## Introduction

Many PCB's today have complex board profiles to enable them to fit into end products. It is rare for a PCB to be a basic rectangle. Using complex board profiles can lead to having to create a complex Route Keepin or Package Keepin areas manually or to create a ground or power plane that follows the contour of the outline. Outlines can often be imported using DXF or IDF. There is a feature in PCB Editor called Z-Copy which enables users to copy their design outline and either contract or expand it by a specific distance and copy it to another layer.

Using Z-Copy to create other shapes.

The design outline shown below was imported using a DXF file import. It's is typical of board profiles seen today, multiple cut-out positions, with the profile a mix of radius and chamfers.
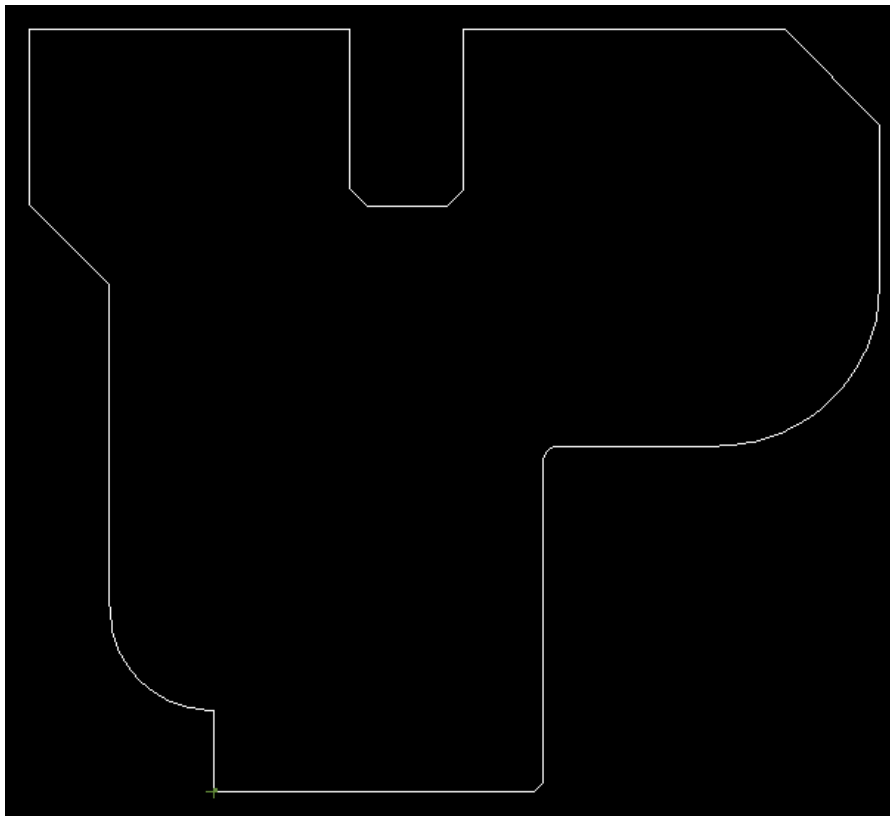

By using the Z-Copy command we can quickly create a Route Keepin, Package Keepin and a Ground or Power plane. Use Edit>Z-Copy (in Allegro) or Shape>Z-Copy (in OrCAD) to start the z-copy command. The Options pane menu on the right hand side gives you options to change the destination class / subclass. For the first example we are going to choose Route Keepin /All. There are also options to Create a Dynamic Shape (used when creating Etch Shapes) and the ability to copy Voids and the Netname. Finally, in the Options menu we can use Contract or Expand (or offset inwards or outwards of the original item). The Offset is the amount to offset by. For this example we are going to contract by 1mm.
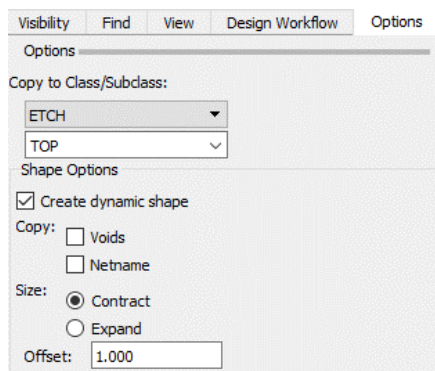
Once set left click the Design Outline and the Route Keepin is produced based on the settings.
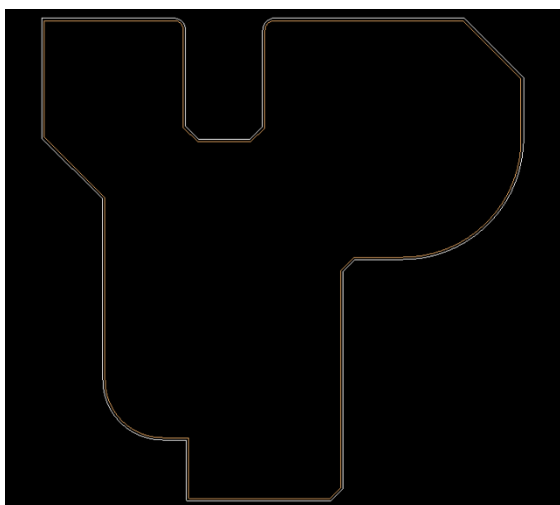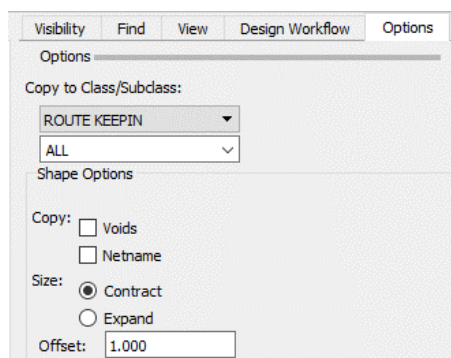
The following step repeats the Z-Copy but this time creating a Package Keepin / All contracted by 2mm.
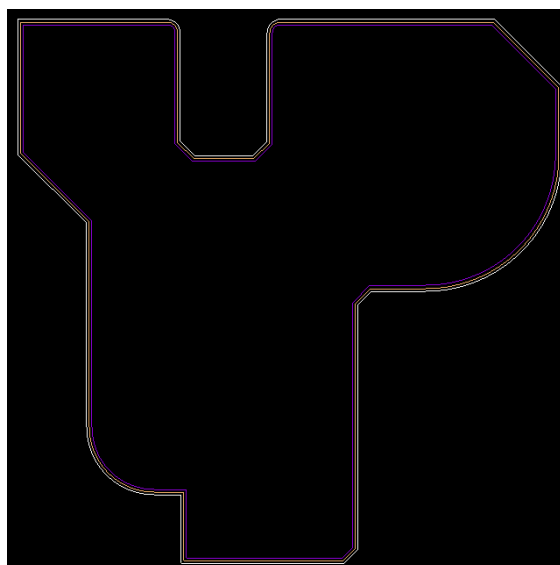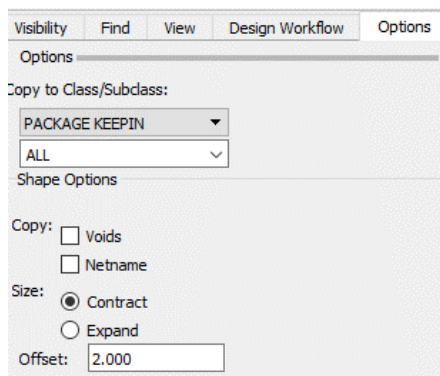
Finally, we are going to use Z-Copy to create a Ground plane. Change the class / subclass to Etch / layer name, contracted by 1mm. We are also going to check create a dynamic shape so that a dynamic shape is created.
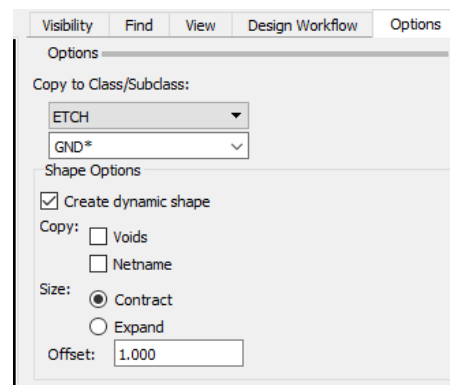
Once the shape is there you will need to assign it to a net using Shape>Select Shape or Void Cavity (Allegro) or Shape> Select Shape or Isolation/Cavity (OrCAD), select the shape with a left click then from the Options pane select the Assign to net name to pick the net required.
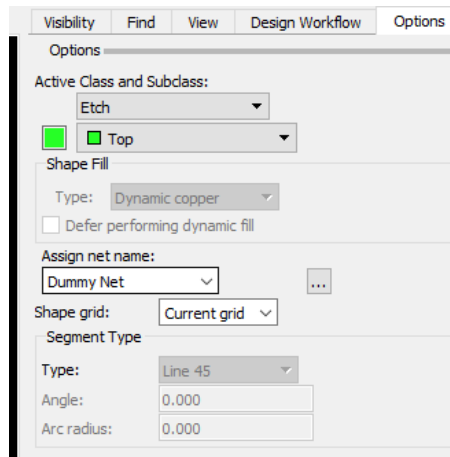
The final option for Z-Copy gives you the ability to create multiple shapes at the same time. The only restriction with this option is the the layer names must be similar. The example shown uses Z-Copy to create a dynamic shape on 4 layers called GND1, GND2, GND3 and GND4.