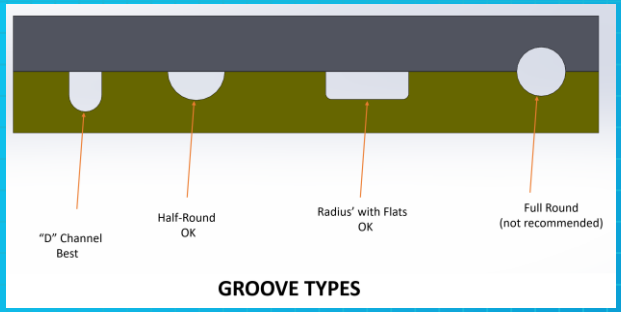
CMG

DIFFUSION BONDING TIPS

Min/Max Channel Size

Min: .020”(.5 mm) Optimum Max: Unlimited if balance is maintained in overall layout

Preferred Channel Shape



“D” Channel is optimum for strength, cost effectiveness, & dimensional stability

Min. Channel Spacing

Min: .060”(1.5 mm) to .080(2 mm) Optimum. Can vary based on geometry & channel type/size.

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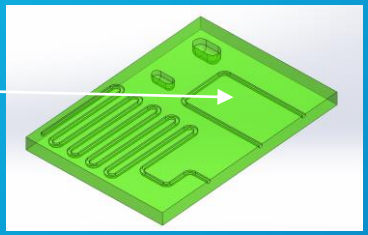
Max No Feature Bond Area

No maximum, provide balance when possible & not have large “featureless” geometry on one side of layout.

Unbalanced, No Feature



Thickest Bond Layer

1/2” is a practical max. Thickness should be dictated by your feature/channel thicknesses with associated wall thickness. Larger thicknesses will increase costs and lead times.

Thinnest Bond Layer

Inner layers desired to be .125“ (3.1 mm) Outside layers can be machined to finish size after bonding to your requirement.

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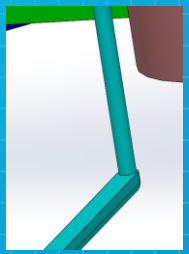
Challenging Features

- Line to line connections vertical holes with channels with **no** "oversize target area"
- Lands that terminate to a "V" shape
- Surfaced features should be minimized or eliminated
- Lack of balance of features/channels

Oversize Channel to Vertical Hole (Desirable)



Un-Flushable Features:

Dead end/Blind channels or overruns of cross connections. (During Mfg. & Application)
Drilled holes into wells or reservoirs that aren't a part of the layer geometry (Chips)

Do parameters vary by Material?

Basic Design Rules apply to Acrylic & Ultem.

The recommendations above are generalized and should be a starting point. Consult CMG for a CAD model review to further evaluate your part's specific requirements.