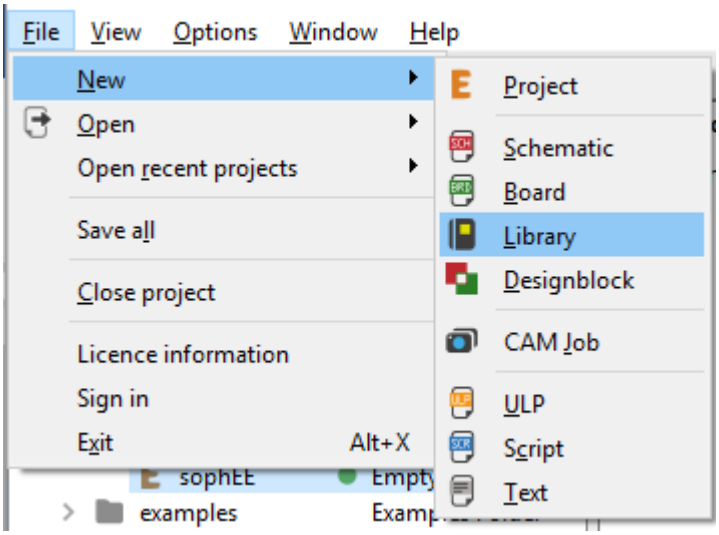
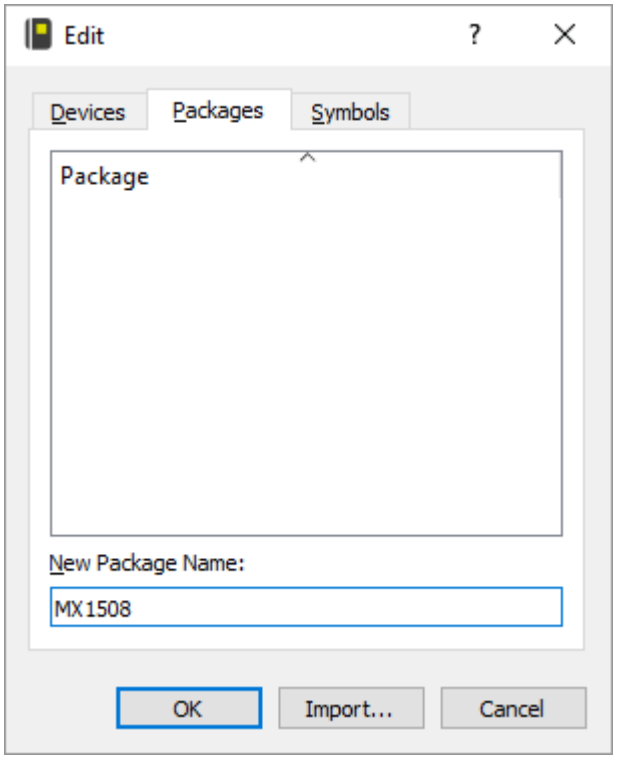
Step 1: Creating the MX1508 Package in EAGLE

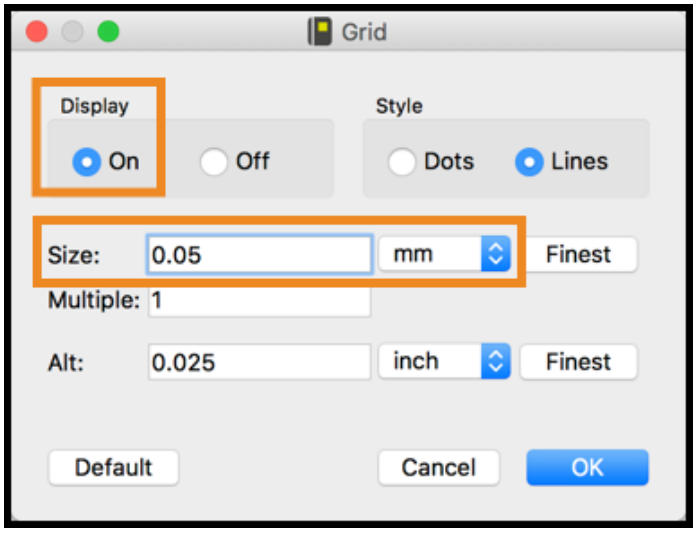
1. Create a new library



2. Click the Save icon and name your new library
3. Click the IC1 Package icon and create the MX1508 package



4. Click the Grid icon and change the size to 0.05 mm. This will make it easier to work from the datasheet.



You might need to zoom in a little to be able to see the grid now

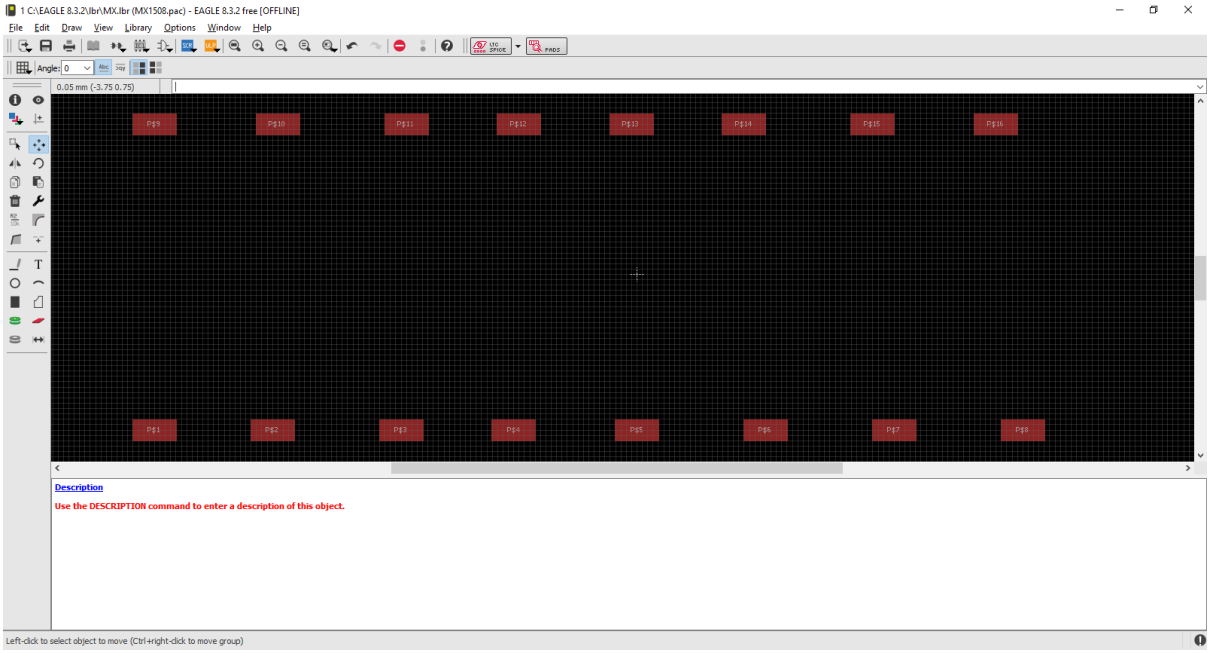
5. Find the package dimensions page in the MX1508 datasheet. You should see that the pad dimensions are b1xc1. We will take the normal size for the pads as specified and make them 0.41mm x 0.20mm.

6. **Pad Pitch** is the distance between each pad on the x and y axis. This is always measured from horizontal or vertical center of the pad. For our component we can see the pads on the same row should be spaced "e" which is listed as 1.27BSC. **BSC** stands for Basic Spacing Between Centers. From professor Hill's Eagle CAD lecture: *"This is often used if the reference lines don't refer to a physical point or edge, like in the case of the pins: the reference is in the middle of the pin, instead of one of the edges."*

7. Choose a point as the origin and derive coordinates as the center of each pad. I will show you how I did this, but I will spare you from having to do it yourself. Here are my results choosing the middle between pads 5 and 12 as my origin:

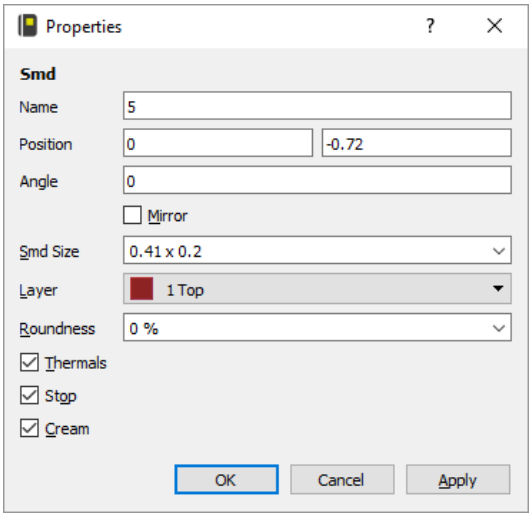
Pad	Coordinate(mm)
1	-5.08, -2.67
2	-3.81, -2.67
3	-2.54, -2.67
4	-1.27, -2.67
5	0, -2.67
6	1.27, -2.67
7	2.54, 2.67
8	3.81, -2.67
9	3.81, 2.67
10	2.54, 2.67
11	1.27, 2.67
12	0, 2.67
13	-1.27, 2.67
14	-2.54, 2.67
15	-3.81, 2.67
16	-5.08, 2.67

8. Click the  Pad icon and enter “0.2 x 0.41” into the “Size:” field at the top. Press Enter. Place 16 of these pads. Don’t worry too much about the placement for now.



9. Right now, it’s recommended to click the  name icon and correctly label the pads 1-16

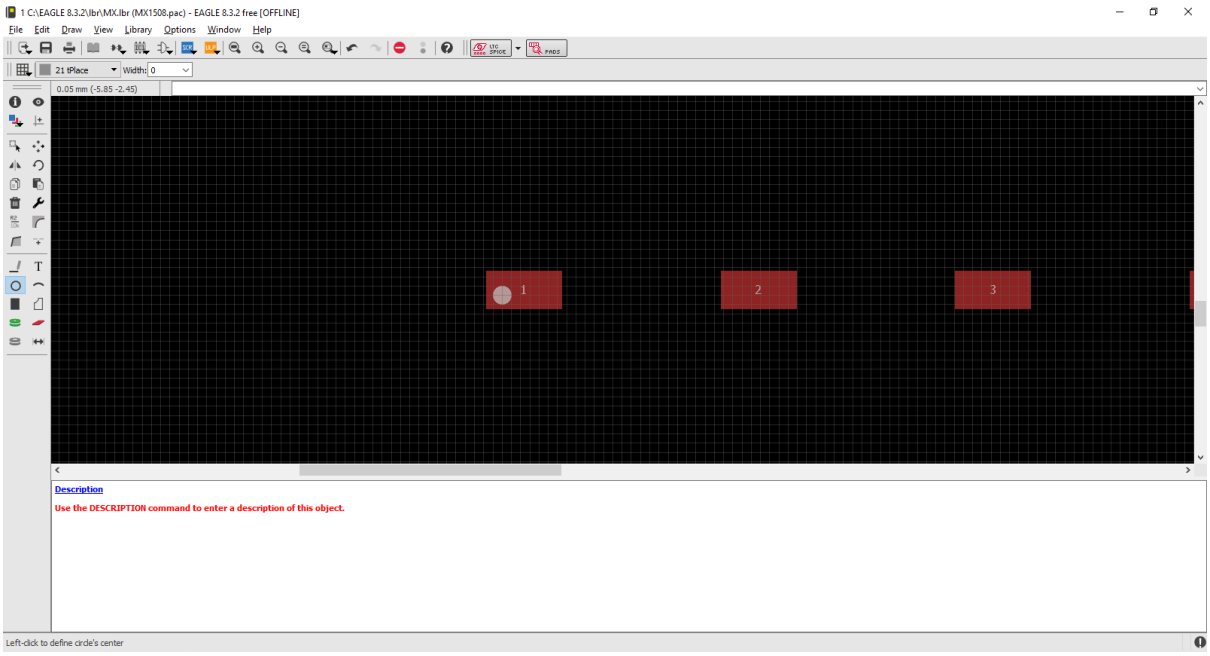
10. With the pads named, let’s move them to the exact location we want them according to the table from step 7. To do this, right click a pad and select Properties. Then, type in the desired position.



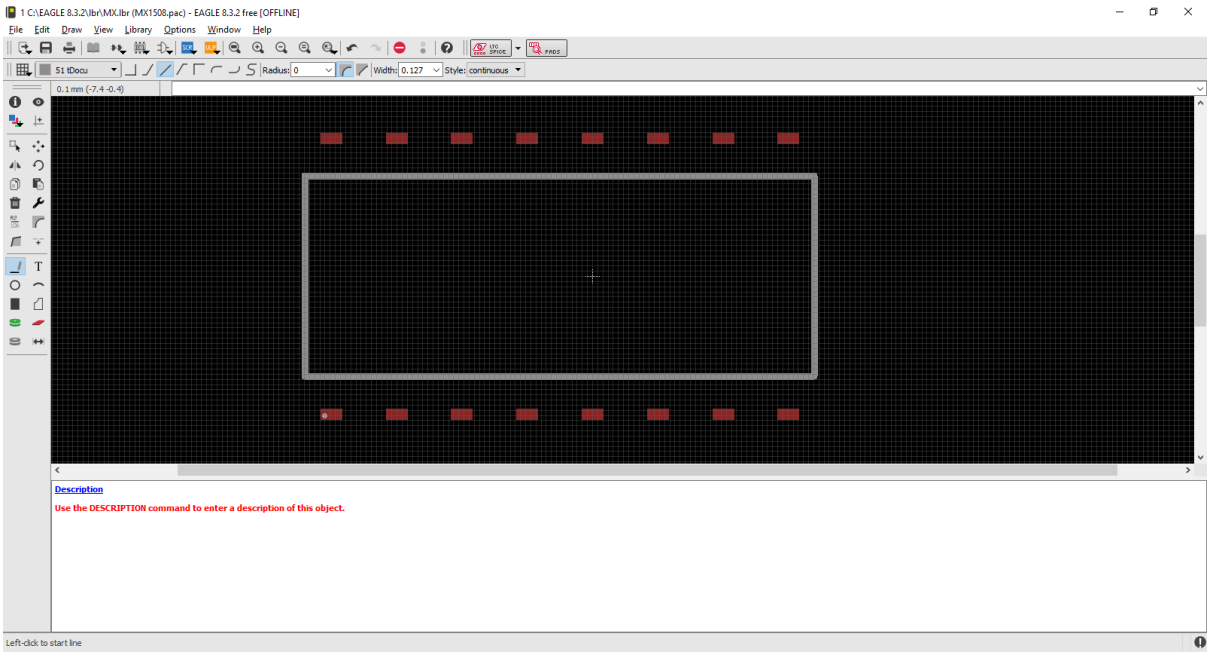
Repeat this for all the pads

11. Oof that was tedious. But don’t worry we’re almost done! Now add an origin point to pad 1 so that the manufacturer knows how to orient our part. Select the circle tool on the left,

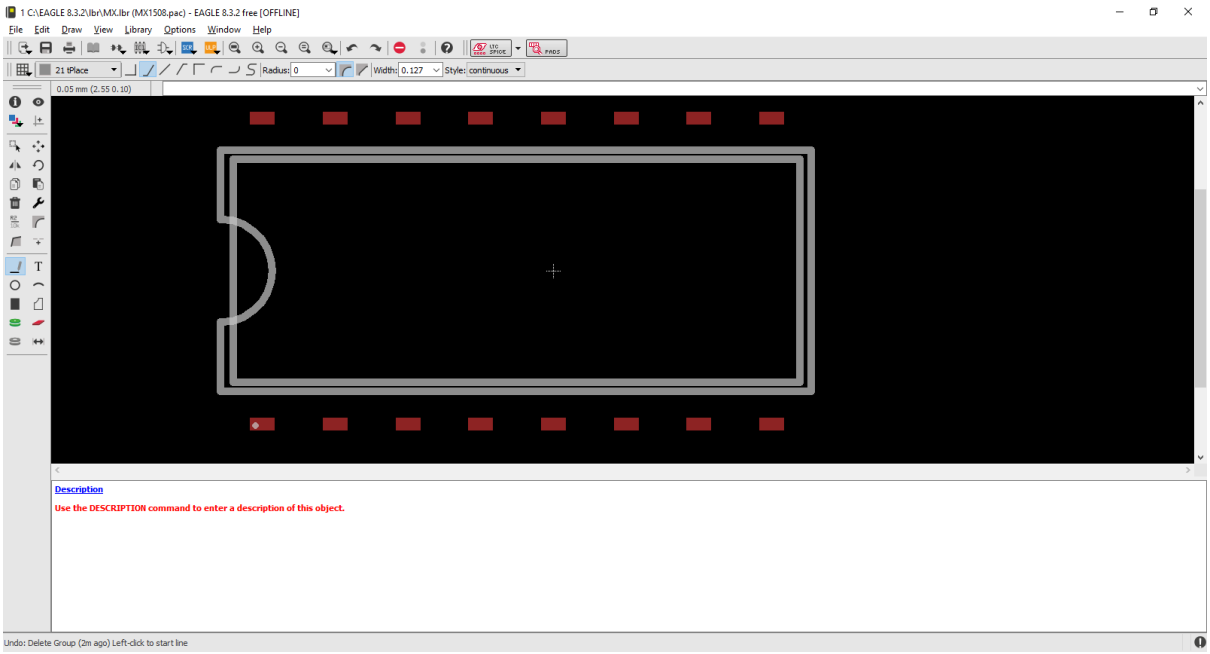
enter the Width at the top as “0” and change the Layer to 21 tPlace. Left click and drag on the bottom of pad 1 to create the origin.



12. Select the line icon, change the layer to 51 tDocu and width to 0.127. Create 4 lines. Similarly to placing the pads, draw the lines roughly and then use the right click -> properties menu to position the package lines accurately. I calculated the desired corner coordinates to be (-5.585, 1.95), (4.315, 1.95), (4.315, -1.95), (5.585, -1.95).



13. Add a silkscreen outline by selecting the line tool again. Change the layer to 21tPlace and draw in the silkscreen lines on top of the layer 51 lines or slightly outside of them. This will be helpful in placing the component.
You may also want to add a circular notch to the left side using the arc tool to indicate the correct part orientation.



14. Add name and value placeholders by Selecting the T Text icon and enter >NAME and click OK. Now change the layer to 25 tNames and place the name above the component.

15. Repeat for “>VALUE”, choosing 27 tValues as the layer and place it below the component. The finished product should look something like this: