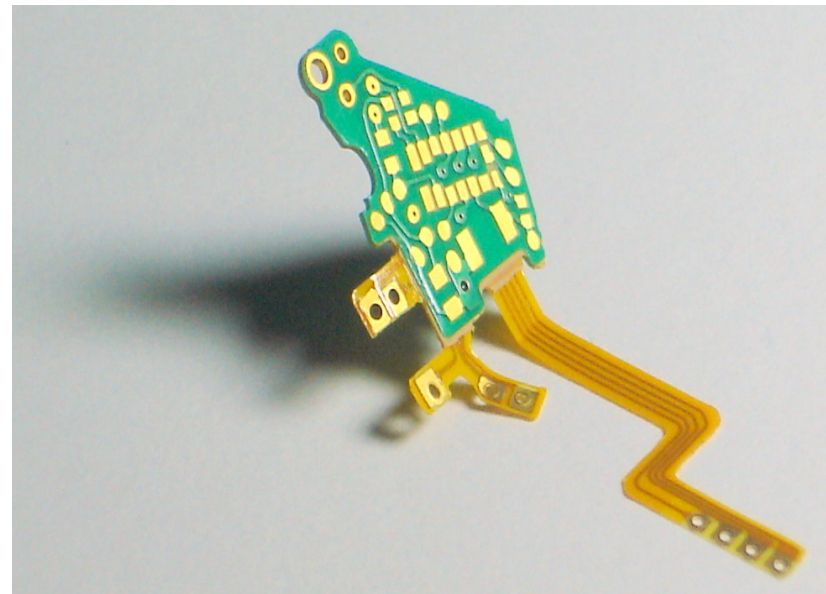


# What is Rigid-flex?

[www.fit4flex.com](http://www.fit4flex.com)

## Definition:

Rigid-flex is a hybrid of Rigid and Flex conductive layers connected with plated-thru holes





# Rigid-flex Advantages

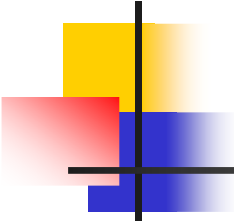
[www.fit4flex.com](http://www.fit4flex.com)

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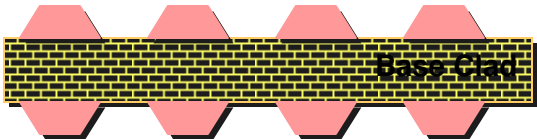
- Weight and Size Reduction – can reduce space by up to 75%
- Increased reliability – less number of solder joints
- Reduced number of connectors, wires and cables – decrease in assembly cost
- Greater electrical performance – signal integrity, tighter controlled impedance, reduce noise & crosstalk
- Higher thermal performance – suitable for lead-free soldering
- Increased assembly density – SMTs both sides and can meet challenge of miniaturization
- No additional assembly fixture required – assemble just like a PCB
- Can be easily de-panelized after assembly
- Reduced total packaging cost

# Typical Stackup

[www.fit4flex.com](http://www.fit4flex.com)

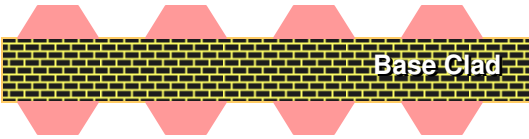


Soldermask



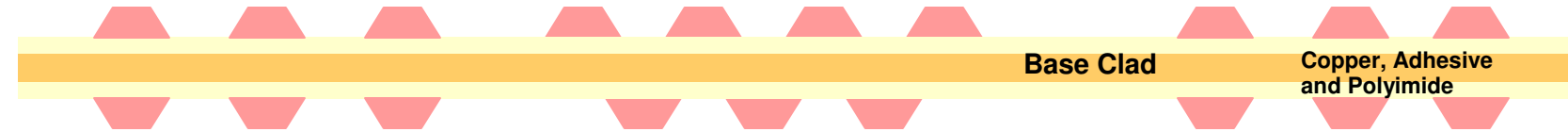
Pre Preg

Soldermask



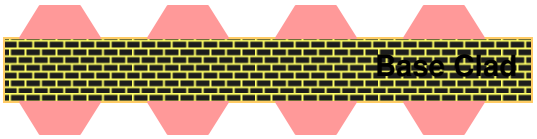
Pre Preg

Coverfilm Adhesive and Polyimide



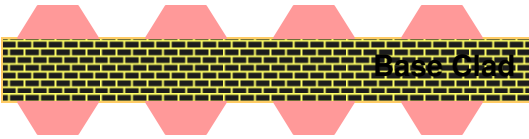
Coverfilm Adhesive and Polyimide

Pre Preg



Soldermask

Pre Preg



Soldermask



# General Design Guidelines

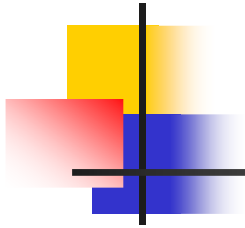
[www.fit4flex.com](http://www.fit4flex.com)

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- Flex layers should be sandwiched between rigid layers when possible
- Traces must be perpendicular to bend line in flex region
- Traces must be evenly spaced across the bend area
- Maximize trace width across the bend area
- Traces must be staggered for double sided flex layers to avoid “I-beam” effect
- Number of layers at the bend area must be kept at a minimum
- No Vias or PTH in the bend area
- Having copper grain parallel to bend direction can improve flexibility, especially in the tightest bend direction

# Rigid to Flex Transition Area

[www.fit4flex.com](http://www.fit4flex.com)



All traces should leave rigid-flex interface perpendicular to the edge of the rigid section

Minimum recommended distance to the edge of PTH is 0.075"

Overlap of partial coverlay to be minimum 0.050"

Design for tear resistance at the rigid-flex interface

Apply epoxy bead for strain relief

