

Wafer Dicing: A Beginners Guide

Introduction:

When designing a device at the NFC facility you need to think about how your individual devices are separated from your starting substrate. NFC uses a DISCO wafer saw to cut your wafers (glass or silicon), The layout of your design will affect how easily and quickly your wafers can be diced (sawed).

Equipment Limitations:

The wafer saw can only cut in a straight line. It cuts all the way across a substrate. It can not stop in the middle of a wafer.

In order to cut your devices out of your wafer the operator of the saw needs to determine where to place the cut. The saw microscope can not move easily across the wafer. The best way to determine where to place a cut is a line across the entire wafer.

You will need to design scribe lines/lanes into your mask set. This lane will be an empty area or it can be a poly or metal line that goes all the way across the wafer. You can also just leave a un-patterned area between your devices. A patterned line though will make it easier to cut and minimize any cutting errors.

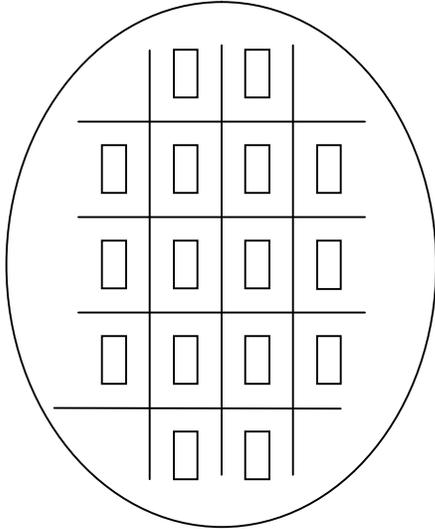
Scribe lane: Minimum width

Silicon (500 microns thick) – make a minimum of 150 microns between devices.

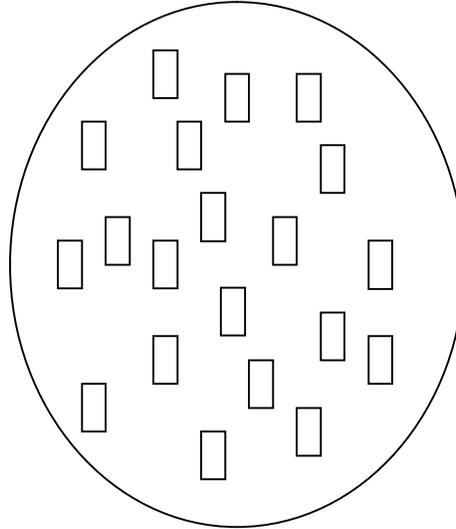
Glass (500 microns think) – make a minimum of 300 microns between devices.

Layout Examples: Same Size Devices:

Good Layout

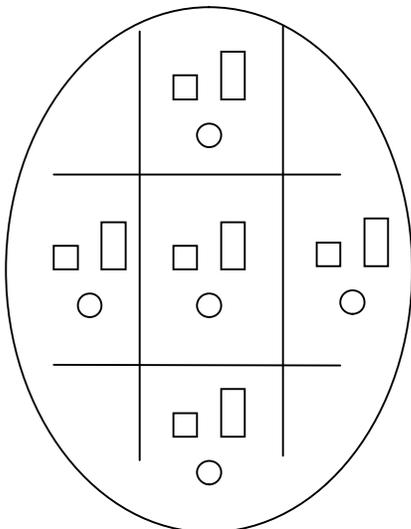


Bad Layout



Layout Examples: Various Size Devices:

Good Layout



Bad Layout

