

Know these “Back End” terms as they apply to ELEC 424

Die – a rectangular chip inscribed from a wafer that contains one integrated circuit.

Wafer probe – precision probing equipment capable of temporarily connecting with a metal feature on an integrated circuit in order to physically or electrically test that feature or circuit.

Lead frame – a finely patterned metal structure onto which a die is mounted and/or is electrically connected.

Wire bond – fine gold and aluminum wire used to electrically connect an integrated circuit/semiconductor device to a lead frame or any other next level of interconnection.

Ball bond – a bonding method during which the end of the gold wire is melted to form a ball that is subsequently thermo-compressively mounted to the bond pad of an integrated circuit/semiconductor device.

Bond pad – a conductive rectangular feature most often on the periphery of the chip that is electrically an input or output to the circuit, and to which the wire bond is established.

Thermo-compression bond – a metal to metal bond (typically gold to aluminum) formed by the simultaneous application of heat and pressure.

Wedge bond – A method of bonding aluminum wires to aluminum bond pads that employs pressure and a mechanical scrubbing motion, so named because the bonded end of the wire is wedge shaped.

Injection molded – a widely used method of encapsulating semiconductor devices after they are electrically connected to a lead frame.

Surface Mount Technology (SMT) – a method of soldering device leads to the surface of a printed wiring board.

Through-hole technology – a method of soldering device leads into plated holes drilled through a printed wiring board.

Flow (wave or float) solder – a mass solder method in which a populated printed wiring board is “floated” across a wave of molten solder.

Multi Chip Module (MCM) – a high end packaging technique in which a number of integrated circuits are packaged onto a single multilayer, high pin count substrate.

Burn-in – a post-packaging process wherein numerous devices are operated at high temperature to encourage early failure of “weak” parts.

Final test – a computer driven test of packaged devices to insure functionality and to sort devices into groups with respect to performance.