KB-6160A/KB-6060A Processing Guide

This Processing Guide is edited in according to the IPC-4101 standard, and based on this standard. It is organized according to the internal test results of product characteristics and the actual use of customers, so that customers are more conducive to the use of KB-6160A/KB-6060A.

The recommendations contained herein do not cover all possible PCB designs or processing environments. Manufacturers/ Users will need to make other process adjustments to accommodate as necessary. The contents of the attachment are for advice and reference only, and the specific parameter setting should be determined according to the actual situation。

Part 1: CCL Storage Conditions

Storage method

It should be stored in a flat surface with the original packaging to avoid heavy pressure and prevent sheet deformation or sheet bending problems.

Storage environment

Materials should be stored in a dry environment, avoid direct sunlight, rain, and avoid the erosion of corrosive gases. It is recommended that the sheet be used within one year of the production date.

Part 2: Prepreg Storage Conditions

Storage method

As soon as a prepreg is received, it should be moved from the receiving area to a controlled environment. All prepreg should be managed using a first-in, first-out (FIFO) inventory system. If not handled properly, the prepreg may absorb moisture, resulting in the affections on Tg, curing, and press flow etc. Store in a flat surface with original packaging, and do not stack them together to avoid stress and damage to materials. Wrap the remaining unused prepreg in a plastic wrap to prevent moisture absorption.

Storage environment

Materials should be stored in a condition of temperature is less than 23 degrees Celsius and the Relative humidity is less than 60%, for shelf life up to 3 months.

Part 3: Inner Layer and Copper Foil Treatment

➢Workers should handle the materials carefully, to prevent wrinkling or creases of the prepreg and avoid affecting the use of the prepreg. The stored prepreg must undergo a tempering process before use. It is recommended to temper and dehumidify for 12 hours before usage. Prepreg that has been cut into panels should be stored in the above suggested environment and to be consumed as soon as possible.

➢Before mass production, the appropriate compensation coefficient must be determined in according to the proportion of residual copper and the thickness of the platen, and resin content to be adjusted if need.

➢The inner layer should be placed in a controlled temperature and humidity environment for 8 hours before punching and AOI. Better dimensional stability and accuracy in this environment.

➢The inner layer should be baked at 120° C for at least 60 minutes after the browning treatment.

Part 4: Pressing Process/ Press cycle

➢In the process of stacking, ensure that the stacking sequence of the prepreg is consistent, avoid reversal or flipping actions, and avoid warping and deformation problems.

➢Pressure setting: vacuum press 300-400psi (the specific high pressure needs to be adjusted according to the customer's situation).

➢It is recommended that the heating rate between 80-140 ° C is 1.5-2.5 ° C/min, please refer to Table 1 for reference.

➢Temperature for materials' curing should be at least 175° C or above for 45 minutes or more. Full pressure is 300-400 psi. The cooling rate is lower than 3° C/min.

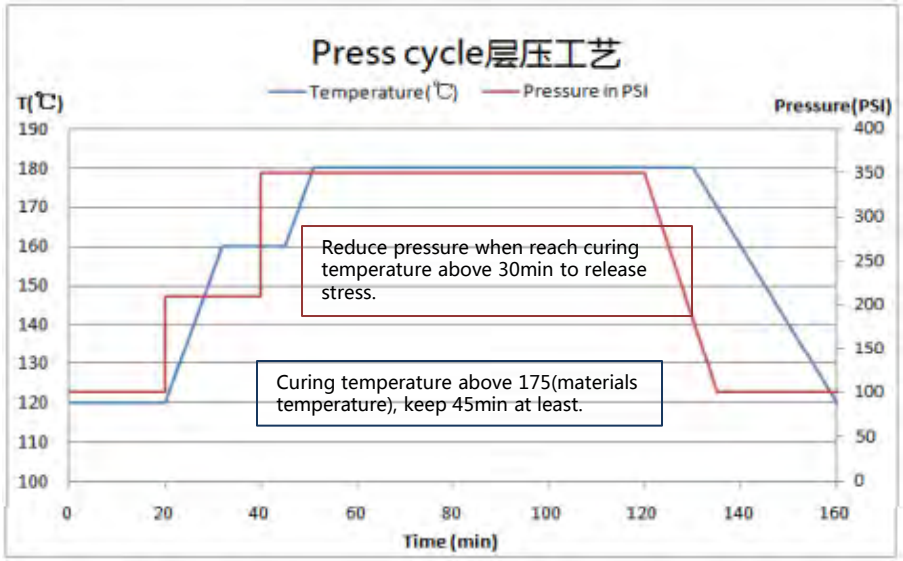

Table 1

Part 5: Recommendations for Dilling Parameters

➢Be sure to vacuum up the dust. It will help prevent gouging.

➢The following table (Table 2) lists a series of parameters for your reference, we assume the CCL overall thickness is 2mm. It needs to be adjusted according to different tools, board structure, board thickness, number of layers and copper thickness.

➢After the drilling process, blow the with an air gun properly to avoid blockage of the holes

HITACHI Machine.

Drilling parameters adjusted based on KB-6160A

钻头直径 (mm)	钻孔参数		孔限 (Hits)
	转速 (krpm)	落速 (m/min)	
0.20～0.25	170	2.4	2100
0.275-0.30	170	2.4	2100
0.35-0.375	160	2.6	2100
0.40～0.45	135	2.6	2100
0.50～0.55	120	2.8	2100
0.60～0.65	110	2.8	2100
0.70～0.75	105	2.9	2100
0.80～0.85	85	3.0	2100
0.90～0.95	80	3.0	2100
1.00～1.05	75	3.1	2100
1.10～1.15	70	3.1	2100
1.20～1.25	65	3.2	2100
1.30～1.35	60	3.4	2100
1.40～1.45	55	3.4	2100

钻头直径 (mm)	钻孔参数		孔限 (Hits)
	转速 (krpm)	落速 (m/min)	
1.50～1.55	50	3.1	2100
1.60～1.65	50	2.9	2100
1.70～1.75	50	2.6	2100
1.80～1.85	45	2.5	2100
1.90～1.95	45	2.3	2100
2.00～2.15	45	2.2	2100
2.20～2.35	40	2.0	1400
2.40～2.55	40	1.9	1400
2.60～2.75	35	1.8	1400
2.80～2.95	35	1.7	1120
3.00～3.25	30	1.6	1120
3.30～3.65	30	1.1	700
3.70～3.95	30	0.7	700
4.00～4.45	25	0.6	700

Part 6: Etching(Glue removal)

➢Vertical or horizontal permanganate etching can be performed normally, but the cross-sections must be examined with a scanning microscope.

➢The following are the suggested parameters of different suppliers, and customers need to adjust them according to the actual situation.

Factory	Item	Parameter	Temperature	Time
Rohmhaas（罗门哈斯）	$KMnO_4$	45~65g/L	72~80℃	18min
	NaOH	0.9~1.3N		
	K_2MnO_4	<25g/L		
MacDermid（麦德美）	$KMnO_4$	40-65 g/l	65~85℃	15min
	K_2MnO_4	< 25 g/l		
	NaOH	1.2 -1.3 N		
Atotech（安美特）	$KMnO_4$	45-65 g/l	80~85℃	15min
	K_2MnO_4	< 30 g/l		
	NaOH	34-45g/l		

Etching control requirements: 0.2-0.6mg/c㎡, under normal circumstances, 1 times of etching can meet the requirements

Part 7: Health and Safety advice

➢Use caution when handling materials. Because the edges of the laminate are exceptionally sharp. Cuts and scratches may result if not handled properly.

➢Handling and machining of prepregs and laminates generates dust. Therefore, proper ventilation must be provided in the machining/pressing area. A protective mask is recommended to avoid inhalation of dust. Gloves, apron and safety glasses are recommended if the individual is in frequent or prolonged contact with skin or dust. (See KB-6160A Material Safety Data Sheet)