

This product is designed according to IPC-4103/11, and Shengyi makes certain modifications to some of the characteristics to help better use of this product according to customer's requirement.

## ABOUT COPPER CLAD LAMINATE

### 1. STORAGE CONDITIONS

Stored in platform or shelf in original packages, avoid improper outside force and any deformation. Laminate sheets should be stored in ventilated, dry at room temperature under environment control, avoiding direct sunlight, rain and corrosive gas (storage condition has direct and important effect to the quality of material). Double-sided copper-clad laminate (cores) can be stored in such proper condition for 2 years.

Operation Manuel

### 2. HANDLING

Wear clean gloves and carefully move the cores. Collisions and sliding will cause damage of the cores. Bare hands action will cause contamination to copper foil surface. These defects are likely to cause adverse effects.

### 3. PROCESS RECOMMENDATIONS

- 1) Drilling: To ensure better hole wall qualities, new drill bit is recommended for drilling, and the hit count should be lowering to 300~1000 hits. Stacks should be no more than 4 panels for drilling. Chip load is suggested to lower 10%~30% in drilling, other parameter can be refer to attached S7136H Drilling Parameters.
- 2) Melamine cushion board is recommended for drilling and use sand paper for burnish after drilling and clean with high presser air. High aspect ratio holes can be cleaned with nylon brush.
- 3) No special process is required before plating. The same process as FR-4 can be ISO/TS16949 ISO9001 ISO14001 ISO27001 used.
- 4) The silkscreen or photosensitive solder mask used in epoxy/glass filament material is suitable for S7136H as well and has good adhesion. To achieve good adhesion, mechanical abrasion should be avoided before SM.
- 5) The baking process of S7136H is similar to epoxy/glass filament. Normally baking is not a must. If baking is available, we recommend 150°C baking for 1~2 hrs.
- 6) Punching is not suitable for PCB profile making, instead routing is recommended with reduced running speed. Try to avoid sudden vibration during routing for which may cause edge crack.
- 7) The finished PCB can be stored in proper temperature and humidity. In room temperature, dielectric material would turn inert to humidity, but the metal might get oxidated in high humidity. Standard PCB surface treatment can prevent such oxidation.

### 4. DESIGN RECOMMENDATIONS

- 1) Due to Fiberglass structure and weft density differences, when manufacturing it's recommended to use symmetrical PCB construction stackup to avoid warpage.

- 2) Since glass cloth has different types and varies in woven density, the stack-up of multilayer board is also required to be symmetrical.

If you have any questions or suggestions to S7136H material, please feel free to contact Shengyi Technology.

### 1.1 The Drill Parameter of S7136H

| Drill diameter (mm) | Drill limited | Compensation (Inch) | Spindle (KRPM) | Chip load IPM | Withdraw (IPM) | DEWELL ms |
|---------------------|---------------|---------------------|----------------|---------------|----------------|-----------|
| C0.253              | 1200          | -0.105              | 108            | 21            | 300            | 30        |
| C0.350              | 1000          | -0.33               | 98             | 40.6          | 500            |           |
| C0.500              | 1000          | -0.356              | 95             | 50.4          | 800            |           |
| C0.600              | 1000          | -0.381              | 90             | 47.6          | 800            |           |
| C0.750              | 1000          | -0.432              | 75             | 50.4          | 800            |           |
| C0.850              | 1000          | -0.457              | 68             | 52.5          | 800            |           |
| C0.950              | 1000          | -0.457              | 62             | 52.5          | 800            |           |
| C1.000              | 800           | -0.483              | 60             | 52.5          | 800            |           |
| C1.200              | 800           | -0.533              | 55             | 68            | 800            |           |
| C1.400              | 800           | -0.584              | 50             | 68            | 800            |           |
| C1.600              | 800           | -0.635              | 45             | 80            | 800            |           |
| C2.000              | 500           | -0.711              | 38             | 70            | 800            |           |
| C3.000              | 100           | -0.965              | 28             | 52            | 500            | 30        |
| C3.175              | 100           | -0.965              | 28             | 45            | 300            | 30        |
| C4.000              | 100           | -0.533              | 25             | 25            | 300            | 30        |
| C5.000              | 100           | -0.584              | 22             | 25            | 300            | 30        |
| C6.000              | 200           | -0.66               | 20             | 10            | 300            | 30        |

## 1.2 The Drill Parameter of S7136H for multi-layer hybrid build

| Drill diameter (mm) | Drill limited | Compensation (Inch) | Spindle (KRPM) | Chip load IPM | Withdraw (IPM) | DEWELL ms |
|---------------------|---------------|---------------------|----------------|---------------|----------------|-----------|
| C0.253              | 1200          | -0.105              | 108            | 24            | 300            | 30        |
| C0.350              | 1000          | -0.33               | 98             | 46.4          | 500            |           |
| C0.351              | 1000          | -0.33               | 98             | 44            | 500            |           |
| C0.500              | 1000          | -0.356              | 95             | 57.6          | 800            |           |
| C0.600              | 1000          | -0.381              | 90             | 54.4          | 800            |           |
| C0.750              | 1000          | -0.432              | 75             | 57.6          | 800            |           |
| C0.850              | 1000          | -0.457              | 68             | 60            | 800            |           |
| C0.950              | 1000          | -0.457              | 62             | 60            | 800            |           |
| C1.000              | 800           | -0.483              | 60             | 60.5          | 800            |           |
| C1.001              | 800           | -0.483              | 60             | 56            | 800            |           |
| C1.200              | 800           | -0.533              | 55             | 68            | 800            |           |
| C1.600              | 800           | -0.635              | 45             | 80            | 800            |           |
| C2.000              | 500           | -0.711              | 38             | 70            | 800            |           |
| C3.000              | 100           | -0.965              | 28             | 52            | 500            | 30        |
| C3.175              | 100           | -0.965              | 28             | 45            | 300            | 30        |
| C4.000              | 100           | -0.533              | 25             | 25            | 300            | 30        |
| C5.000              | 100           | -0.584              | 22             | 25            | 300            | 30        |
| C6.000              | 200           | -0.66               | 20             | 10            | 300            | 30        |