RETOUR D'EXPERIENCE CIRCUITS HDI

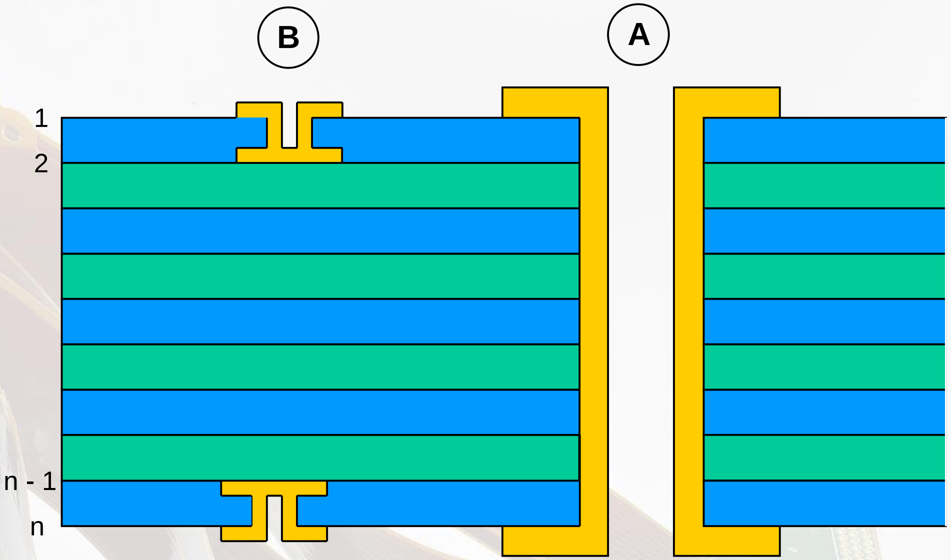
-les ratios de perçage.

-Matière low CTE.

-Epargne de vernis autour des vias.

-Problèmes pour demain.

Les ratios de percage 1/2



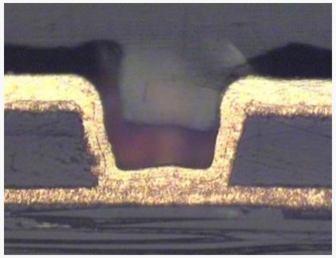
Les ratios de perçage à respecter:

A/ Trous traversants:

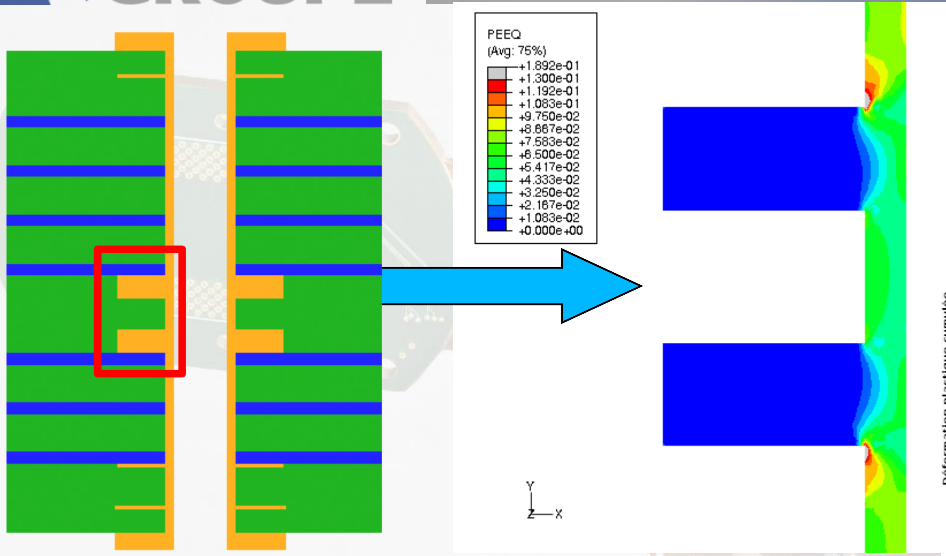
Ép. / diam. <= 8

B/ µ vias:

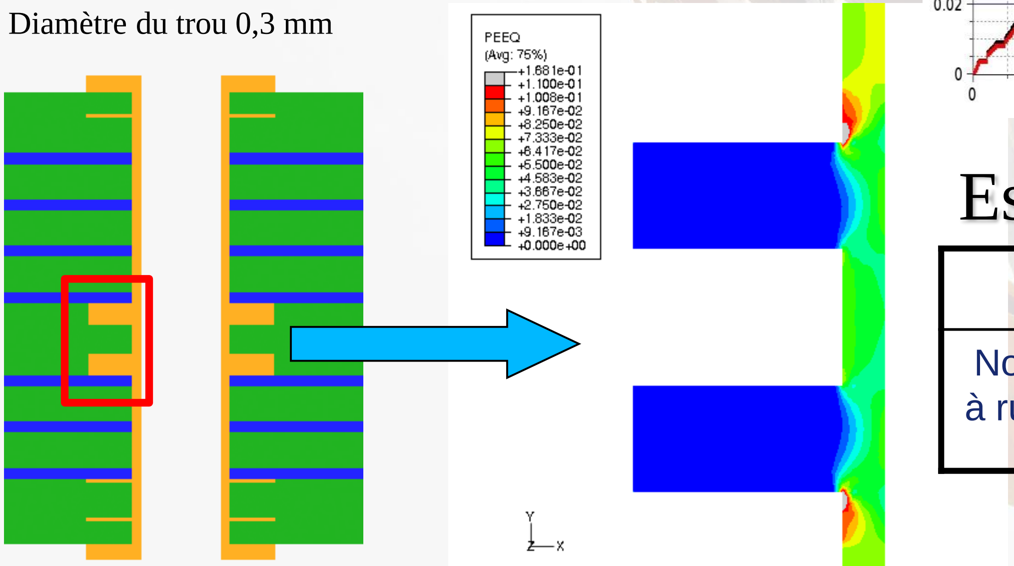
Ép. / diam. < = 0,8



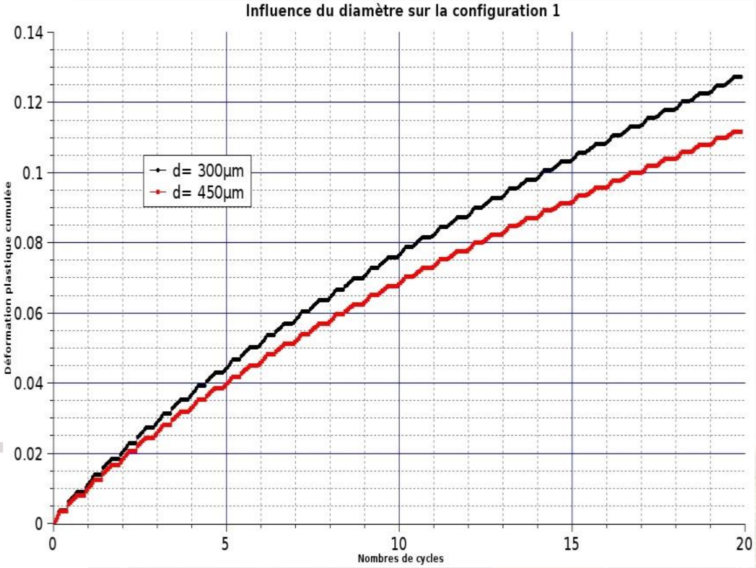
Les ratios de percage 2/2



Diamètre du trou 0,3 mm



Diamètre du trou 0,45 mm

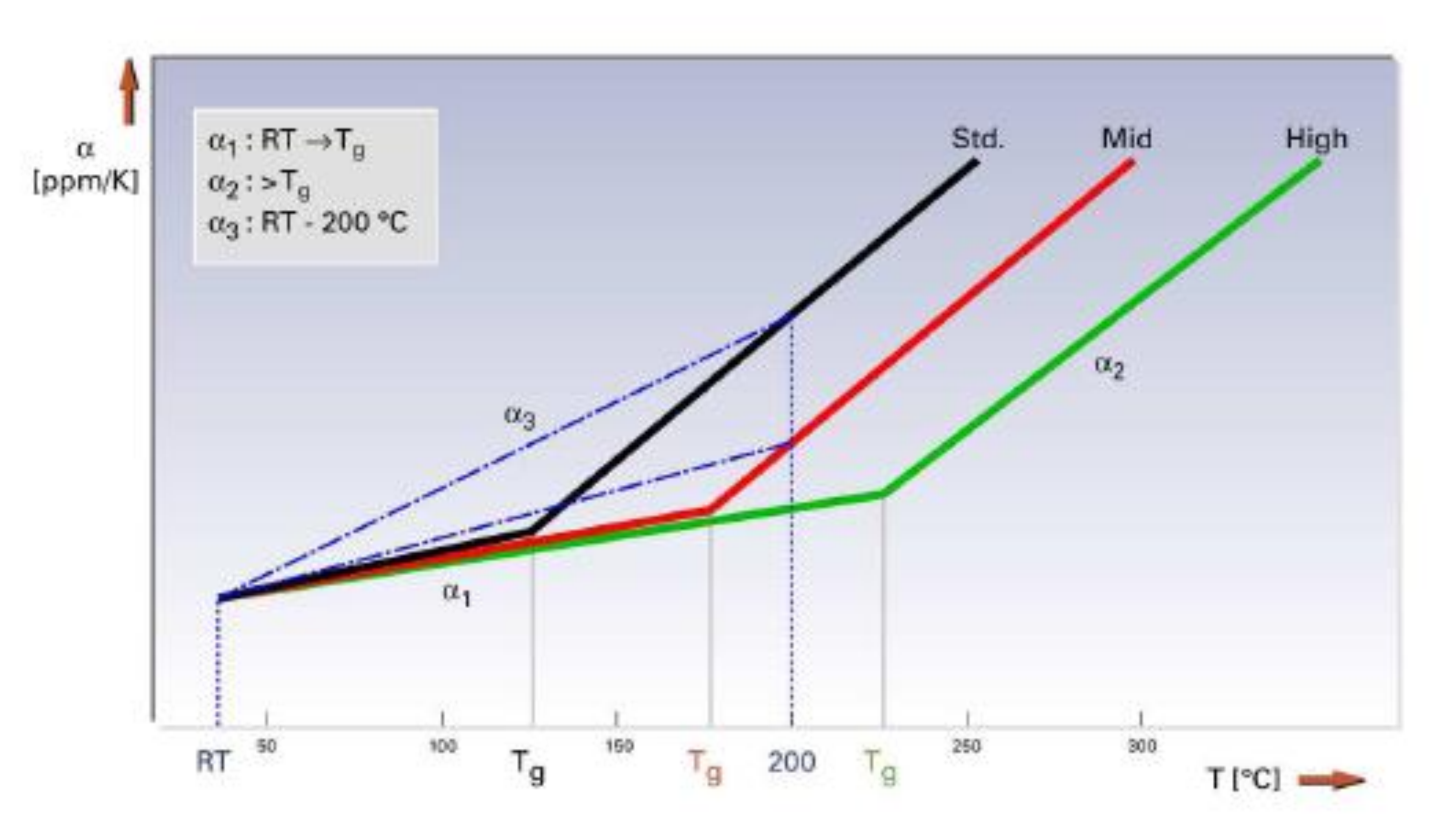


Estimation des durées de vie:

	Ø 0,3 mm	Ø 0,45 mm
Nombre de cycles à rupture (N) (coef)	**N**	**N x 1.3**

- µ via très fiables

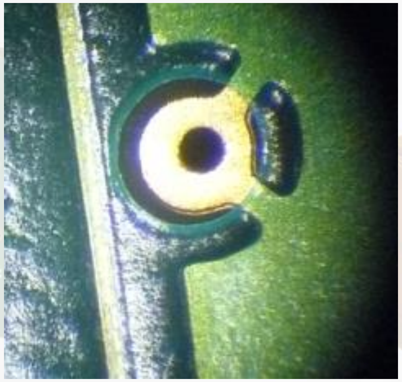
Matière low CTE



Minimiser les contraintes en z:

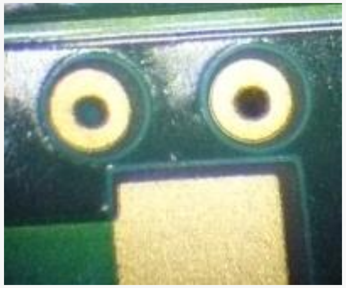
- **matériaux chargés**
- **haut Tg**

Epargnes de vernis autour des vias 1/2



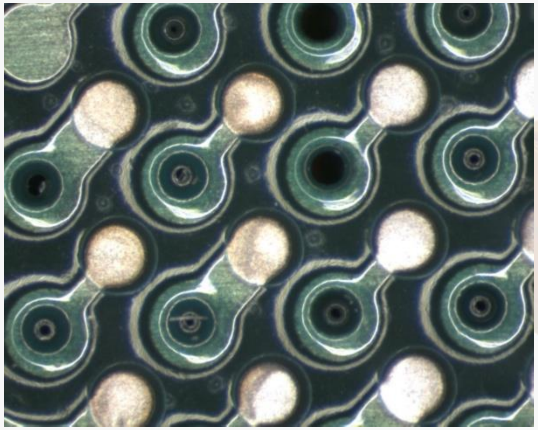
Protection de la piste, risque de court circuit avec le plan d’alimentation

Risque de déséquilibre du composant en cas de fluage de l’aliage dans le via



Risque de court circuit entre via et plage CMS

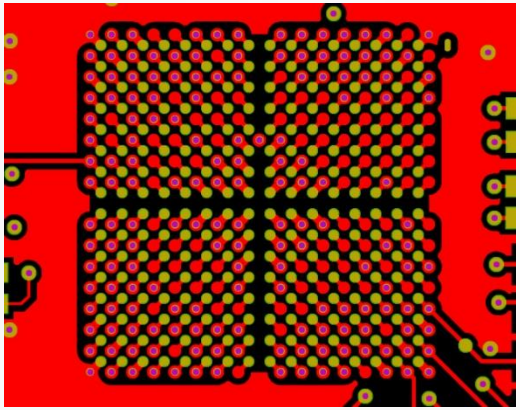
Epargnes de vernis autour des vias 2/2

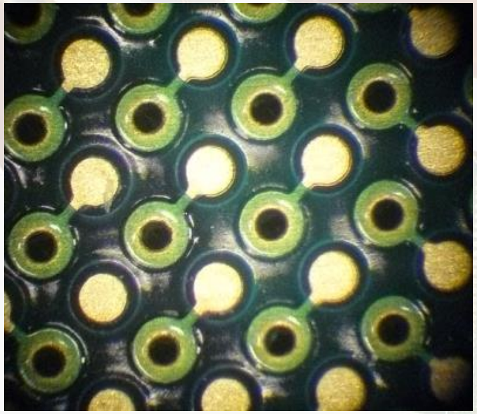


Vias bouchés. Risque de pollution et d’oxydation du via

La solution: utilisation de point de centre couplé au dépôt du vernis au spray.

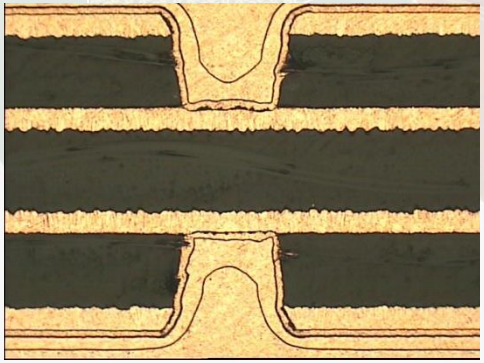
Diam. Point de centre = Diam. Via + 100µm



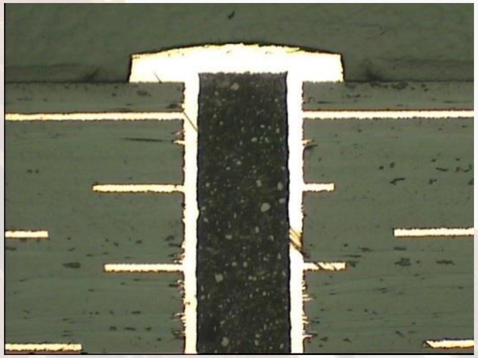


Combinaisons technologiques

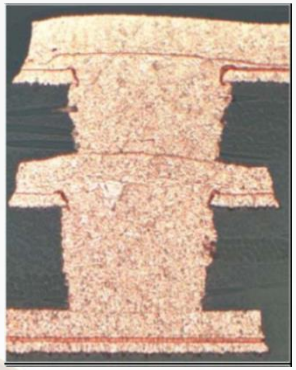
µ via fill-in pour via in pad



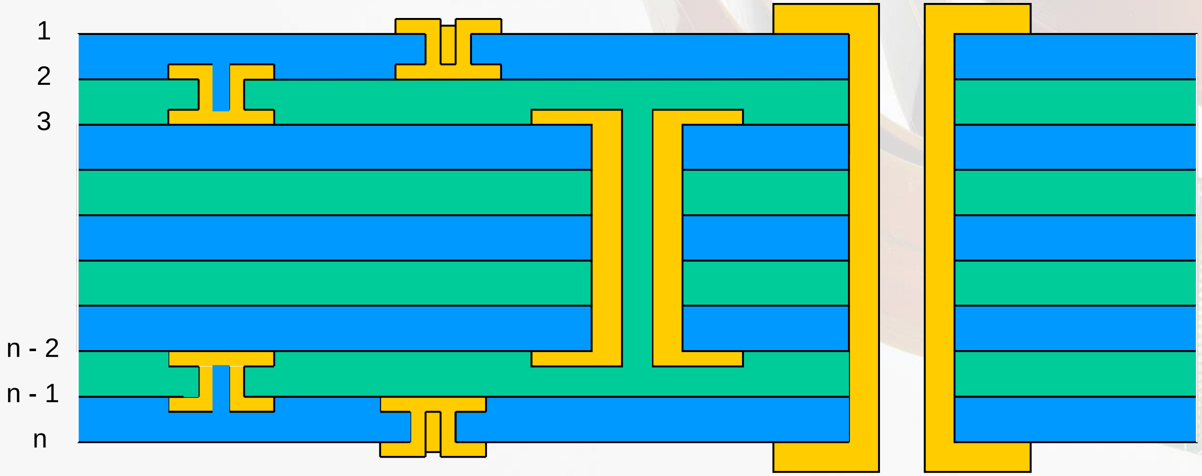
Pad on hole



Vias stackés

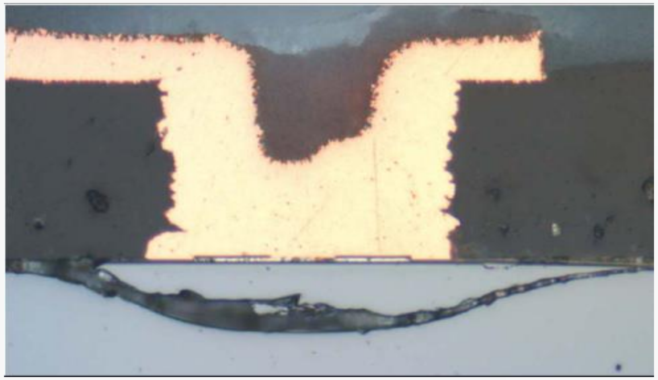


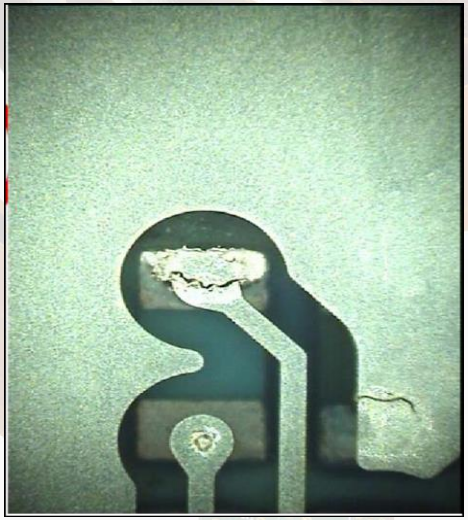
muticouches séquentiel µvia HDI (2 – n – 2)



Problèmes de demain

- Utiliser des matériaux avec des CTE x,y proches de la céramique (5 ppm)
- Tenue des plages de cuivre
- Avoir des composants enterrés
- …





CONCLUSION

Le niveau de performance attendu et la complexification des designs rend la relation concepteur-fabricant indispensable:

La solution:

Co-design

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