Wafer Dicing

- The process of separating part of the wafer, often a die, from the rest of it. This can be done by scribing or by mechanical sawing using a dicing saw with a spindle.
- The wafer is mounted on a dicing adhesive tape on a thin sheet metal frame. A diamond blade is used to cut the wafer under running DI water (coolant). The standard diamond blade is a metal or resin matrix consisting of diamond particles which are exposed from the surface of the blade. Resin bonds are softer than metals.
- There are various blades that can be used and the users need to match the sample to cut with the blade thickness and diamond particle/abrasive size. If hard and brittle ceramic materials such as alumina or sapphire need to be cut a soft bond with thin kerf dicing blades could be more suitable and the opposite for soft and thin materials. The thickness of the substrate will also affect the blade diameter and the thickness of the blade will affect the width of the cut.
- The spindle speed during the cut is typically between 10,000 and 40,000 rpm and is dependent on the hardness of the substrate and the depth of the cut. A diamond blade may break at very high speeds and will fall out at very slow speeds. As the blade thickness goes up, the maximum recommended spindle speed goes down.