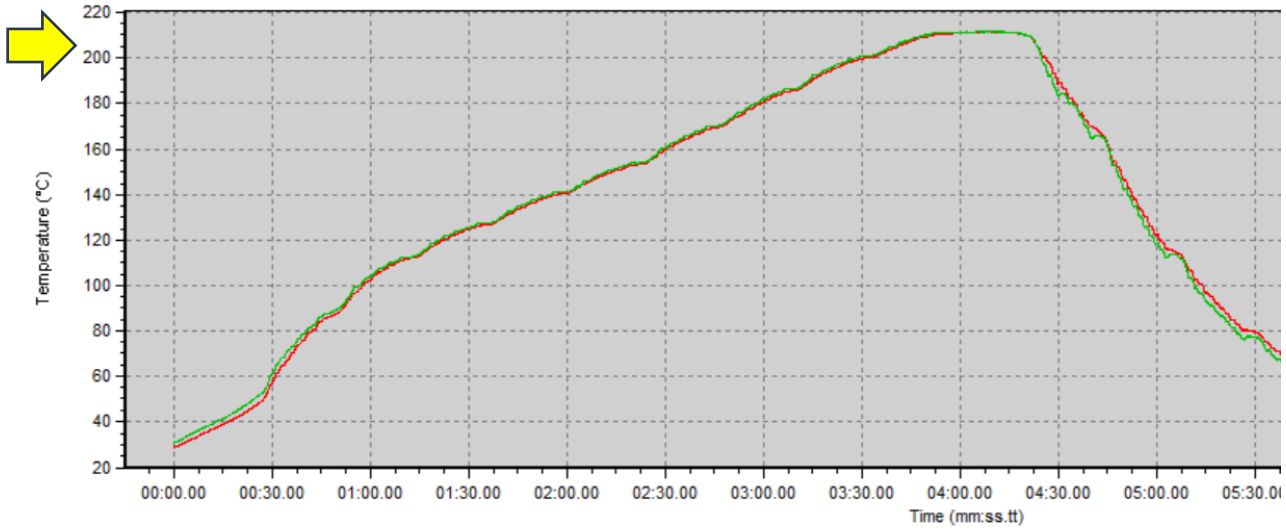
- Microsection show open crack between solder material and terminal of the bare board.
- Yellow line show place of micro section of component in x-ray image
- Image right 500X





«Varmesensitive» komponenter





SERIES S1812R S1812

RoHS Compliant

Traditional First Quality

Shielded Surface Mount Inductors

Actual Size

Current Rating at 90°C Ambient 35°C Rise

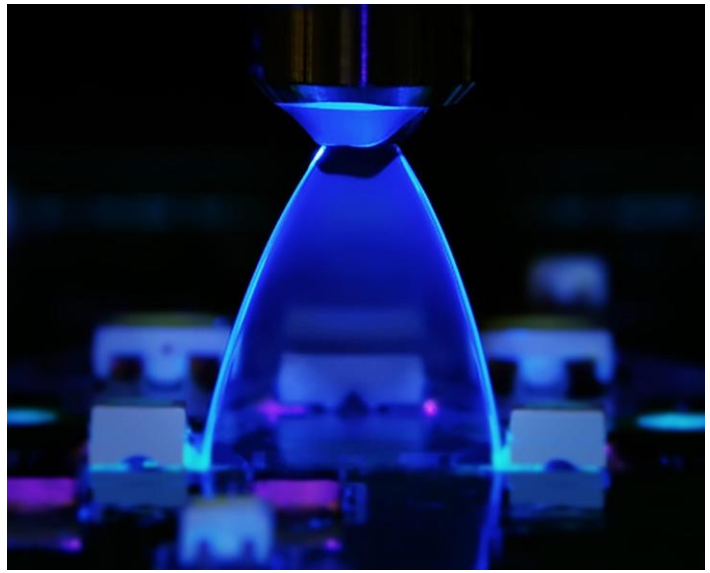
Maximum Power Dissipation at 90°C 0.278 W

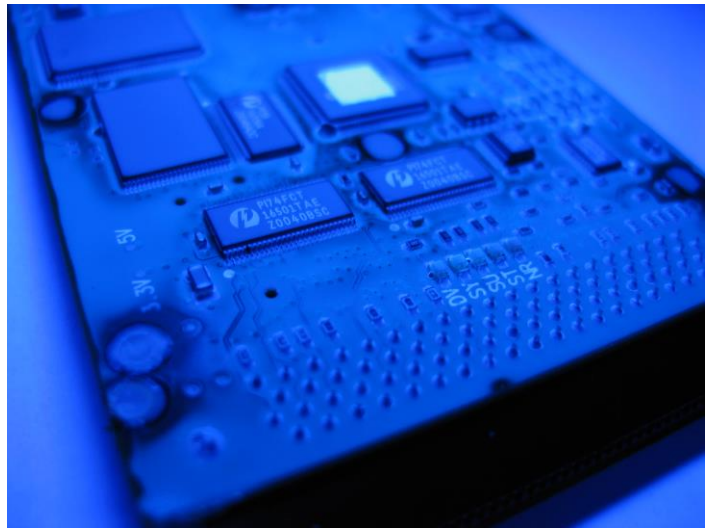
Marking API/SMD; inductance with units and tolerance followed by an S; date code (YYWWL). Note: An R before the date code indicates a RoHS component.

Example: S1812R-102K

API/SMD
1.0uH±10%S
R 0743A

Maskeringsprosedyre beskyttelseslakk





6. Coating type

Humiseal **1B73EPA** shall be used.

7. Mo **rd**

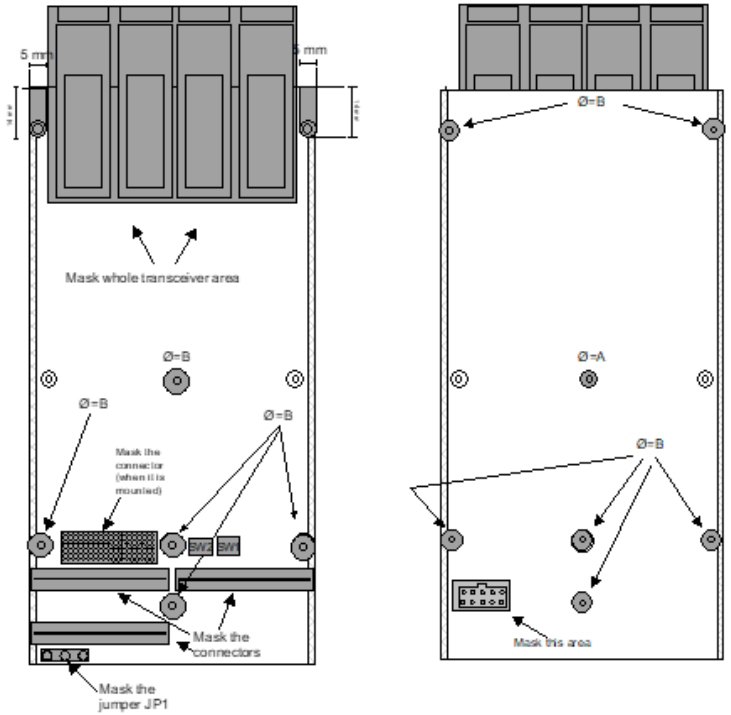
a) ıbly Procedure to solder the coated transceivers to the

b) carefully that there is no contamination left.

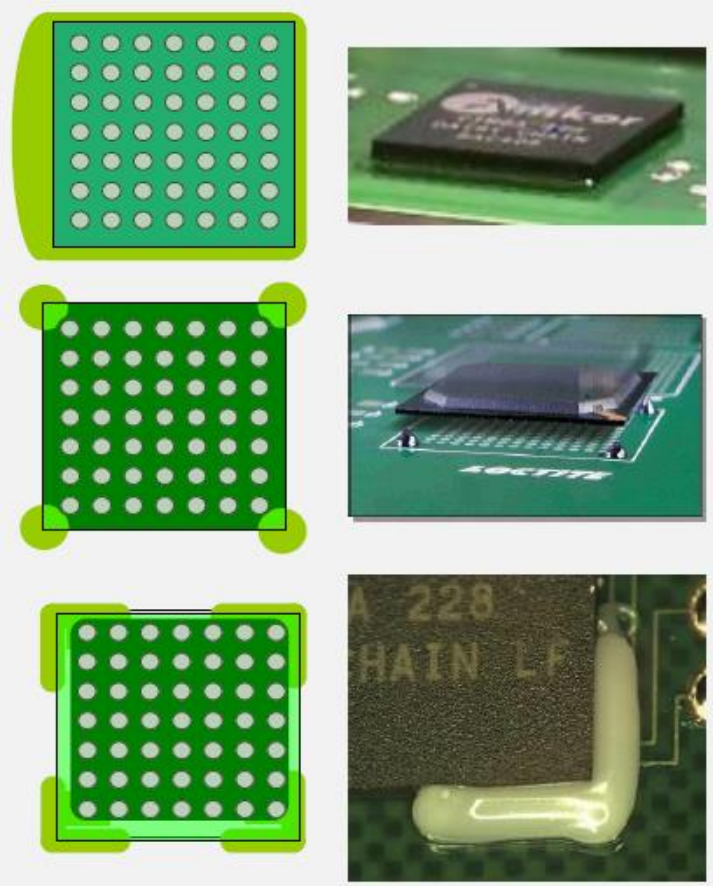
c)

8. Masking

Some areas shall not be coated. These areas are marked grey in the figures showing the masking.
Some diameters, **Ø**, are set to A and B. The meaning of these is:
The diameter **A**: 4.5 mm.
The diameter **B**: 6.0 mm



Valg av underfill



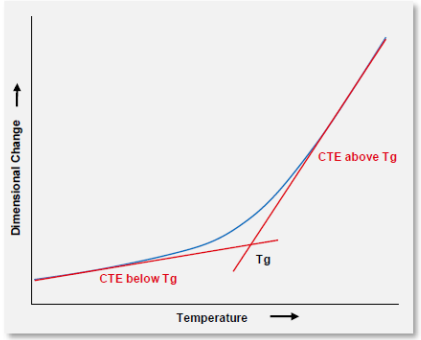
LOCTITE ECCOBOND E 1216M, Epoxy, Underfill

LOCTITE® ECCOBOND E 1216M innovative capillary flow underfill is designed for high volume assembly operations requiring a very fast flowing underfill that fully cures in a single reflow cycle, but is stable enough to be easily shipped and used in large volume cartridges (up to 20 oz). It is specifically formulated to eliminate anhydride-type curing agents for those users who prefer to work with anhydride-free products.

- **High Tg**
- **Fast, void-free underfill of area array devices**
- **Snap curable**
- **Excellent stability during shipping, storage and use**

CTE= Coefficient of Thermal Expansion:
Describes how the size of the material changes with temperature. More specifically, it measures the fractional change in size per degree change in temperature at a constant pressure, expressed in ppm/°C

- Low CTE is required for thermal reliability



- CTE is measured via TMA (Thermal Mechanical Analyses)
- 2 values are determined α_1 (CTE below Tg) and α_2 (CTE above Tg). Typically $\alpha_2 = 3^* \alpha_1$

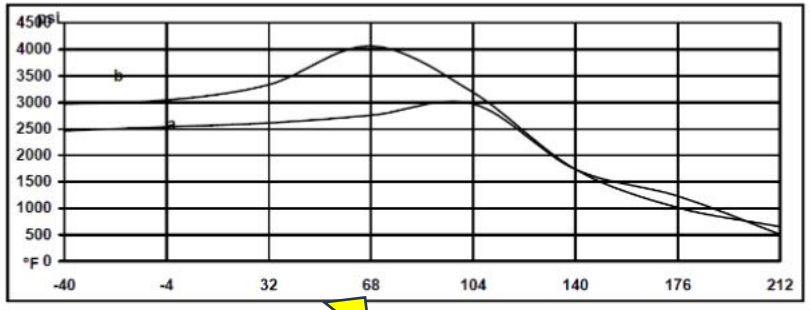
Material	CTE (ppm/°C)
PCB (FR4/FR5)	α_1 :14-15
Underfill	α_1: 20-60 α_2 : 70-210

Valg av lim

Advanced Materials
Technical Datasheet

HUNTSMAN
Enriching lives through innovation

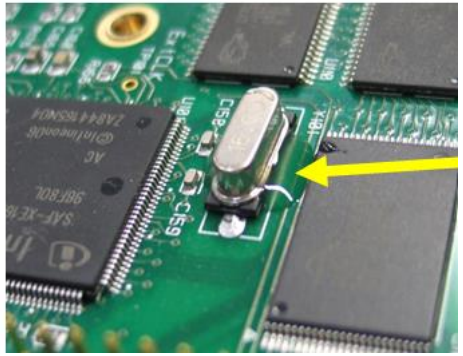
Figure 1. Lap shear strength versus temperature (ISO 4587) (typical average values)
Cure: (a) = 7 days at 73°F (23°C); (b) = 24 hours at 73°F (23°C) + 30 min / 176°F (80°C)



Storage

Araldite® 2011 Adhesive should be stored in a dry place, in the original sealed containers, at

Use Araldit 2011



LOCTITE®
Technical Process Bulletin

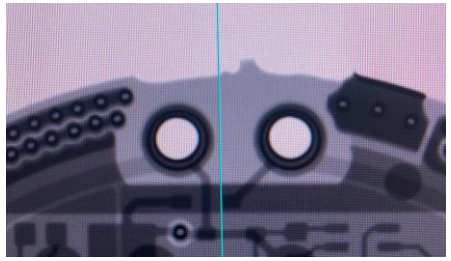
LOCTITE EA 9394 AERO
Epoxy Paste Adhesive
(KNOWN AS Hysol EA 9394)

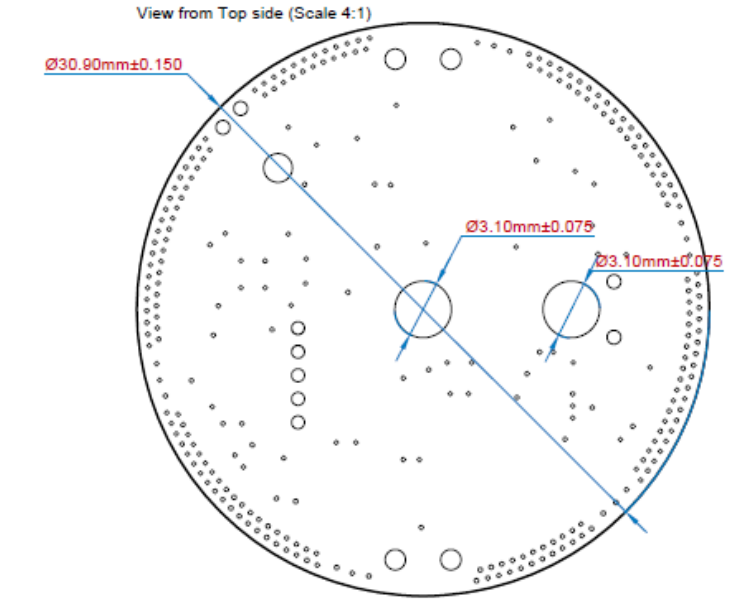
INTRODUCTION
LOCTITE EA 9394 AERO is a two-part structural paste adhesive, which cures at room temperature and possesses excellent strength to 350°F/177°C and higher. Its thixotropic nature and excellent high temperature compressive strength also make it ideal for potting, filling and liquid shim applications. LOCTITE EA 9394 AERO is qualified to MMM-A-132 Rev B, Type I, Class 3, Form 3, Group 1.

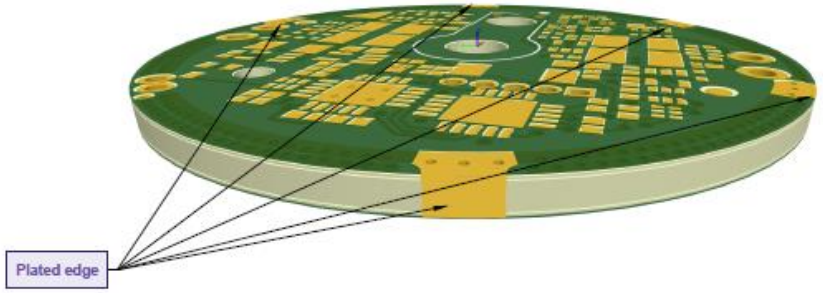
The mechanical properties in this data sheet are also valid for LOCTITE EA 9394S AERO. LOCTITE EA 9394S AERO is only available in Semkits and differs from LOCTITE EA 9394 AERO as it has 1 part less thixotrope in the Part B to aid packaging. All other mechanical and handling properties similar.

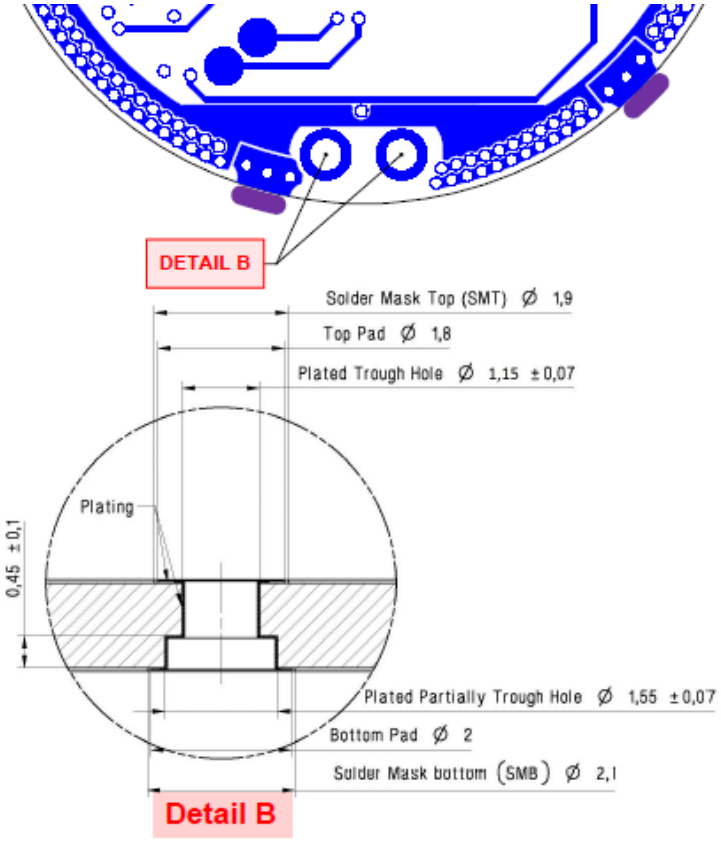
FEATURES
- Room Temperature Cure
- Good Gap Filling Capabilities
- 350°F/177°C Performance
- Potting Material
- Room Temperature Storage
- Outstanding Mechanical Properties
- Long Pot Life
- Low Toxicity

Toleranser



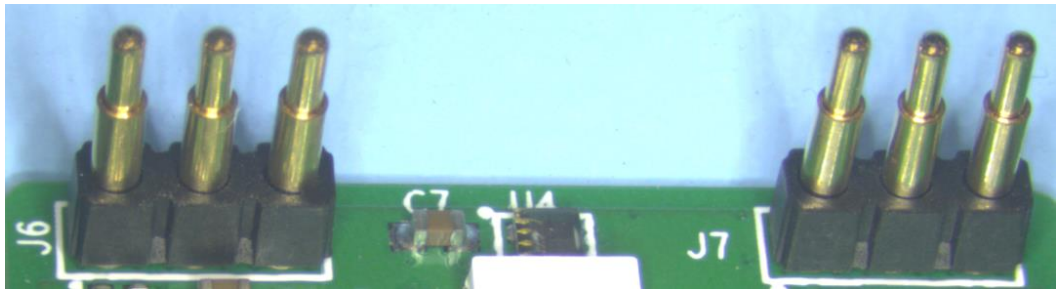

View from Top side (Scale 4:1)
Ø30.90mm±0.150
Ø3.10mm±0.075
Ø3.10mm±0.075

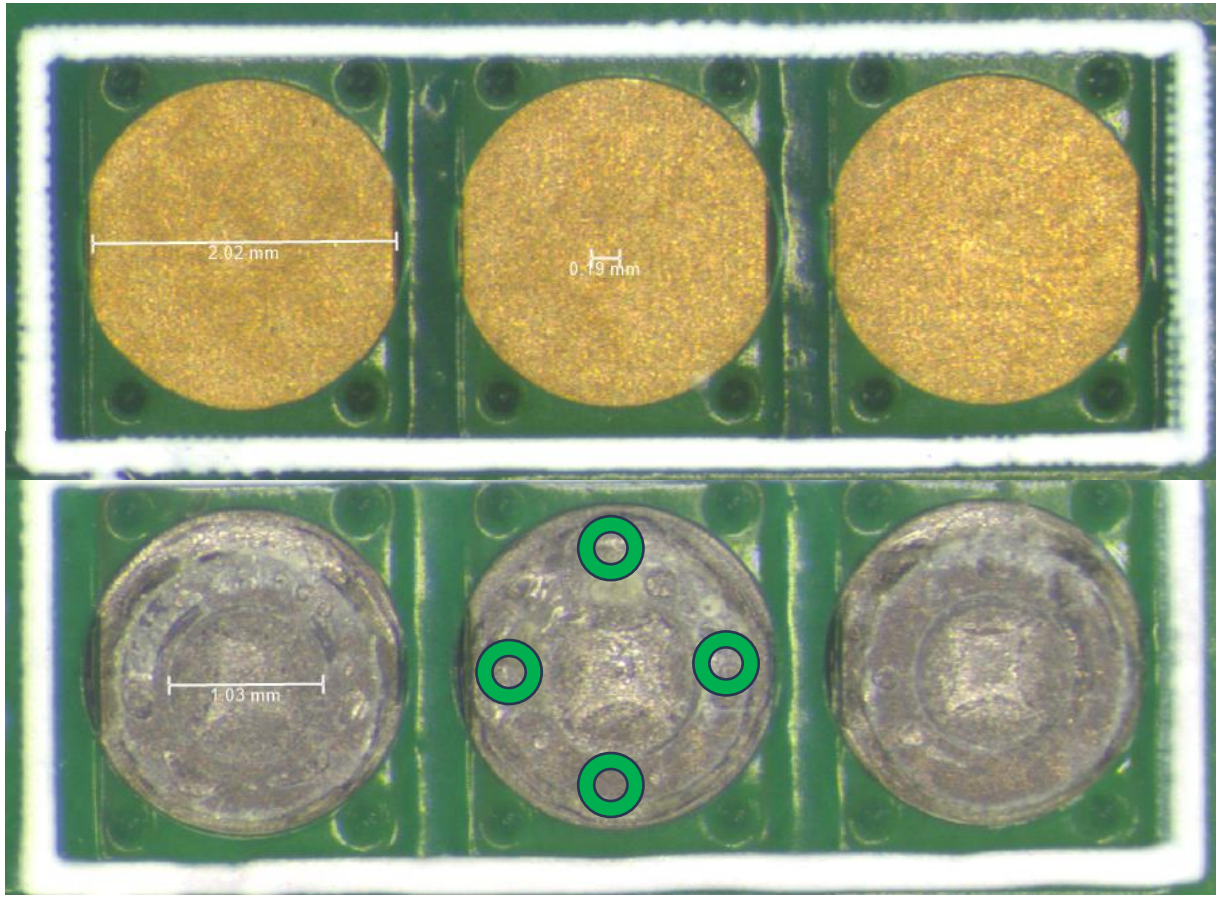

Plated edge

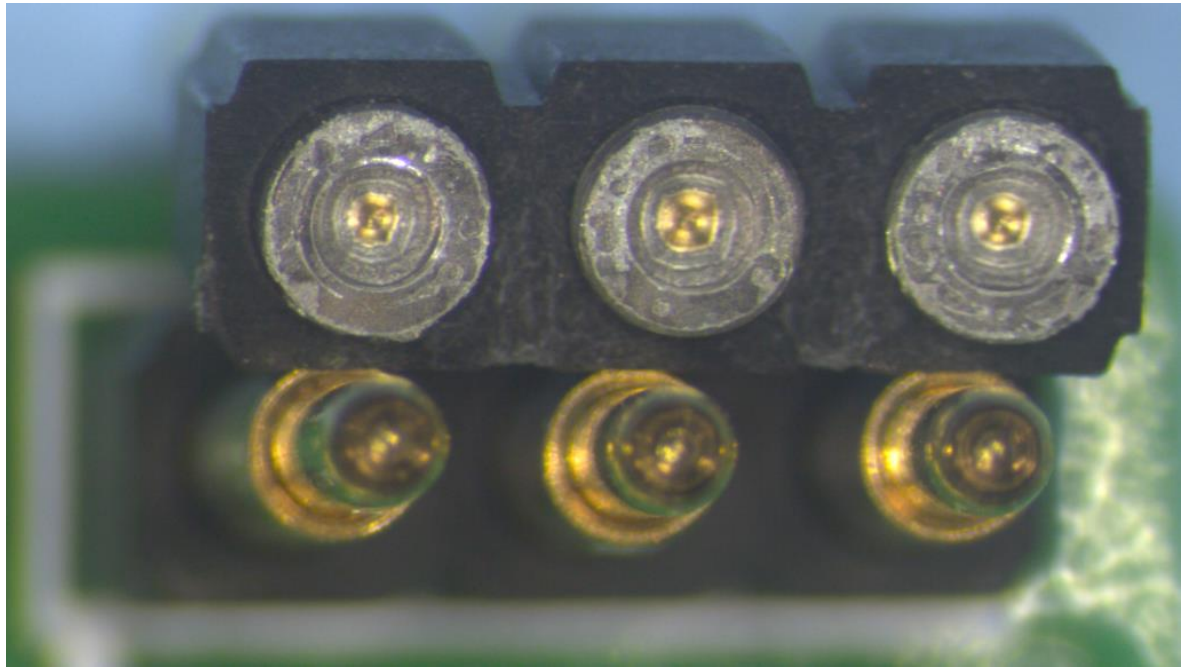

DETAIL B
Solder Mask Top (SMT) Ø 1,9
Top Pad Ø 1,8
Plated Trough Hole Ø 1,15 ±0,07
Plating
0,45 ±0,1
Plated Partially Trough Hole Ø 1,55 ±0,07
Bottom Pad Ø 2
Solder Mask bottom (SMB) Ø 2,1
Detail B

Designløsning: Pogo pins

- Please add open plated viaholes in solder pads of pogo pins “J6” and “J7”
- This will increase solder volume and “strength” of terminal
- Plated vias will function as a “hydraulic” piston adjusting the volume of the solder material
- Viaholes should be included in resist layer on opposite side, (not filled).



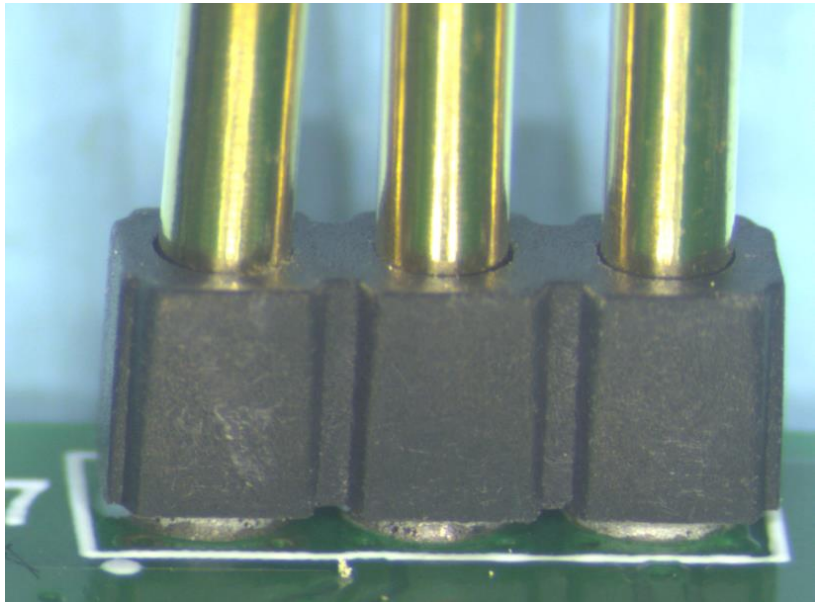


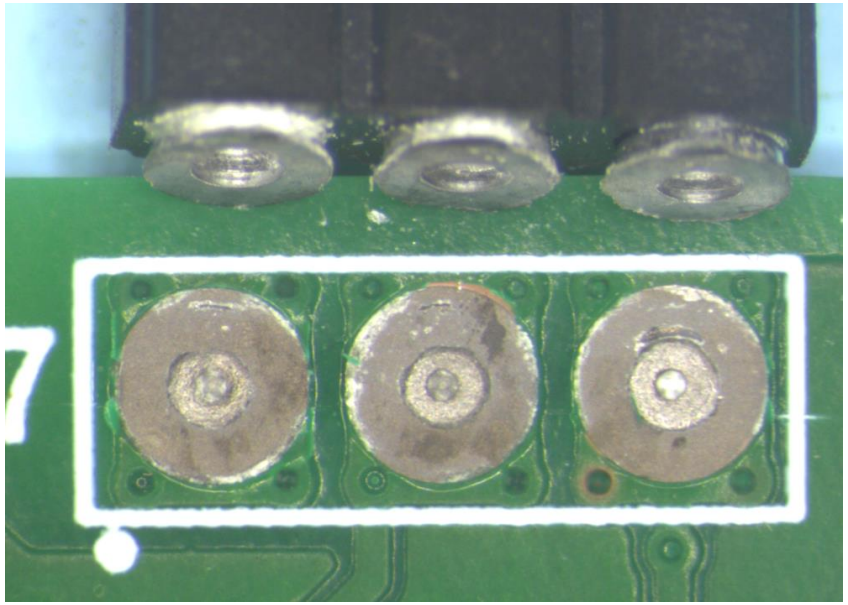


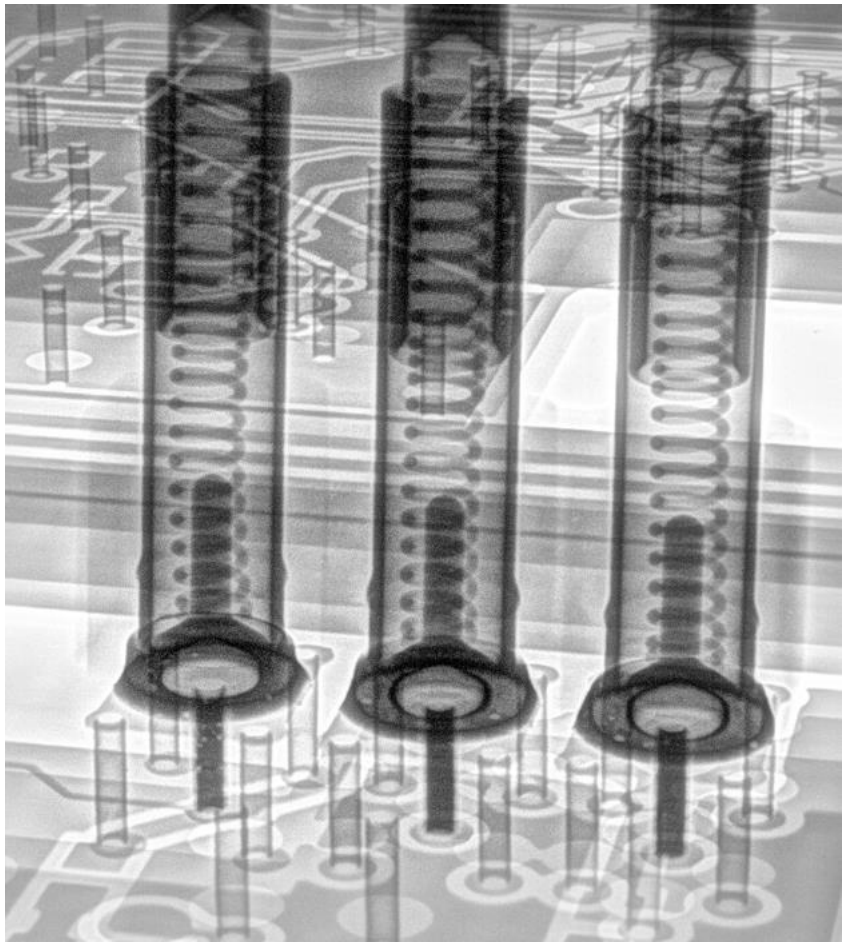
Designløsning: Pogo pins

Design change *verified and successful !*

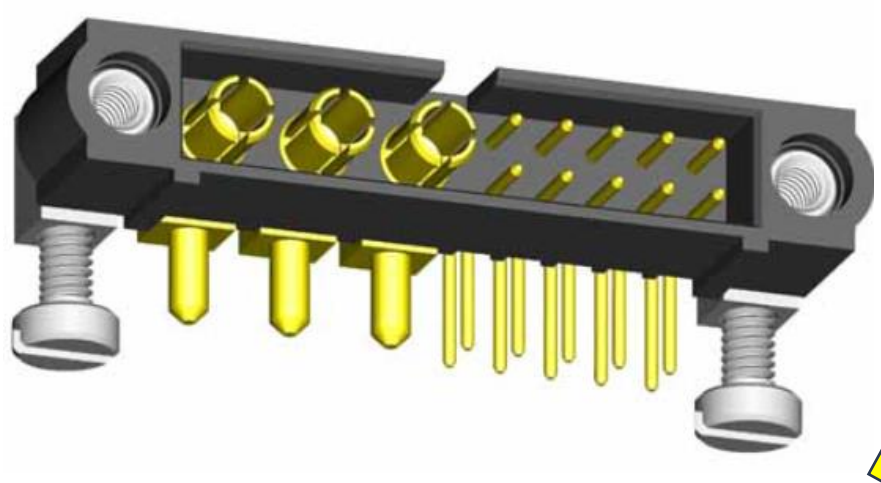
- Please add open plated viaholes in solder pads of pogo pins “J6” and “J7”
- This will increase solder volume and “strength” of terminal
- Plated vias will function as a “hydraulic” piston adjusting the volume of the solder material
- Viaholes should be included in resist layer on opposite side, (not filled).
- **Solder volume very much increased, no tilted terminals.**
- **Design with via-hole working as a hydraulic piston works**
- **Terminal strength soldered connection is now very much stronger**







«Metallfinish» terminaler

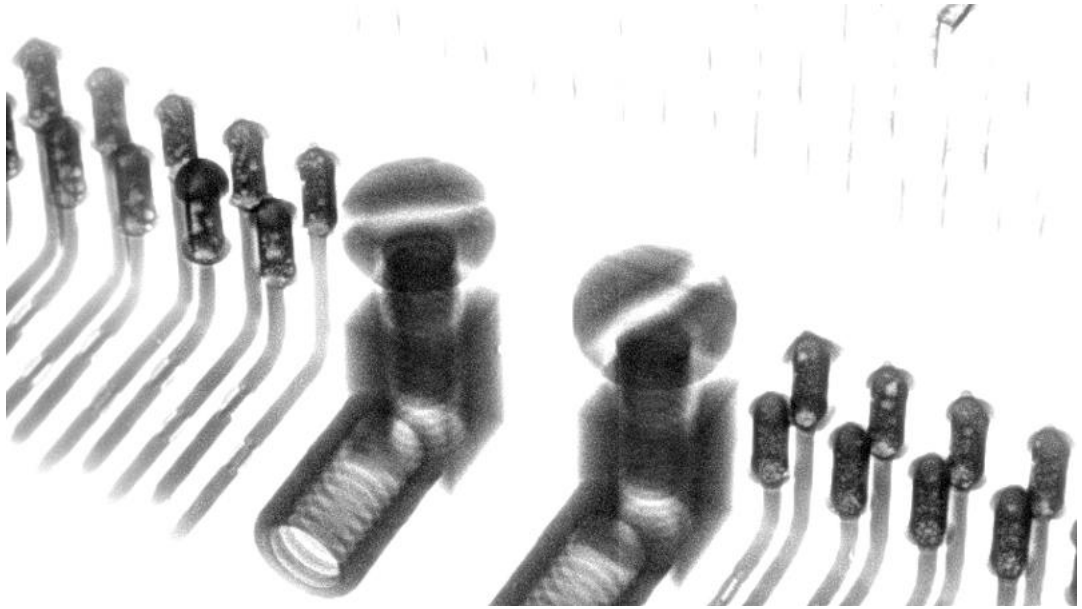


ORDER CODE:

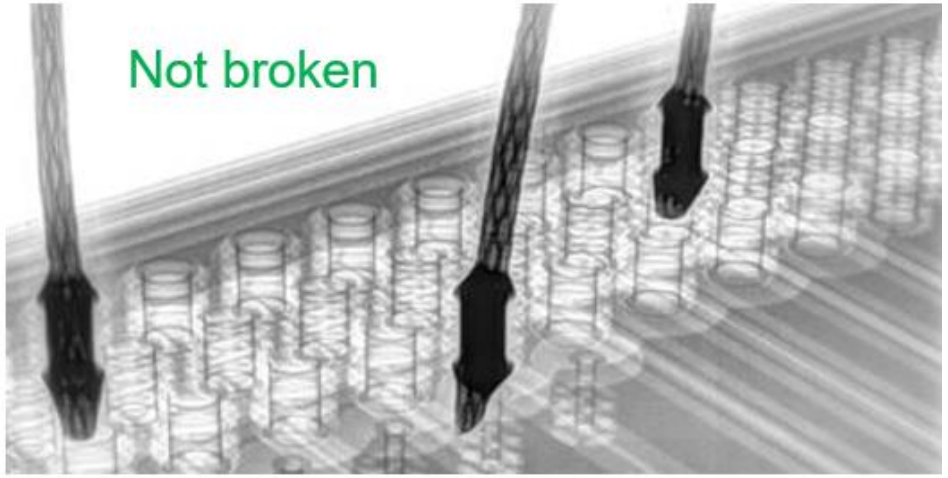
M80-5L1XXXXM7

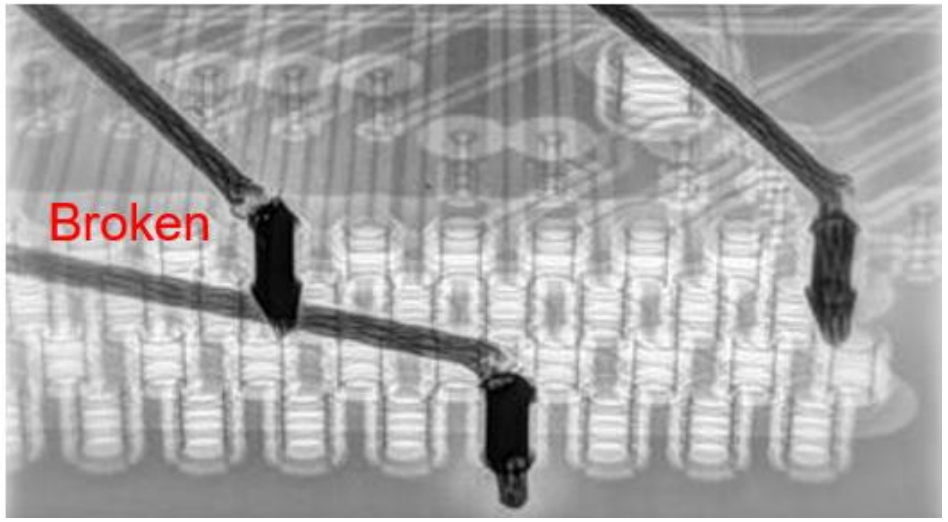
TOTAL No. OF CONTACTS
04 TO 50
(EVEN NUMBERS ONLY)

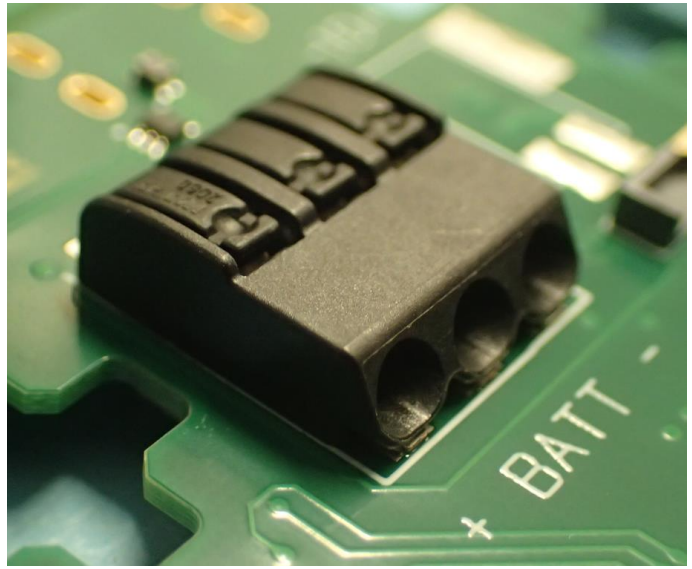
FINISH
05 - ALL OVER GOLD
22 - GOLD ON CONTACT AREA / TIN/LEAD ON TAIL
42 - GOLD ON CONTACT AREA / 100% TIN OVER NICKEL ON TAIL

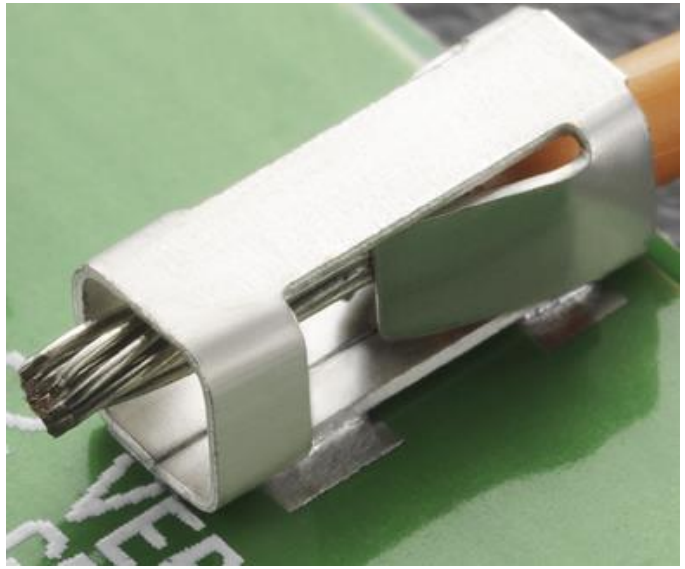


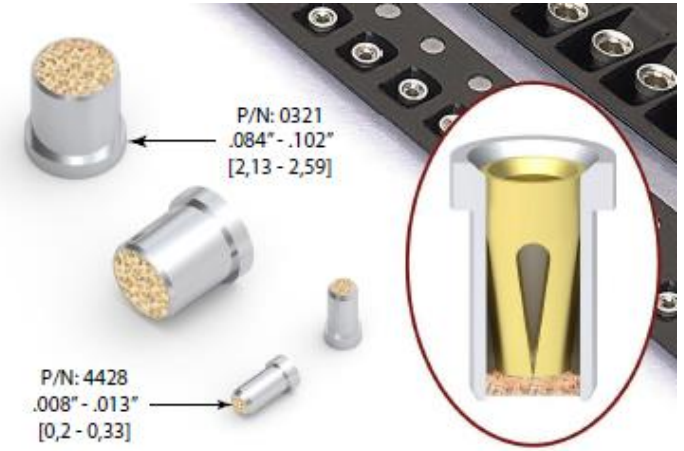
«Wire To Board»





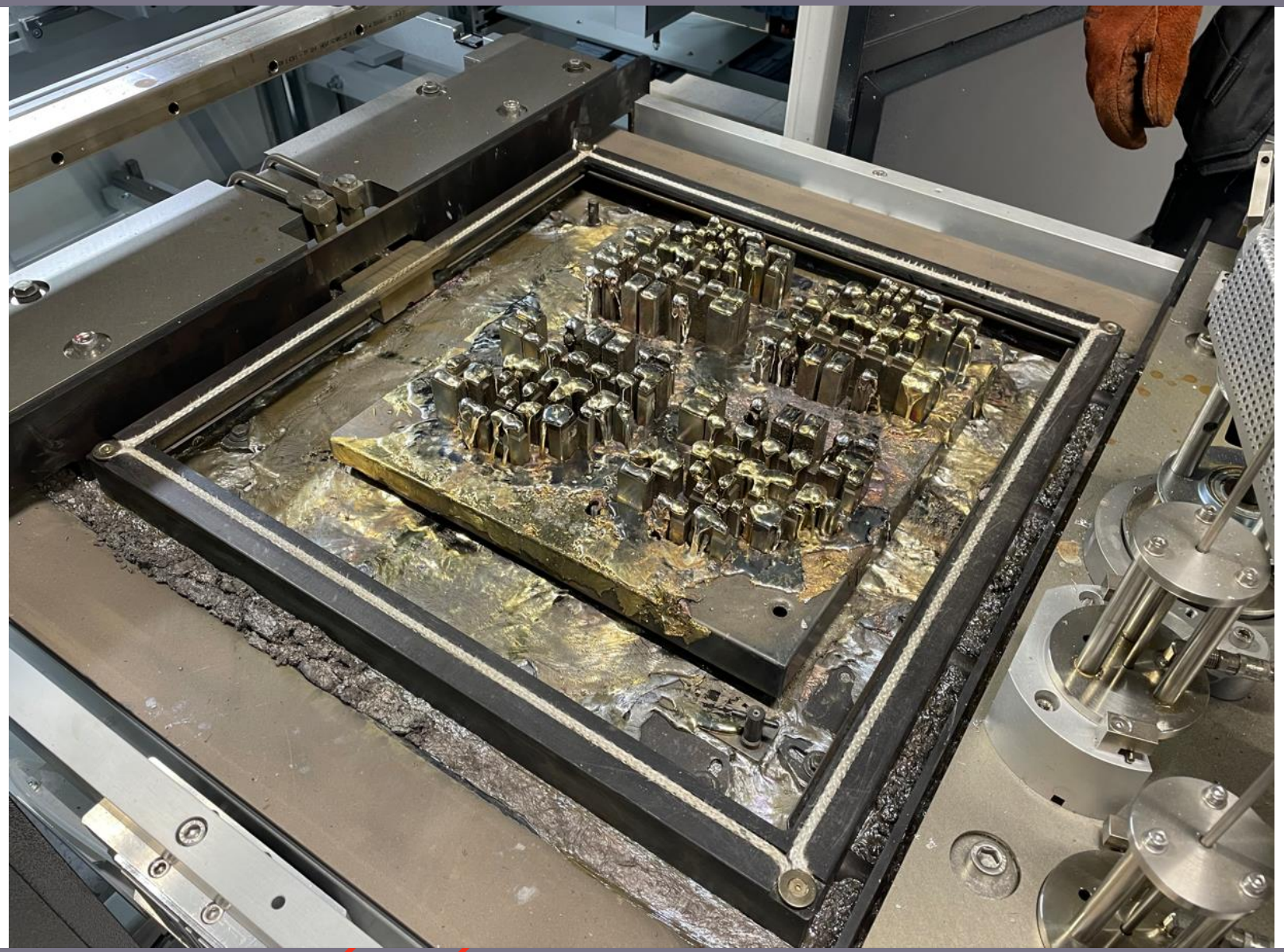


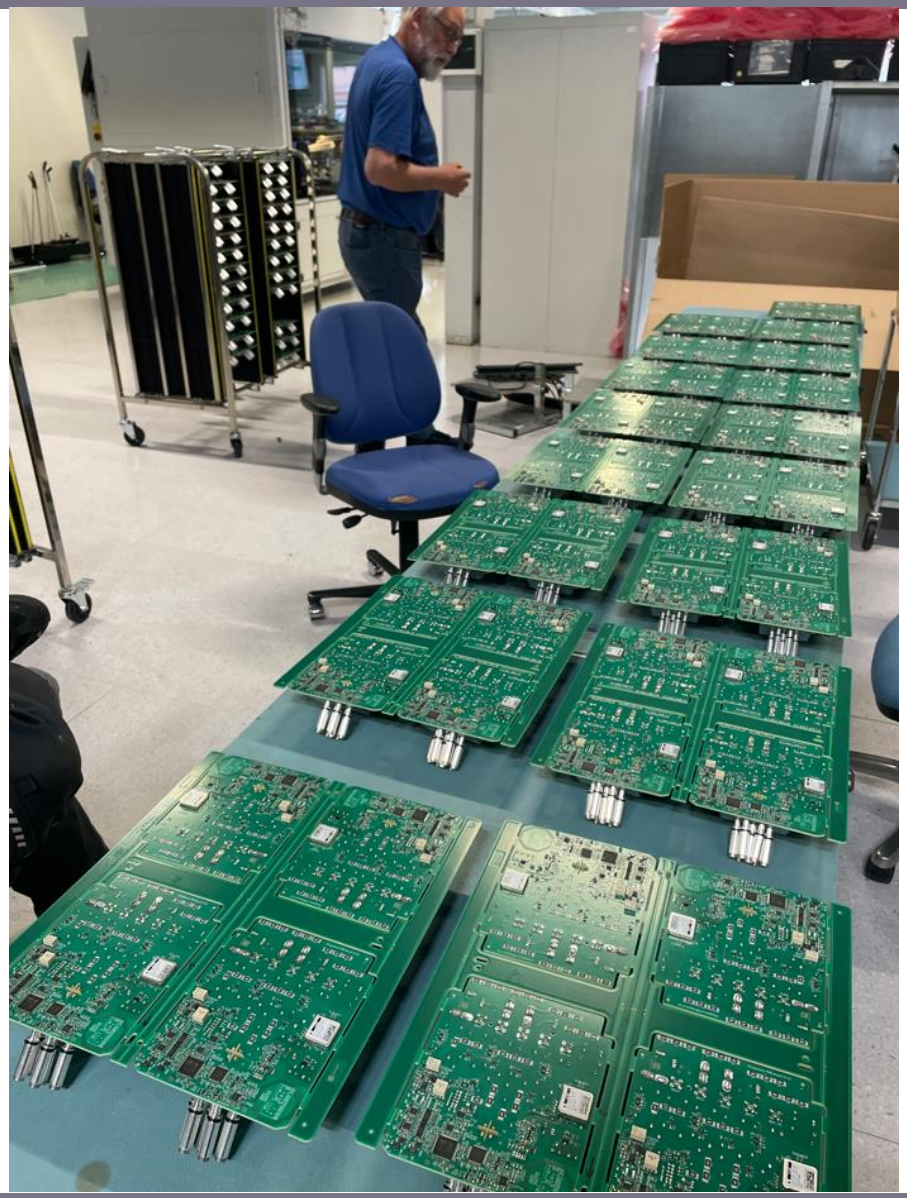




Maskinell montering hullmonterte komponenter

Stamplodding hullmonterte komponenter





Spørsmål ?