



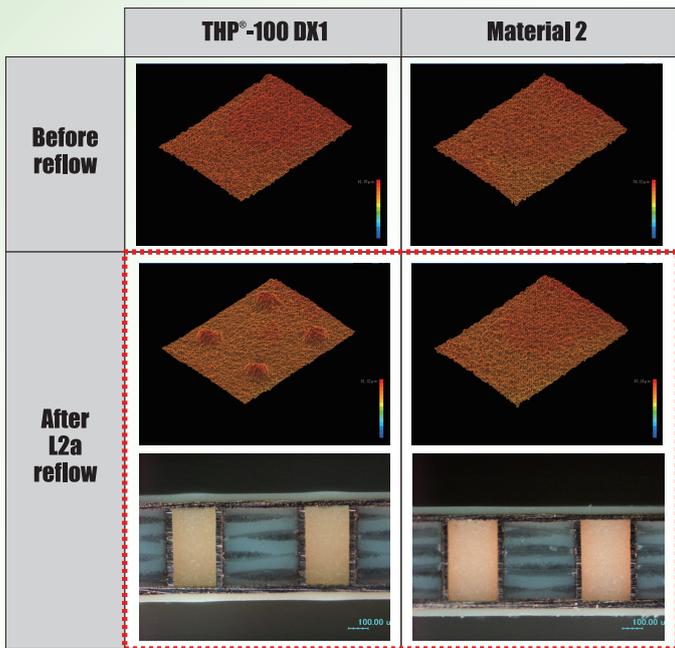
THP[®]-100 DX7 (Trial name: "Material 2")

熱硬化型穴埋めインキ

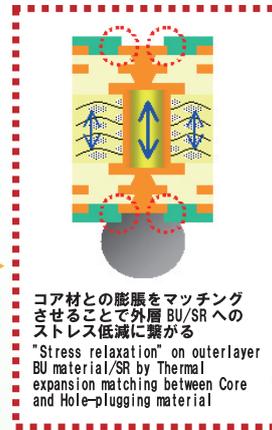
Thermal Curable Permanent Hole-Plugging Materials

- **高 Tg / 低 CTE** High Tg/Low CTE
他部材 (低 CTE) とのマッチング CTE to match with other materials
- **高信頼性** High Reliability
-65°C ⇔ 150°C, 1000 Cycle クラックなし No crack after TC -65°C ⇔ 150°C, 1000 Cycle
- **低硬化収縮** Reduced shrinkage after curing
- **環境対応 / ハロゲンフリー** Environment Consciousness/Halogen free

リフロー前後の基板表面 / 断面観察

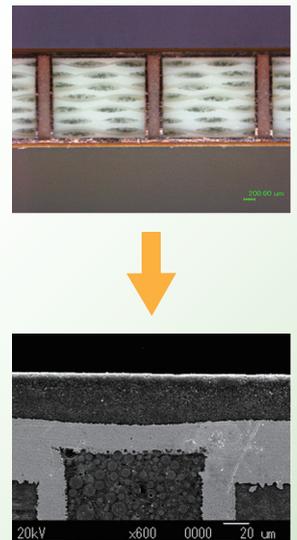


◇ Core
MCL-E-679FGR
(T=0.4mm PTH=0.25mm)
◇ BU Layer
ULTIMAX
◇ Treatment
L2a (C-120/60/60) +
Reflow (270°C / 5cycles)
※基板表面実温度



TCT 後基板断面

-65°C ⇔ 150°C, 1000 Cycle Material2



Property Item			THP [®] -100 DX1	THP [®] -100 DX7	Test Condition
ヤング率	Young's modulus	GPa	4.8	8.2	引っ張り法 Pulling mode (@room temp) IPC-TM650
破断点強度	Tensile strength	MPa	56	90	
伸び率	Elongation	%	2.1	2.2	
ポアゾン比	Poisson ratio		0.34	0.35	
ガラス転移温度	Tg	°C	155	173	TMA (引っ張り法) TMA method (Pulling mode) 試験荷重 Weight charge: 5g JIS-C6481
線膨張係数	CTE X-Y	$\alpha 1 / \alpha 2$ (ppm)	33/100	19/56	TMA (引っ張り法) TMA method (Pulling mode) 試験荷重 Weight charge: 5g X-Y 方向 X-Y direction JIS-C6481
線膨張係数	CTE Z	$\alpha 1 / \alpha 2$ (ppm)	32/101	20/56	TMA (ペネトレイト法) TMA method (Penetrating mode) 試験荷重 Weight charge: 5g Z 方向 Z direction JIS-C6481
ピール強度 (蓋めつき)	Peel strength (Cover plating)	N/cm	>6	>5	引っ張り方向 90° 銅厚 25µm Vertical direction at 90° Plated Cu thickness:25µm
吸水率	Water absorption	%	0.7	0.7	イオン交換水に硬化塗膜単体を浸漬 (D-24/23) 塗膜厚み 100µm After immersion in ion-exchanged water (D-24/23) Hole-plugging ink thickness:100µm