

### III. STIFFENER DESIGN

Stiffeners are an inexpensive option for rigidizing pin areas, surface mount areas, or hole patterns for component mounting (provided SMT components are on one side only). Surface mount areas do not always require a stiffener, depending on component size, but a stiffener is recommended and will add very little to cost or bulk.

Stiffeners can be utilized to force a bend line in selected areas. Minco can provide epoxy fillets for the edges of the FR-4 stiffener, where flexing occurs. Stiffeners reinforce solder joints and increase abrasion resistance.

Circuits may be attached to a stiffener pallet (multiple parts) to provide easier handling for automated pick-and-place and component soldering. Circuits can be held together for processing on the pallet, then singulated (clipped free) after wave soldering and circuit testing. Stiffeners can be marked with component mounting locations for rapid assembly.

In Gold Phoenix Stiffeners are commonly FR-4 or polyimide material. They are usually applied with modified acrylic adhesive. Standard FR-4 material thicknesses range from 0.003" (0.08mm) to 0.125" (3.18mm). Typical thickness for polyimide stiffeners is 0.005" (125µm), but 0.001" (25µm), 0.002" (50µm), and 0.003" (75µm) are also available. Polyimide stiffeners are less expensive than FR-4 stiffeners because they are punched on a die instead of routed with a drill bit. The polyimide stiffener lay-up procedure is performed with alignment pins, therefore, registration is better. The polyimide stiffeners are trimmed with the cover on the final blanking procedure, which guarantees perfect outside alignment. When using multiple stiffeners, maintaining the same stiffener thickness consistent throughout the entire construction can help lower costs.

Gold Phoenix Technology Ltd

Email: [sales@goldphoenixpcb.biz](mailto:sales@goldphoenixpcb.biz)

Web: <http://www.goldphoenixpcb.com>

Direct: 905-339-2881

Fax : 905-339-3162