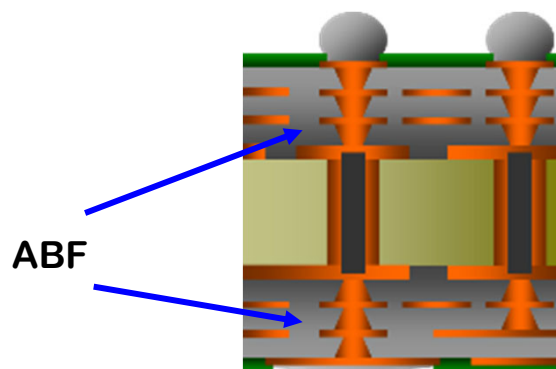
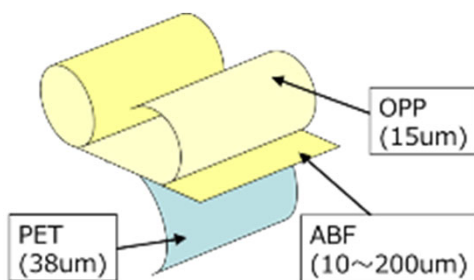
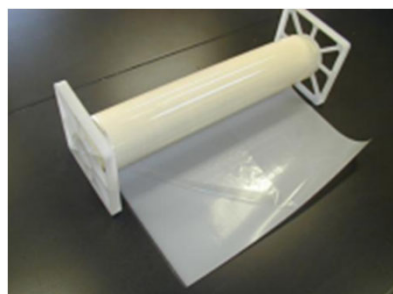


“Ajinomoto Build-up Film” (ABF)

Low Df Dielectric layer for High Speed IC Package



cross sectional view

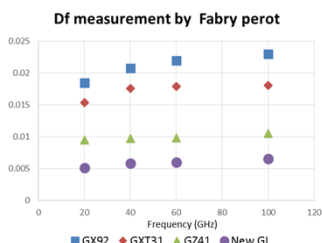
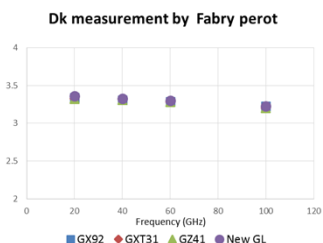
Material Properties

New

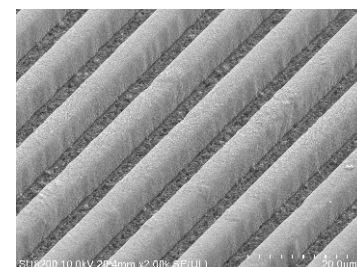
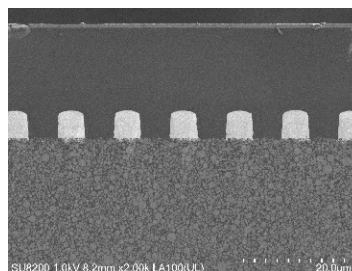
ABF	GX92	GXT31	GZ41	GL
CTE (ppm/K) 30-150deg.C	39	23	20	20
Tg (deg.C, DMA)	168	172	198	171
DK (5.8GHz)	3.2	3.4	3.3	3.3
Df (5.8GHz)	0.018	0.014	0.0074	0.0044
Surface Image (SEM, x 3,500)				

Low Df and Smoother Surface (skin effect) are the key to achieve lower transmission loss.

Frequency Dependency of Df/ Dk



Fine Line Formation (L/S=5/5)



GL showed good Frequency stability.

Fine Line by Semi Additive Process.