PROTOCASE
Rapid Electronic Enclosure Solutions

L-SHAPE or U-SHAPE ... When and Why to Choose One Style Over the Other

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L-SHAPE or U-SHAPE ... When and Why to Choose One Style Over the Other

U-shape, or clam shell, enclosures are by far the most simple to design and manufacture. And they meet the requirements of a large percentage of electronic packaging requirements. But sometimes they just don't do the job.

Are you wondering how to design an enclosure which has DB connectors protruding from two sides? More importantly, what would you do if the DB connectors are protruding from opposite sides (Fig 1 & 2)? You cannot drop the board in from the top, so how do you design an enclosure? Does this take a lot of design work? The answer is no if you choose Protocases' two piece L- shape design, which is specially, designed to address this issue.

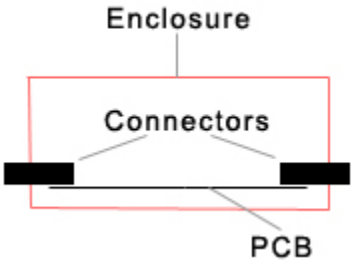


Fig 1: PCB with DB connectors

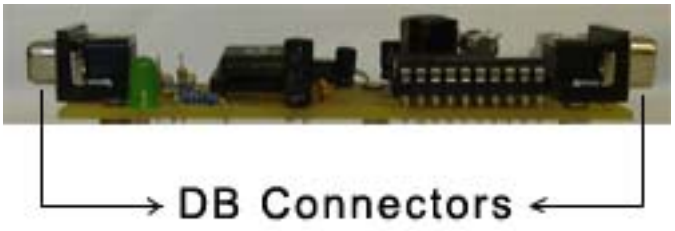


Fig 2: PCB with DB connectors

Designing an enclosure can be simple but sometimes challenges tend to arise with regard to connectors, switches, buttons, self clinching fasteners and bends. One of the most common issues with enclosure design is selecting the correct type of enclosure for your specific application. For a PCB with connectors protruding on opposite sides the most effective solution would be the two piece L-shape mentioned above.

Typically a two piece U shape enclosure (clam-shell) would be used, but as you can see below (FIG 3 & 4), this will not work with a circuit board that has DB connectors protruding from opposite sides.

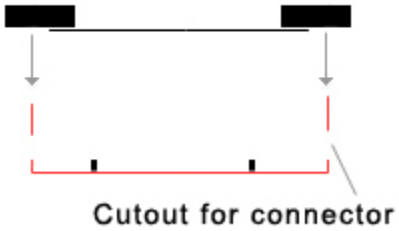


Fig 3

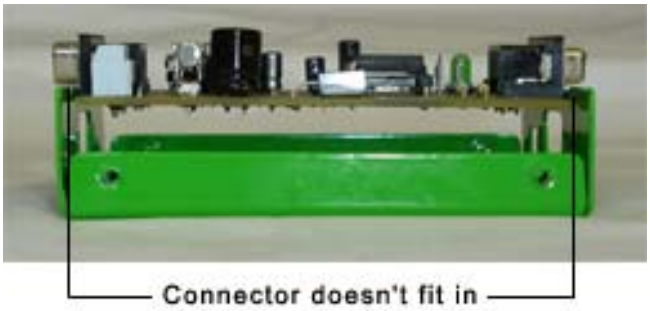


Fig 4

Because of the two U shaped pieces it is almost impossible to fit the PCB into the enclosure from above without stretching the sides of the enclosure (FIG 5 & 6). Even if the PCB does fit into the enclosure, after stretching, there is a high probability the enclosure will be out of the original positions when it is bent back.

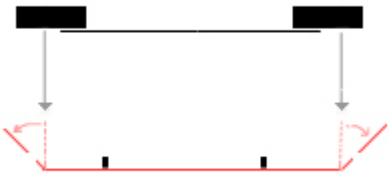


Fig 5: using force to stretch the u-shape enclosure

Using force to stretch the u-shape to fit the PCB

Fig 6

To avoid the issue mentioned above, Protocase suggests the two piece L-shape enclosure (see Fig 7.1 to 7.5). This is a very simple, clean design that eliminates the problems associated with using a two piece U shape for this type of PCB. The board can now be placed easily into the enclosure from the side, and no bending of the metal is needed. We call this a slide-slide configuration and its effectiveness is illustrated in the model below.

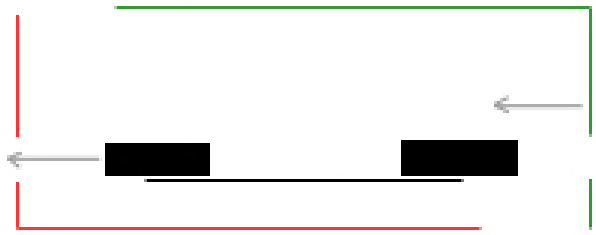


Fig 7.1: 2 L-shape pieces slide-slide configuration

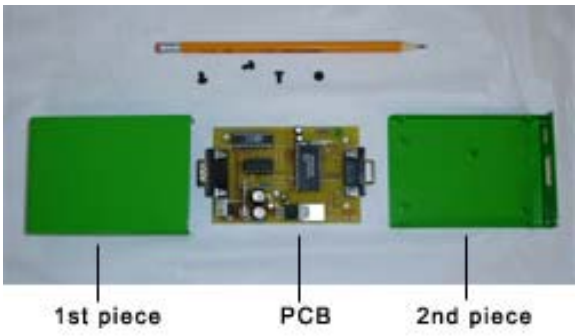


Fig 7.2

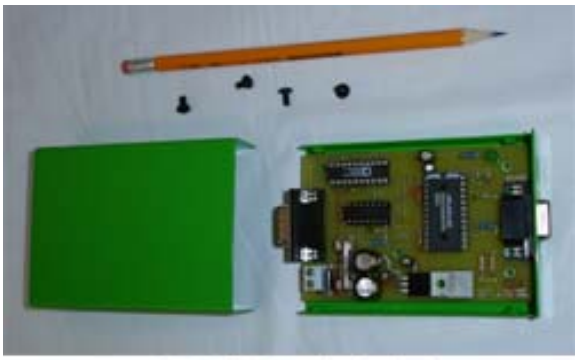
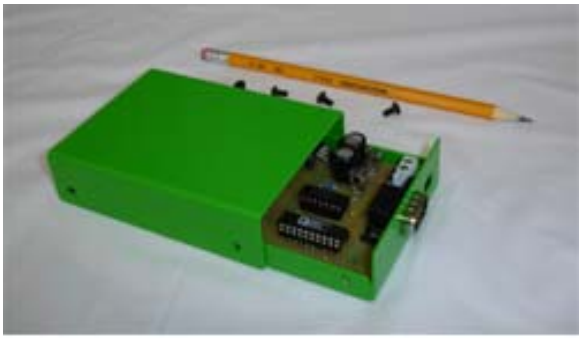


Fig 7.3



Over 2nd piece with PCB in place

Fig 7.4

Final view

Fig 7.5

Questions / Comments

If you still have questions or comments please do not hesitate to contact us at tech@protocase.com or 1-866-849-3911 (toll free US & Canada).