

SMT GLOSSARY

Alloy. Two or more metals combined to create a metal with different physical characteristics.

Ball Grid Array. A grid array using solder balls rather than leads.

Butt Joint. A solder joint where just the end of the lead touches the solder pad.

Capillary Action. Surface tension that draws a liquid into a small opening.

Chip Carrier. A low profile package with leads that hold the chip die.

Contact. The conducting area where a lead touches a pad or connector.

Convection. Heat transfer by hot air.

Coplanarity. The surface mount lead positioning in reference to the parallel card surface.

Dewetting. The effect of solder withdrawing from a presoldered lead.

DIP. Dual In-Line package, a package with leads in two parallel rows.

DPAK. Small power transistor package.

Drawbridge (Tombstone). A solder "open" caused by a two legged component standing on end during soldering.

Electroplating. A method of depositing metal coating onto another metal.

Eutectic. Common solder alloy with low melting point. (63% Tin / 37%Lead)

Fillet. The junction where two surfaces meet, as in solder fillet.

Flatpack. A flat surface mount package with flat or gull-wing leads on two or four sides.

Footprint. The pcb foil pattern to which a surface mount component is attached. Also pad or land.

Glass Transition Temperature. The temperature at which a hard substance becomes soft.

Gull Wing. A surface mount lead that is formed outward from a package parallel to the pcb solder pad.

IR Shadowing. Non-uniform heating caused by objects blocking infrared energy.

IR Reflow. A solder process using infrared light.

J-Lead. A surface mount lead where the lead is curved inwards, under the device.

Land pattern. The metal area of the pcb where a component lead is mated to the board. Also pad or footprint.

Leadless Surface Mount Components. Metalized terminations integrated into the device package, no legs.

Mixed Technology. A PCB using surface mount and through-hole technology.

Nonwetting. Solder has not adhered to part or all of a surface.

Pad. The metal pcb surface where a component lead is soldered and attached. Also land or footprint.

Pick-and-Place. A PCB assembly operation in which the components are placed into position prior to soldering.

Pitch. The center to center space between two adjacent legs on a SMD.

Plastic Leaded Chip Carrier (PLCC). An SMD package with even spaced J leads on four sides.

Printed Circuit Board. An epoxy glass and metal composite on which circuits are etched. Also a PC Board or PCB.

Plated Through-Hole. Early pcb technology where a component is solder mounted to a pcb by a lead extending through the card plane.

Quad Flat Pack. A high lead count four sided package. The bumped version (BQFP)

has four corner protrusions that protect the leads during handling.

Reference Designator. A character code indicating the position of a component on a circuit card.

Reflow Soldering. The process of heating solder paste on a pcb and causing it to flow around the leads of components.

Resistance Soldering. A soldering method in which a current is passed through the solder to heat it from one or more electrodes.

SC. Japanese prefix for very small transistor packages.

Self Alignment. The tendency of leads to center themselves on solder pads due to the surface tension of liquid solder.

Silk Screen. The printed portion of a PCB showing component positions and labeling.

SIR. Surface insulation resistance.

Small Outline Integrated Circuit (SOIC). The oldest surface mount package. A 50 mil version of the standard 100 mil dip package.

Solder Ball. A small ball of unwanted solder residue adhering to an assembly.

Solder Bridging. The unwanted joining of adjacent land or pads by solder.

Solder Fillet. A concave surface of solder at the junction of two joined metals.

Solder Paste. A mixture of fine solder powder, flux, binder and solvent used to solder surface mount components.

Solder Webbing. Solder in areas of a pcb other than intended.

Solder Wicking. The capillary action of solder, to pull itself between adjoining metal surfaces.

Soldering. The process of joining metal surfaces with solder without melting the original metals.

Surface Mount Device (SMD). An electrical component designed to be soldered to the surface of a printed circuit board.

Surface Mount Technology (SMT). The process of assembling printed circuit boards with components mounted to the surface of the pcb rather than to plated through-holes.

Sweep. The lateral bending of gull-wing leads.

Tape and Reel. A high volume procedure that stores and delivers for placement small like-shaped components. The components are kept on a reel.

Tweeze. The vertical bending of gull-wing leads.

Vapor Phase Soldering. A solder process using vaporization of a liquid as heat source.

Waffle Tray. A flat package of rectangular cavities (egg carton) for storing surface mount devices. Also called matrix trays.

Wave Soldering. The most common mass soldering technique for through-hole PCBs. A board is passed over a wave of molten solder wetting the various component leads to be joined.

Wetting. The ability of molten solder to adhere to metals and form metallic bonds.

Z-axis. The perpendicular axis to both the X and Y axis. (Up and down.)

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