

## 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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