VeroCAD from the Wings of Technology

VeroCAD, assists prototyping with perforated circuit boards.

Definition:

Perforated circuit board is circuit board with parallel rows of copper clad, where each row is pre drilled every 0.1 inch.

Introduction:

The use of perforated circuit board for prototyping circuits is common among hobbyists and professionals. The method used to transfer a circuit schematic to a working prototype is to position the components on the board then rearrange each or all until the best position is found. This best guess method is extremely time consuming and prone to error. VeroCAD addresses this issue by allowing the builder to visually layout the board and quickly reposition components. When the design is complete the layout can be printed to a label; this label is attached to the Veroboard™ and used as the hole and component locator. Not only can the board be laid out in a fraction of the time it can also be assembled quickly and accurately.

Component functions:

There are five component related functions, Place, Delete, Move Pin, Move group and Slide.
- Place, allows the placement of a selected component.
- Delete, removes the selected component from the board.
- Move pin, allows a single pin to be relocated.
- Move Block, relocates all pins of a single component.
- Slide, allows the component body to be moved up or down the component's leads.

Board functions:

There are two board functions, CUT/DRILL and Flip.
- CUT/DRILL - severs a trace or disconnects a hole from a trace.
- Flip – only available from the "Board" pull down menu, allows the board to be viewed form the bottom.
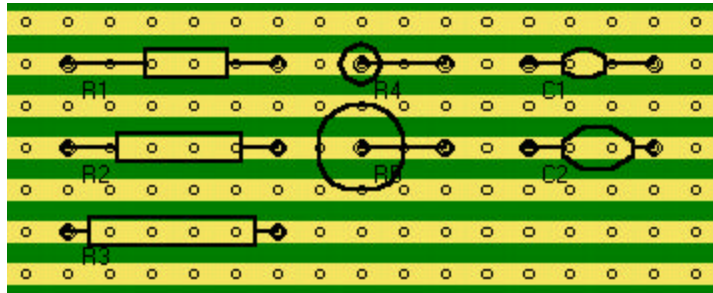
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Component library:

The component library contains the basic packages needed for board layout.
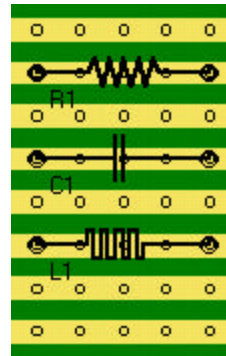
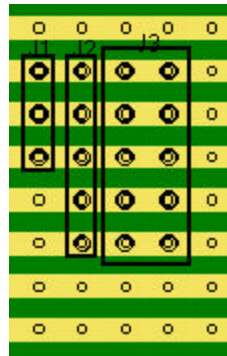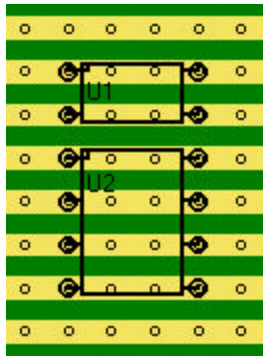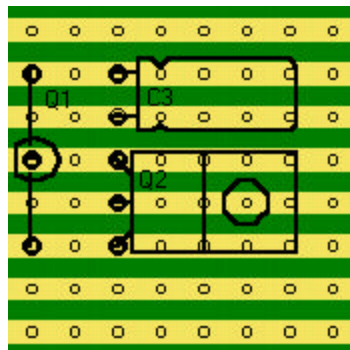Axial   Radial   Disk

Dual inline package   Connectors   Schematic Symbols

Resistor   Other
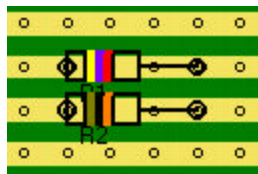
Functions

Functions operate in two areas, component and board.

Component functions:
Place
Delete
Move Pin
Move Block
Slide
Cut

Board functions:
Save/Load
Print
Zoom in
Zoom out
Zoom Last
Zoom All
Exit

The following pages explain each of the functions as listed in above.

PLACE

Place component allows you to select a component from a built-in list of components.
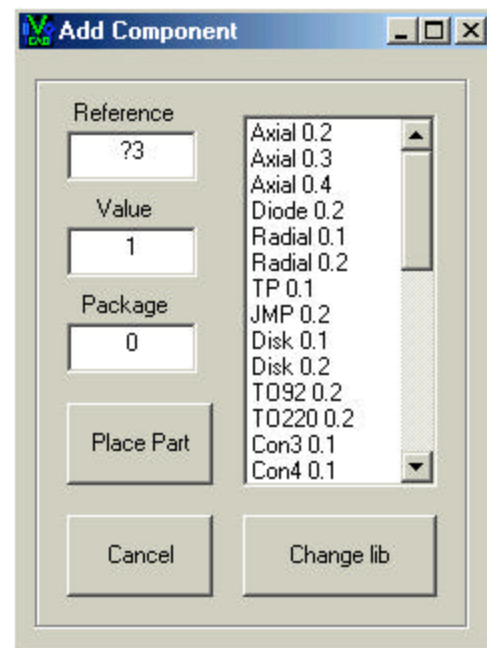
The right hand column contains a list of predefined packages and the left-hand column allows the designer to change the reference and value of the package selected. To select a package click on Axial 0.2 this will place Axial in the Package box defining the package shape. Now enter a reference name in "Reference" e.g. R1, then a "Value" of 4.7K in the value box. When you have defined your package click "Place Part".

The "Add Component" window will close showing the main VeroCAD workspace. Now the mouse cursor is a plus sing "+" this implies that an action is required. Position the cross over a hole (the hole turns green), left click to start the place component process. A line will appear from the starting hole to the end of the mouse pointer. Now move to a different hole and click it to select the ending hole for the component.

The Axial 0.2 package will now appear starting at the first hole clicked and ending at the second hole clicked.

For components with more than three pins, like DIP, QUAD and Z-PACK all of the pins are automatically placed. Use SHIFT to reverse the component direction.

To select from alternate libraries use the "Change lib" button. To add new libraries edit the VeroCAD.ini file, the maximum number of libraries is ten (10).

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DELETE

The delete function allows any component to be removed from the board. Click REMOVE and the mouse cursor changes to a plus sing "+" this implies that an action is required. Select any pin belonging to the component being deleted. All associated pins will be removed.
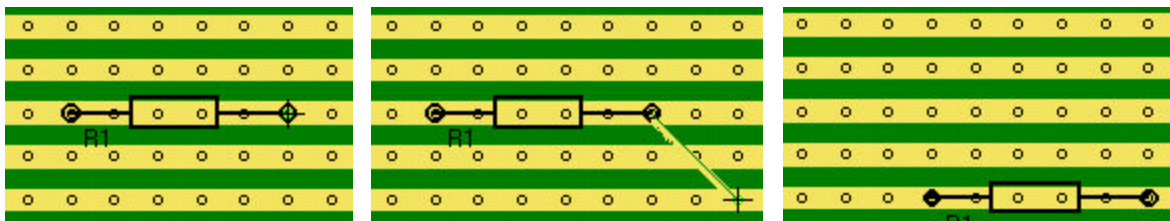
MOVE PIN

Click the pin to be moved. Then move to the destination hole and click to reposition the component pin.
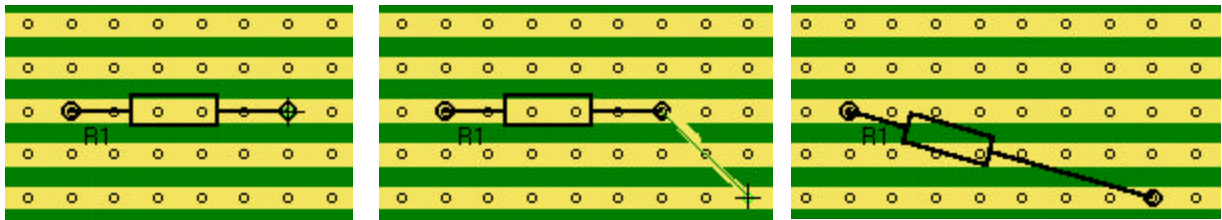
MOVE BLOCK

Click Move Block then click a pin on the component to be moved. Then move to the destination hole of the selected pin and click to reposition the whole component. NOTE: if the relocation of any pin causes and error the Move Block will abort.
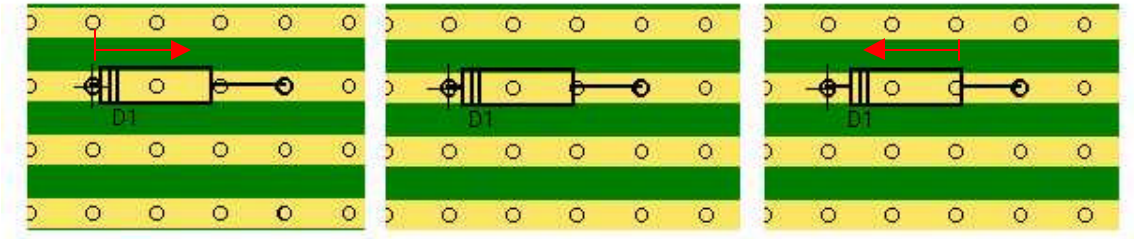
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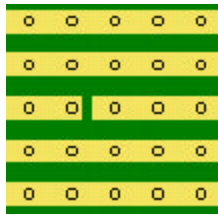Copyright © 2004-2006 Wings of Technology

SLIDE BODY

Slide is the ability to slide the body of a component closer or father away from it mounting pin. After clicking "SLIDE" place the mouse pointer "+" on to a pin containing a component that will slide, clicking on the hole will move the component body away from the pin. Holding SHIFT down makes each click equivalent to 10 clicks.
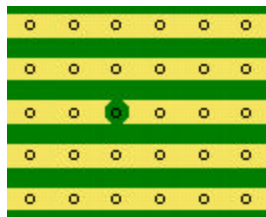

CUT TRACE

The cut function is only usable when the board type is Vero/Horizontal or Vero/Vertical. Select CUT by clicking the cut button, move the cursor to the trace to be cut. Click to cut the trace, if the trace has already been cut then the click will rejoin the trace.

Available in the Option is the "Drill" setting, this setting allows the designer to select a drill shape cut instead of a knife type of cut. "Drill" better represents the actual appearance of a drill cut board but produces serious net list issues. If "Drill" is selected and a cut made, the hole will appear as shown below. Since the hole has no copper attached a physical connection cannot be made. Due to this, the net-list export feature will be disabled when "Drill" is selected.

Other:
The drop down menus Component, Board and Tools (shown below) each have additional functions.
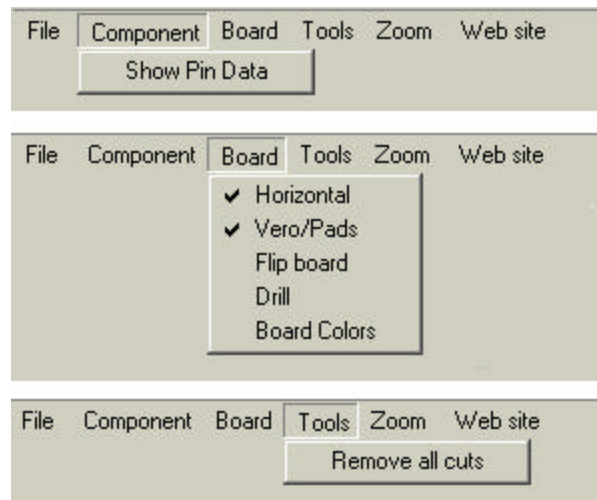
Component
- Show pin data – presents component data associated with the selected hole.

Board
- Flip board - allows the board to be viewed form the bottom.
- Drill – toggles from Cut to Drill or Drill to Cut.
- Board Colors – allow the modification of board and trace colors.

Tools
- Remove all cuts – sets all net values to default.

Board functions
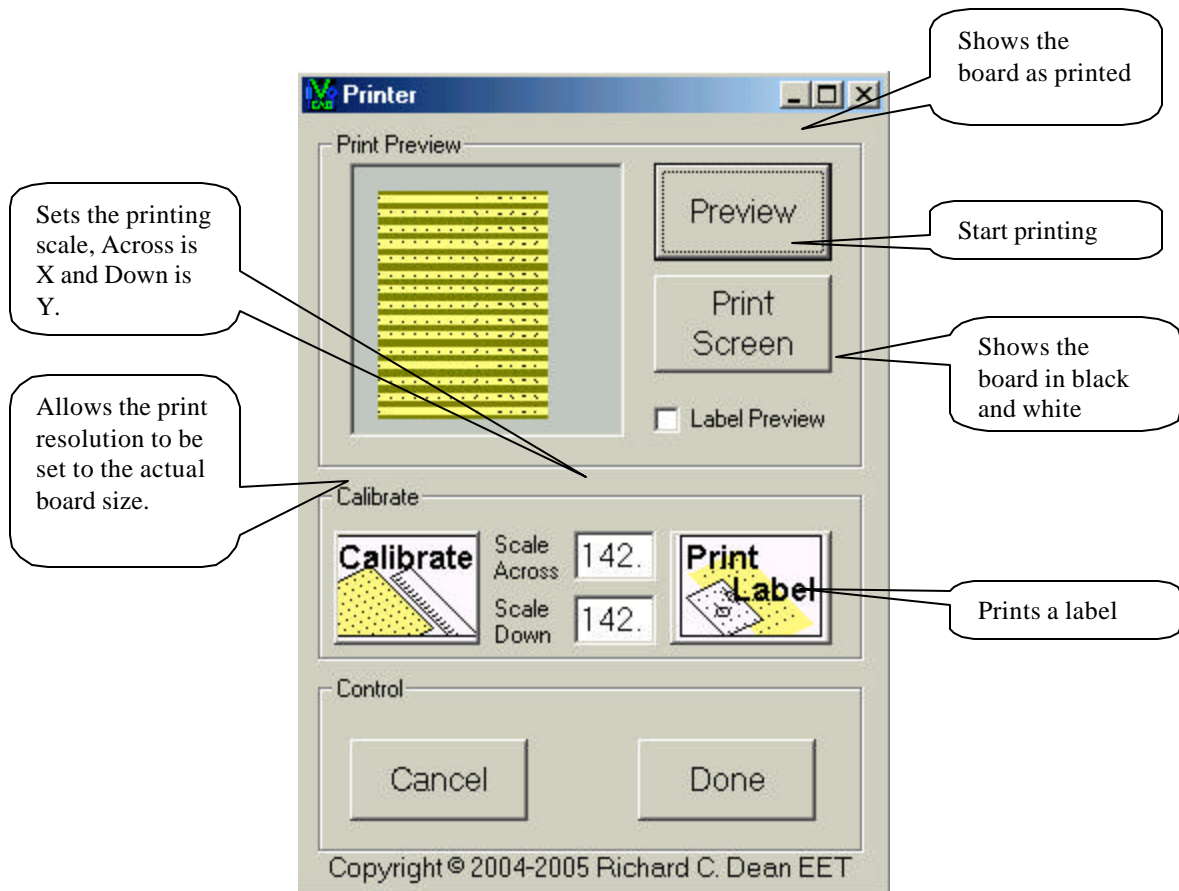
Save/Load – Saves or loads a design file in vcd format.

Print – Allows the user to print the current screen or a label to the default Windows ™ printer.
Since each printer offer different resolutions, the scale across and down setting will allow the user to match the screen resolution to the printer. The "Calibrate" button prints a sheet of vertical line to assist in defining the Scale value for Scale Across and down.

Shows the board as printed

Sets the printing scale, Across is X and Down is Y.

Start printing

Shows the board in black and white

Allows the print resolution to be set to the actual board size.

Prints a label

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Included with VeroCAD is the VeroPART utility, this utility allows the designer to create part images for use with VeroCAD. A full manual is available through Wings of Technology at no extra cost, just email a request to sales@wings-of-technology.com (We do not sell our client email lists!).

To purchase visit http://www.wings-of-technology.com
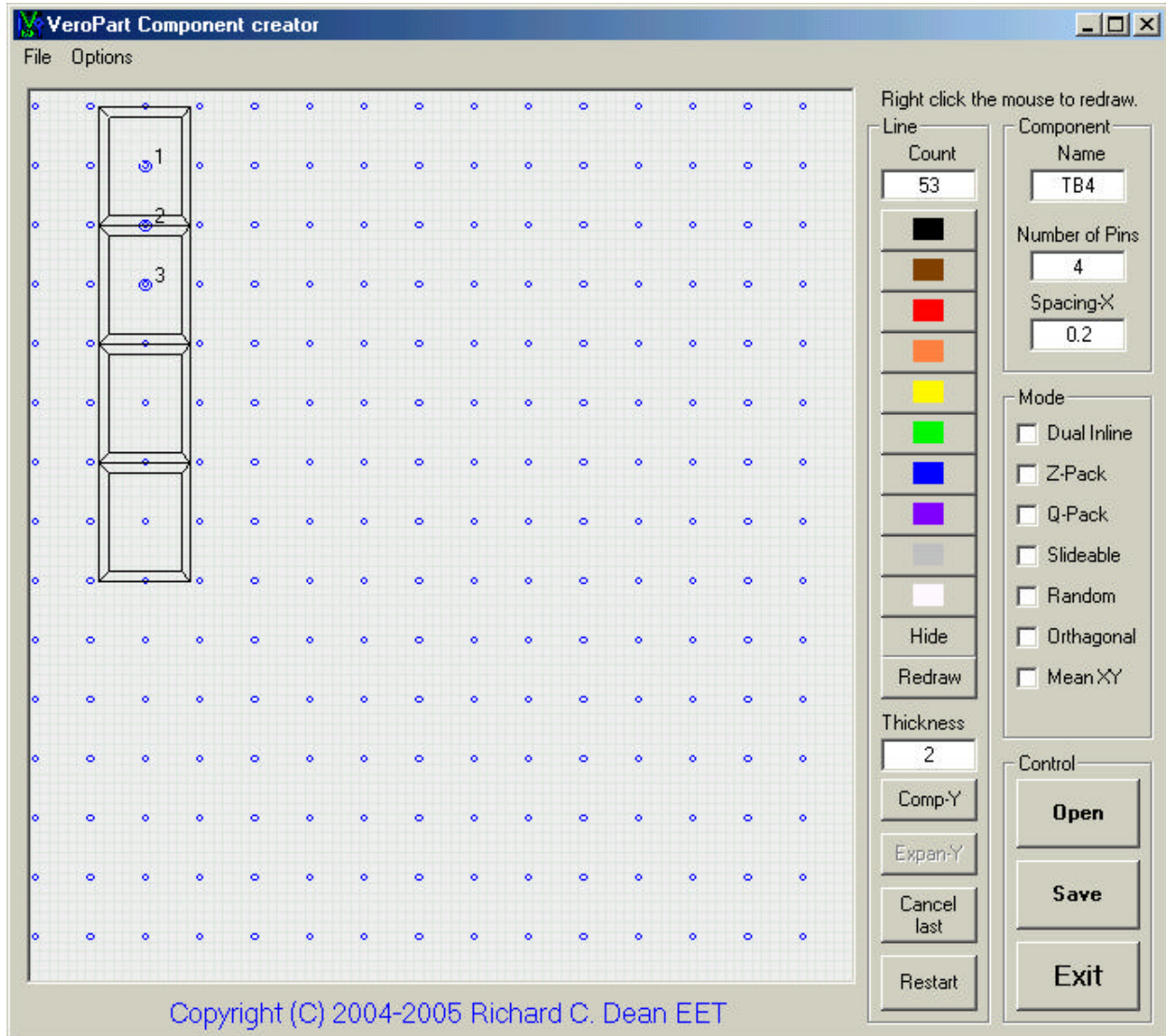
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