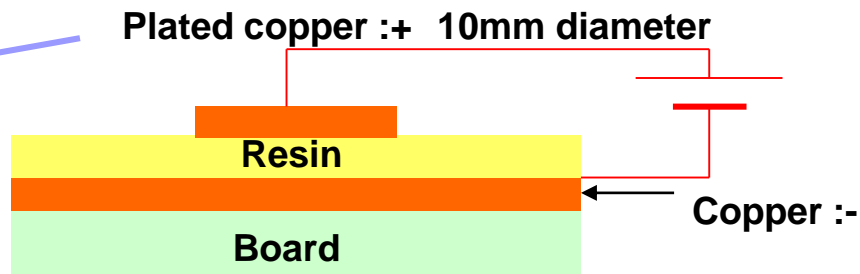
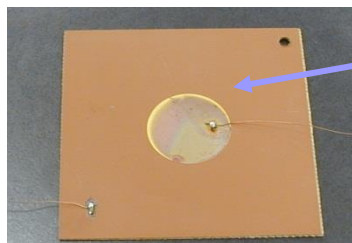


GX13 Insulation Reliability / b-HAST (130°C, 85% RH, 3.3V)



- 1) Vacuum lamination to CCL
- 2) 180degCx 30min Curing, desmear & copper plating, 180degC x 60min annealing
(Desmear condition : Sweller: 60degC x5min M/E: 80degCx20min)
- 3) Making 10mm diameter circle copper area & final curing / sample pieces
- 4) HAST (Plated Copper;+ 130degC, 85%, 3.3V)

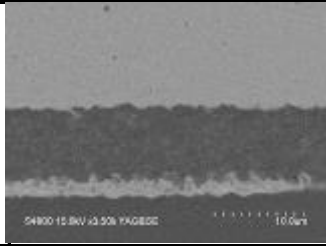
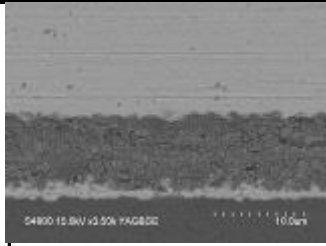
“Ajinomoto Build-up film”

Variety	Thickness	No.	0hr	100hr	200hr
GX13	15um	1	9.04+E10	1.37E+08	6.84E+03
		2	2.72+E11	1.03E+10	7.76E+06
		3	8.07+E10	1.04E+08	1.40E+06
		4	6.06+E11	1.40E+11	6.84E+03
		5	7.65+E10	1.55E+07	6.84E+03
		6	8.12+E11	3.48E+11	1.36E+06
GX13	20um	1	2.59+E11	3.84E+11	2.57E+11
		2	6.64+E12	2.12E+12	5.71E+12
		3	1.88+E11	2.41E+11	1.60E+10
		4	3.36+E12	6.83E+10	2.87E+11
		5	1.01+E12	2.25E+11	9.97E+10
		6	1.44+E11	2.37E+12	7.67E+10

15um 100h pass, 20um 200h pass

GX92, GXT31 Insulation Reliability

“Ajinomoto Build-up film”

Variety		0h	50h	100h	150h	200h	250h	300h	X-section (before HAST)
GX92	1	1.50E+10	1.31E+10	1.56E+10	1.93E+10	9.16E+10	3.71E+11	1.19E+10	
	2	1.30E+11	1.17E+11	1.49E+11	1.25E+11	4.13E+11	9.67E+11	7.51E+10	
	3	2.30E+11	3.03E+11	2.90E+11	2.12E+11	4.61E+11	6.57E+11	2.37E+11	
	4	6.30E+11	4.88E+11	4.12E+11	4.94E+11	6.21E+11	7.39E+11	4.85E+11	
	5	5.49E+11	4.27E+11	4.56E+11	4.90E+11	6.57E+11	9.47E+11	3.88E+11	
	6	6.07E+11	4.89E+11	4.49E+11	4.65E+11	1.72E+11	2.23E+11	1.17E+11	
GXT31	1	1.07E+11	1.16E+11	9.69E+10	7.31E+10	7.88E+10	8.04E+10	7.32E+10	
	2	1.29E+11	1.40E+11	1.13E+11	8.20E+10	1.23E+11	1.04E+11	1.22E+11	
	3	2.51E+11	1.54E+11	2.17E+11	2.40E+11	2.20E+11	3.28E+11	2.59E+11	
	4	5.98E+11	4.44E+11	4.94E+11	4.64E+11	3.69E+11	5.55E+11	4.85E+11	
	5	6.29E+11	3.72E+11	4.62E+11	1.59E+11	4.07E+11	6.09E+11	1.46E+11	
	6	2.89E+11	8.07E+11	6.87E+11	5.95E+11	5.30E+11	2.52E+11	2.30E+11	

LtL :
7.5 - 8.0um

Only 8um thickness of GX92/ GXT31 kept good insulation reliability.