



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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# TONER IMAGE APPLICATOR

## MASTER REFERENCE OF ALL "PULSAR" PRODUCTS:

<b>PCB "Fab-In-A-Box"</b>	<a href="#">182-1027-ND</a>
- TTS Transfer Paper	<a href="#">182-1003-ND</a>
- GreenTRF film	<a href="#">182-1021-ND</a>
- WhiteTRF film	<a href="#">182-1022-ND</a>
- PCB (Single Sided)	<a href="#">182-1017-ND</a>
- PCB (Double Sided)	<a href="#">182-1018-ND</a>
<b>DecalPRO®</b>	<a href="#">182-1026-ND</a>
<b>"Combo" (both kits)</b>	<a href="#">182-1028-ND</a>
<b>GBC® Laminator ("TIA")</b>	<a href="#">182-1029-ND</a> (Shown Here)



The PCB "Fab-In-A-Box" circuit board fabrication system can be done using an ordinary household iron, but it can be a very frustrating endeavor because there is a lot of guess work involved as to how much pressure, heat and time is necessary to get a proper "fusing" of the toner image to the blank copper laminate. We do have a "calibration" technique, but that has to be done before every attempt is made and is almost as difficult as the "shot in the dark" estimation method as mentioned above. And as far as trying to use an iron for making dry-transfers? Forget it - it just isn't going to happen.

To solve this problem of reliability and to a greater extent repeatability, we adopted the use of using a unique but common "pouch" laminator. By using one of our recommended laminators, (there are several to choose from) you now have a no-guess work system. The technique is now reliable and repeatable all day long - any time, any where. There are basically three inexpensive GBC® brand laminators on the market today:

- 1) GBC Creative Laminator
- 2) GBC "Personal" Laminator
- 3) GBC "H-200" Laminator
- 4) GBC "H-210" Laminator

Currently, the only readily available laminator currently in production is the H-210 model. All of the others listed here are out of production, however, you can find them online in the used market.

The reason for using only GBC laminators is that they are the best at using "externally" heated rollers with very high roller-to-roller pressure so we get heat and pressure at the same time which is very important to get a proper fusing of the toner image. For the most part, all other manufacturers use **flat heater plates** which does not generate any pressure between the plates and the work surface. Those laminators that use that type of design philosophy simply do not work at all. The trick to all of this is that the manufacturer externally heats the rollers by radiating heat into the neoprene-coated rollers 180° away from where the rollers contact (eg. one heater mounted above the top roller and one below the bottom roller). This amazingly simple engineering trick makes manufacturing of this device inexpensive yet performs like the "internally" heated devices which cost thousands of dollars.

This 9" wide opening laminator will make absolutely perfect circuit boards up to 8" x 10" in size and is also used to apply the Green & WhiteTRF films for making extremely impressive boards.

The "GreenTRF" is applied over the toner image that has first been transferred to the board which seals the toner to prevent "pitting" of the traces that are supposed to be protected. The "WhiteTRF" is used to convert the optional application of a silk-screen legend layout on top of the board. Here again, not unlike the GreenTRF, the white foil is applied over the black toner and voila! one commercially looking PCB ready for populating and soldering. This stage of making your project is actually fun... no more drudgery of having to make the board. The best part is that an entire double-sided PCB can be made in under 15 minutes!

**Pulsar**  
PROFESSIONAL fx

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For more information about our techniques we invite you to visit our website at: "[www.pcbprofx.com](http://www.pcbprofx.com)" or call us at (850) 926-2009 9am-5pm EST