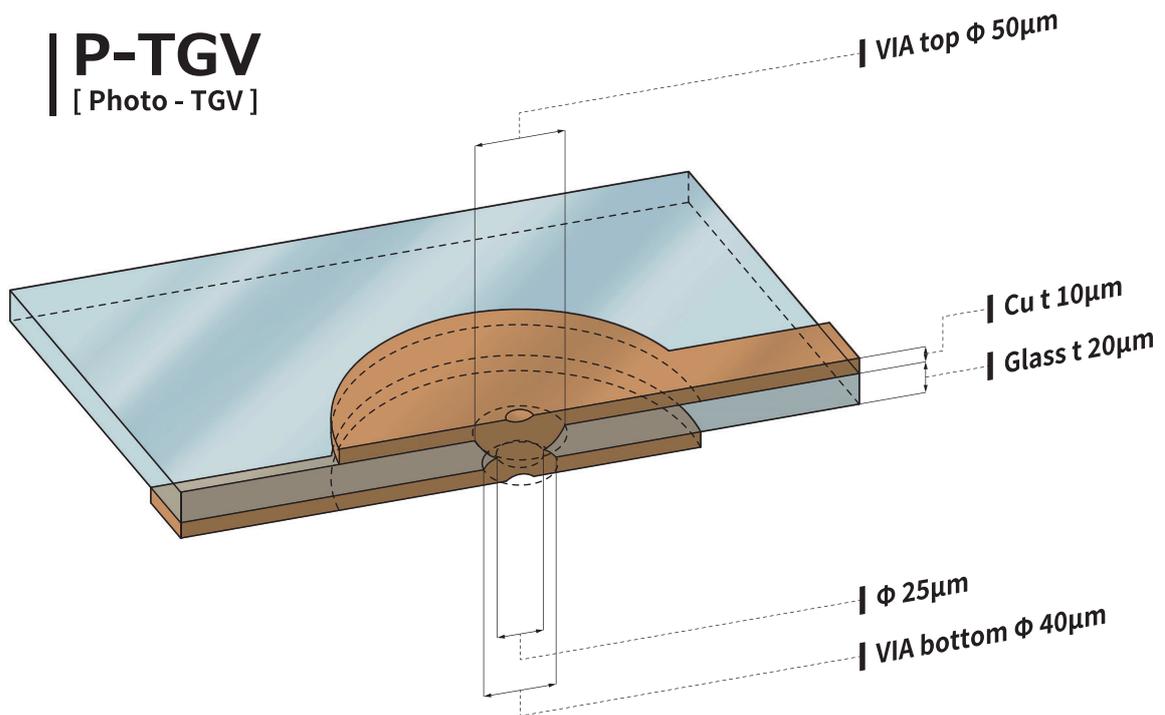

技術資料

TECNICAL INFOMATION

P-TGV

[Photo - TGV]



01

TGV (ガラス貫通穴あけ基板)

TGV (Through Glass Via)

大判ガラスに均一性のある
高精度の穴あけを施します。

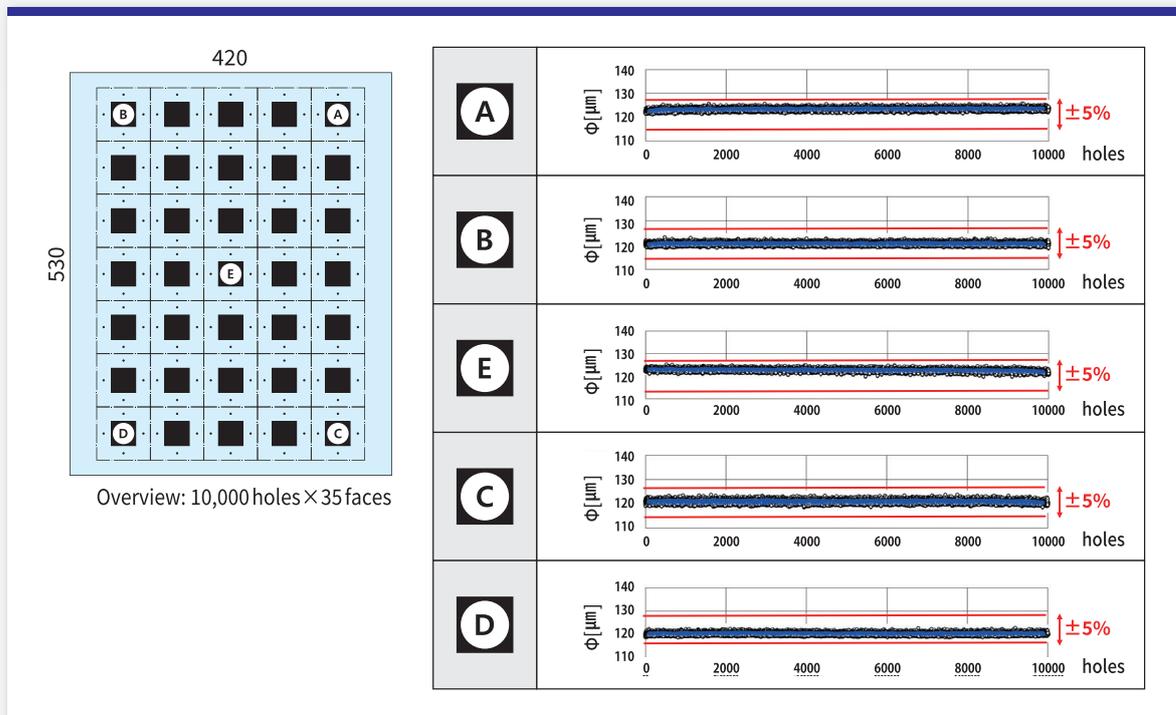
We can make through-hole vias
in large-size glass with high
precision and uniformity.

■ Specifications

Substrate size	420 mm × 530 mm (0.4 mm t)
Number of holes	350,000 holes (10,000 holes × 35 faces)
Hole diameter	Φ120 μm (hourglass shape)

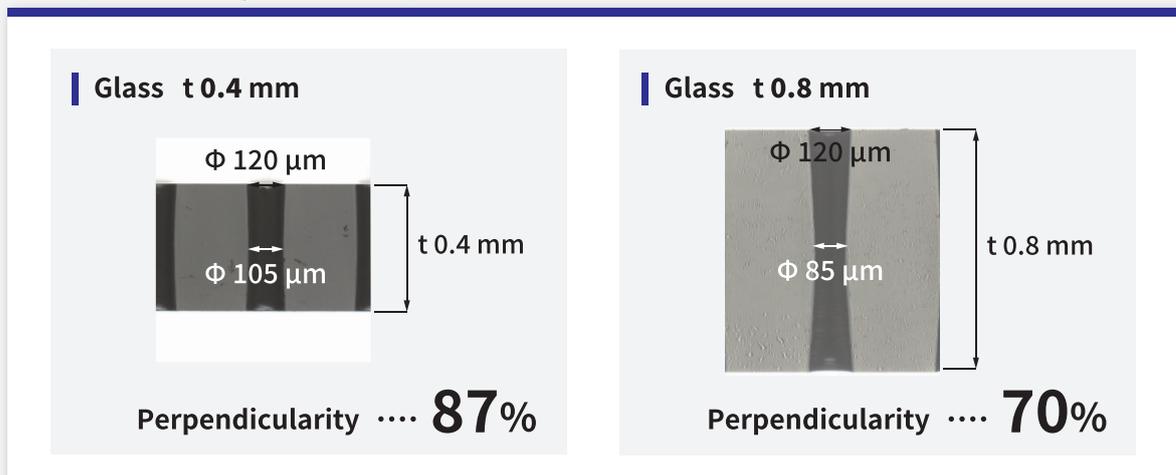
■ 穴形状の均一性

Uniformity of hole shape



■ 穴形状の垂直性

Perpendicularity of hole shape



02

ミクロのTGV (ガラス貫通穴あけ) 加工基板 MICRO's TGV (through glass via) substrate

■ ガラス板厚と貫通穴径の実績データ (砂時計型)

Actual data of glass thickness and through-hole via diameter (hourglass shape)

Diameter Thickness	Φ 150 μm	Φ 120 μm	Φ 100 μm	Φ 80 μm	Φ 60 μm	Φ 30 μm
t 0.1 mm						
t 0.2 mm						
t 0.4 mm						
t 0.5 mm						
t 0.8 mm						

■ ガラス素材別穴あけ加工比較

Comparison of hole processing by glass material

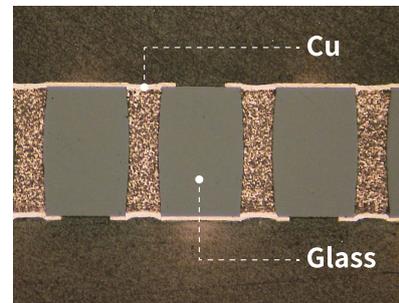
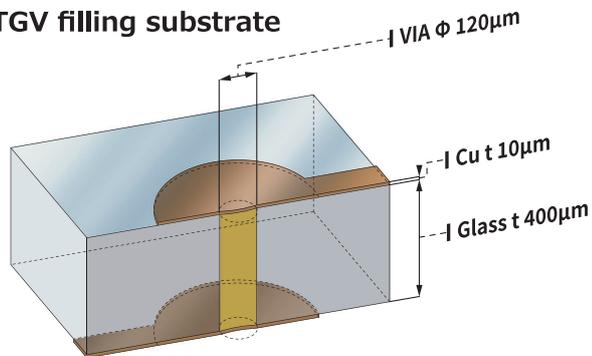
Company N Alkali free glass	Company C Alkali free glass	Company N Glass for Chemical strengthening	Company S Heat resistant glass
Φ120 μm	Φ120 μm	Φ120 μm	Φ120 μm
Glass t 0.4 mm	Glass t 0.4 mm	Glass t 0.4 mm	Glass t 0.4 mm

03

穴埋め加工基板 TGV filling substrate

■ ガラス板厚の異なった貫通穴への穴埋め加工
Through-hole via filling in glass with different thickness

TGV filling substrate



Cross - section view

Radiograph after hole filing (X-ray image)



Development (glass thickness 0.8mm)



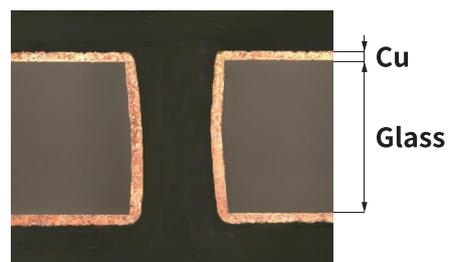
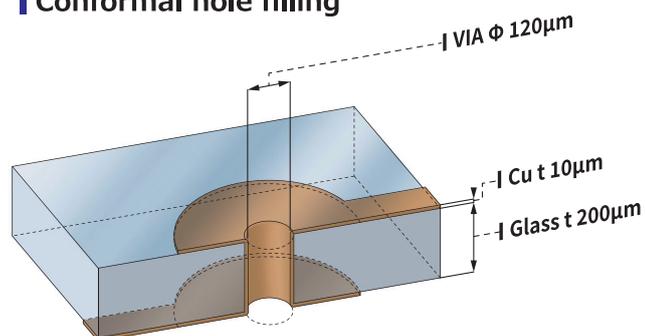
Conventional (glass thickness 0.4mm)

04

コンフォーマル銅めっき穴埋め基板 Substrate with through-hole vias filled by conformal copper plating

■ 断面図
Cross-sectional view

Conformal hole filling



Cross - section view

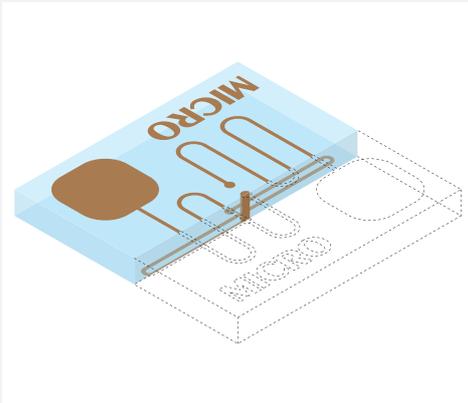
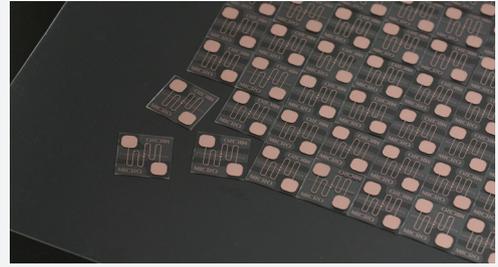
05

薄板ガラス(0.2 mm t)への穴あけ両面配線部品(10 mm sq)

Thin-glass part (0.2 mm t) with through-hole vias for double-sided wiring(10 mm sq.)

0.2 mm t の薄板ガラスに穴あけ加工と穴埋め加工を施し両面電極配線を可能にしたガラスです。

This is a thin-glass part fabricated by making through-hole vias in thin glass with a thickness of 0.2t and filling the through-hole vias, which enables double-sided electrode wiring.



■ Specifications

Substrate size	6 inch (150mm sq.)
Plate thickness	0.2 mm
Hole processing	Φ100 μm
Wiring	<ul style="list-style-type: none"> • Seed layer : Ti • Semi-additive copper plating, thickness: 10μm
Hole filling	<ul style="list-style-type: none"> • Copper paste (fill type) • Semi-additive copper plating, thickness: 10μm

06

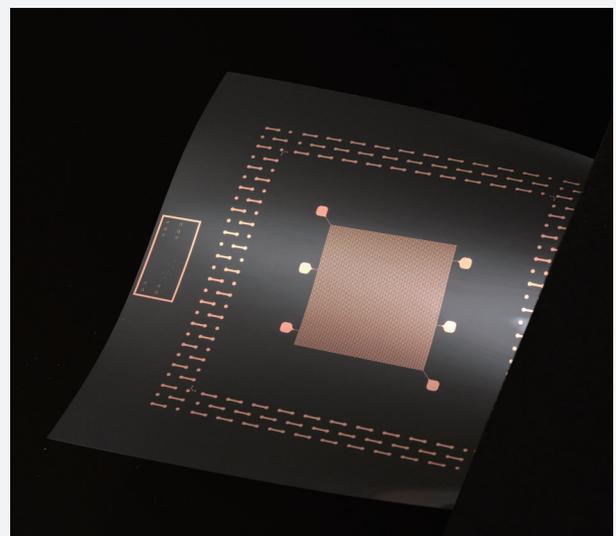
20 μm 超薄板ガラスへの配線基板

20 μm ultra-thin glass wiring substrate

マイクロ技術研究所は、超薄板ガラスをガラススリミングにより所定の厚みにする加工を得意としています。この度、ガラス厚20μmの超薄板ガラスにφ50μmのスルーホール結合した両面配線基板を発表しました。スルーホールをフォトエッチングにより製作した関係でP-TGVと名付けました。

MICRO TECHNOLOGY specializes in processing of ultra-thin glass into specified thickness by chemical polishing.

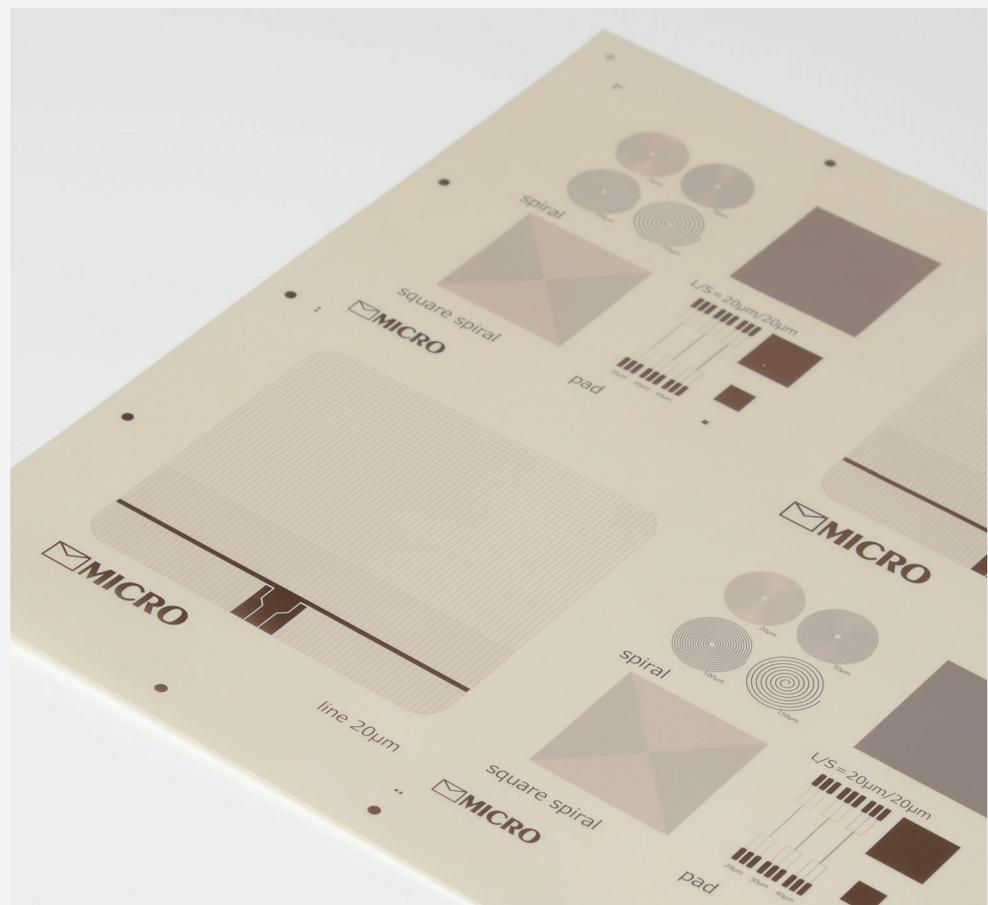
We have announced a double-sided wiring substrate fabricated by making 50-μm-diameter through-hole vias for connection in ultra-thin glass with a thickness of 20 μm. We have named the substrate P-TGV because its through-hole vias are fabricated by photo-etching.



07**LCP 樹脂フィルム配線基板 (液晶ポリマー)****LCP (liquid crystal polymer) resin film wiring substrate**

■ Specifications

Adhesion	1kN/m or more
Maximum processing dimension	400 mm × 500mm
Film thickness	0.05 mm
Conductor thickness	Semi-additive copper plating, 5 μ m
Line width	L/S 20/20 μ m



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