



PROCESSING GUIDELINES

Laminate: S1141

Prepreg: S0401

Normal Tg, Traditional FR-4 Material



This product process guideline uses IPC-4101 Standard as a reference, and Shengyi make some changes according to the product characteristics of the actual situation as to making it more suitable for the Shengyi S1141/S0401 product use.

1. Storage condition

1.1 Laminate

1.1.1 Storage method

- Keep laminates as received packaging onto a flat floor or a proper pallet. Avoid heavy pressure in case of distortion occurring due to incorrect storage method.

1.1.2 Storage condition

- Keep laminates at ventilated, dry and ambient condition. Avoid direct exposure to sunlight, rain and chemical gas.
- The shelf life of laminate maintains two years for double sided and one year for single sided at above proper storage conditions. All internal properties within shelf life meet IPC-4101E specification sheet.

1.1.3 Handling

- Handle laminates carefully wearing clean gloves. Collision and slippage will damage the cladding copper. Naked hand operation will contaminate the surface of cladding copper. All above defects may bring bad effects during production.

1.2 Prepreg

1.2.1 Storage method

- Keep prepreg horizontally with received package. Avoid heavy pressure in case of distortion occurring due to incorrect storage method.
- Be sure to re-seal any of remained prepreg with plastic film and put it away properly onto a pallet.

1.2.2 Storage condition

- All prepreg should be stored at below conditions as received packaging without any influence of ultraviolet ray.
 - Condition 1: 3 months when stored at <23°C and <50% RH.
 - Condition 2: 6 months when stored at <5°C;
- Be careful of relative humidity due to its bad effect on prepreg properties. When packaging is open, it's recommended using up within 8 hours. If not, it must be sealed and packaged before storage.

1.2.3 Prepreg cutting

- Cut prepreg carefully and prevent pollution or crease.
- When cutting the PP, it's needed to clean the table first, to avoid cross contamination of different types of PP resin powder.

1.2.4 Usage

- When brought out from cooling warehouse, prepreg should be stabilized to ambient temperature before opening package, keep at least 8 hours is recommended, depending on specified store condition.
- For panel form prepreg after cutting, all should be kept under condition 1 (or condition 2) and used up as soon as possible. When exceeding 3 days, it's recommended retesting before use.
- For roll form prepreg remained, all should be sealed again and kept at condition 1 (or condition 2).
- For IQC inspection, prepreg should be finished all tests within 5 day from the date of acceptance according to IPC-4101E specification.

2. PWB Processing

2.1 Panel cutting

- Sawing (preferred) and shearing method is recommended. Be careful of potential edge cracks when using roller cutter or caused by improper gap or cutter blade abrasion.

2.2 Thin core baking

- Thin core baking depends on actual need. If bake after cutting, it's recommended to rinse cutting panels first, which is able to remove resin powder brought by cutting and avoid etching problem.
- Baking condition: 150°C/4-8h, be sure to avoid contact directly with heater.

2.3 Lay-up

- Ensure prepreg direction of warp and fill at lay-up process. Avoid prepreg reversal or overturn in case of multilayer board distortion after press.

2.4 Press process

- Keep heat-up rate at 1.0-3.0°C/min when material temperature is from 80°C to 140°C.
- Full pressure setting is recommended at the range of 300 – 420 PSI (oil heated), specified value should be determined by multilayer feature (lay-up construction and resin filled area).
- Apply full pressure when the temperature of top layer ranges 80-100 °C.
- Curing condition: 170-180°C, >30min.
- If pressed by Adara machine, please inform us for more information.
- When adopted single sided or dummy panel for multilayer, be sure to roughen the unclad surface before use, otherwise poor bonding might happen due to smooth surface. Etching double sided board for that purpose is one of optional measures.

2.5 Drilling

- Multilayer board is not recommended baking after drilling.

2.6 Desmear

- Fix proper swelling and desmear parameters for processing, for excessive desmear might cause resin



recession or rough edges. 20-40mg/dm² is recommended.

2.7 Solder mask

- Be careful of panel distortion or warpage due to improper stack-up at pose baking process.

2.8 HAL

- Suitable for standard HAL process.
- Not recommend for ≥ 2 oz heavy copper application as it might occur pad lift or measling problem. If measling detected, suggest baking at 125°C/2-4h before HAL, and processing within 4 hours.

2.9 Punching

- For thickness ≥ 0.5 mm, punching is not recommended.
- For thickness < 0.5 mm, please evaluate punching operation firstly before mass production.

2.10 Packaging

- To prevent moisture effect on the heat resistance of base material, suggest baking finished PCB boards at 125°C/4~6h before packaging. For a long time storage, it's advised to wrap by aluminum pack.

3. PWB Soldering

3.1 Shelf life of PWB

- 3 months with packaging protection.
- Bake at 125°C/4~6h before assembly is recommended, especially when stored more than 3 months.

3.1 Reflow

- Suitable for standard reflow process
- Lead free is not recommended. If used for lead free reflow, evaluation by trial is necessary.

3.2 Manual soldering

- For separated or connected pad, manual soldering temperature should range 350-380°C and hold less than 3s for single point.

This process guide is for reference only! Should you have any questions, please feel free to contact us. ShengYi will support you with prompt and effective service.