

Design Considerations

The following are additional considerations to be borne in mind when designing flexible printed circuits.

1) The polyimide base material is basically a plastic with a stability of approximately 1000ppm, as opposed to 200ppm for FR4 rigid material.

This has to be borne in mind when selecting land sizes/drill hole sizes on inner layers of flex multi-layers and when designing around inter-related features or groupings on flex.

2) The lack of mass, which gives weight and space advantages, works against the hand soldering operation. Solder pads should be as large as possible and mouse-eared to give best anchorage. Coverlay apertures should be slightly smaller than the solder pad so that it acts as a stake. Try and blend the track into the pad at all times. This can give better heat dissipation when soldering, and strengthens possible weak areas.

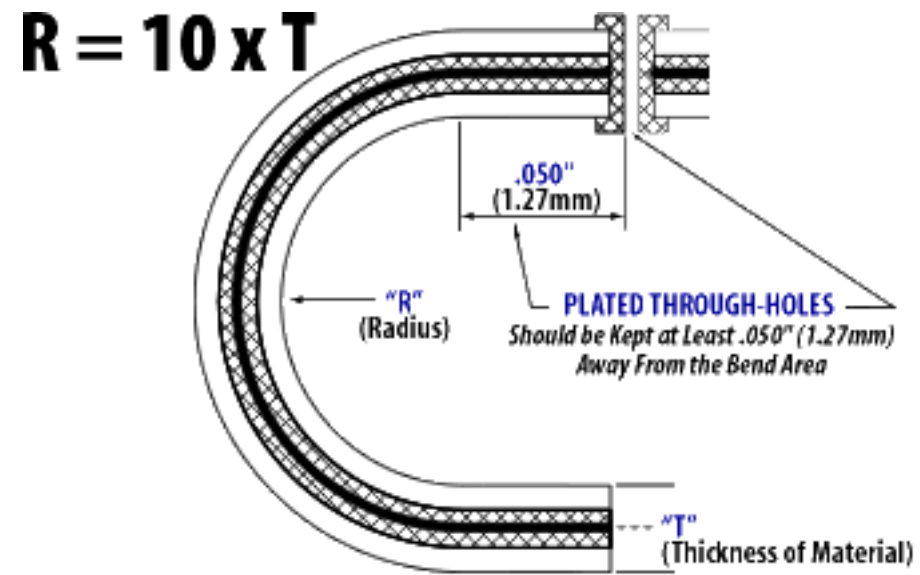
3) Coverlay apertures should be round, oval, or rectangular with rounded corners if possible. This is so that they can be drilled or pecked. Apertures with sharp corners require more expensive tooling.

4) Screening is usually achieved by using solid copper planes. Copper plane areas should be crosshatched where flexibility is required. Where thickness and/or high flexibility is critical, consideration should be given to silver polymer loaded inks. Four-sided screening is achieved by sandwiching the signal tracks in between tracks held at zero potential.

5) When designing for dynamic flexing, the tracking in the flexing area should be in the neutral plane, i.e. the construction should be equal about the middle. The copper should be in the centre if it is of single sided construction, or either side of centre, if of double-sided construction. There should be no plated copper on the dynamic tracking areas.

6) Bend areas:

The bend radius should be approximately 10 times the material thickness.



[BACK](#)