IT-140

Conventional FR-4, Normal Tg (Tg≥135℃), DICY-Curing, Tetra-functional Epoxy Laminate and Prepreg

● Process Guideline

1. Prepreg Handling & Storage

(1) Shelf life is at least 3 months when prepreg must be stored in a cool dry environment(<20℃ and 50% RH).
(2) Prepreg exposed at atmosphere should be resealed to minimize moisture of prepreg.
(3) Prepreg should be stored in dehumidifier 12 hours prior to use.
(4) Prepreg supplied in rolls or panels should be stored horizontally. To avoid damage, no stacking is recommended.

2. Laminate Handling & Storage

(1) Laminates should be stored in a dry environment.
(2) Laminate should always be stored flat.

3. Oxide Treatment

(1) First around must be taken and find a suitable parameter (as dimension compensation, etc) before mass production.
(2) Inner layers should be baked for at least 40 min at 120℃ after black or brown oxides treatment.
Note: The material temperature is not allowed to >190 ℃ in lamination process if oxide treatment.

4. Lamination Overview

(1) Stacks must be prepared in dry room to avoid moisture upstack by the prepreg.
(2) Stacks with the core and prepreg are recommended to use the vacuum process for 30 minutes before heated.
Recommended pressure is as follow:
Vacuum Hydraulic: 300-400 psi ADARA Press: 200-300 psi
(3)Heating rate is 1.3-1.8℃/min from 80℃ to 140℃,cooling rate is below 3℃/min
(4)When the board reaches 165℃ during the pressing process, and hold for at least 40 minutes

5. Drilling

Drilling parameters are mainly dependent on hole size, layer thickness, layer number, copper thickness and stack height. The following drilling parameters are reference for you only. Typical drilling parameters for 0.4~1.0mm drills are following:
Spindle speed: 45-105KRPM Feed rate: 50-150IPM
Retract rate: 500-1000IPM Max. hit count: <1000 HITS
Stack height: ≤2pnls (2-6layers), 1pnl (≥8layers) Entry Material: 0.2mm Aluminum
Back-up Material: 1.5mm phenolic laminate Drilling Machine: Hitachi-ND-6L210E
Baking condition: After Drilling: 150℃ /2 hours

6. Desmear

The following desmear parameter is reference only:
Horizontal (ATO)
Swell: 60-75℃ for 190s Mn+7: 55-65g/l at 85℃ for 360s
Horizontal (JETCHEM)
Swell: 75℃ for 100s Mn+7: 55-65g/l at 85℃ for 180s
Vertical (ROHMHAAS)
Swell: 65℃ for 365s Mn+7: 55-65g/l at 75℃ for 750s
Normally, the typical parameters used to desmear FR-4 product may not produce optimum hole topography for IT-140 ,so you should consult with your chemistry to optimize your desmear condition, as desmear times or adjust other parameter, etc.