

This glossary of terms covers common phrases in PCB manufacturing. Some of these topics are covered further in our [free DFM guide](#).

No.	PCB Glossary	Meaning
1	Active Components	Semiconductor devices that can change its basic characteristics in a powered electrical circuit, such as amplifiers, transistors, diodes and rectifiers.
2	Annular Ring	The width of the conductor pad surrounding a plated drill hole.
3	Artwork	Printed circuit design.
4	Aspect Ratio	The ratio of the board thickness to the smallest-hole diameter of the printed circuit board.
5	Assembly File	A drawing describing the locations of components on a PCB.
6	Automated Test Equipment (ATE)	Equipment that automatically tests and analyzes functional parameters to evaluate performance of the tested electronic devices.
7	Ball Grid Array (BGA)	A SMD package in which solder ball interconnects cover the bottom surface of the package.
8	Bare Board	A PCB not yet populated with electrical components.
9	Base Copper Weight	see Copper Foil
10	BBT	Bare Board Test. Electrical testing of unpopulated PCB.
11	Bill of Materials (BOM)	A comprehensive listing of all subassemblies, components, and raw materials that go into a parent assembly, showing the quantity of each required to make the assembly.
12	Built-In Self Test	An electrical testing method that allows devices to test themselves with specific added-on hardware.
13	CAD	Computer Aided Design. Computer software used to design electrical circuits.
14	CAM	Computer Aided Manufacturing. Use of computers to manufacture products.
15	CAM Files	The files used for manufacturing PCB including Gerber file, NC Drill file and Assembly Drawings.
16	Ceramic Ball Grid Array (CBGA)	A ball grid array package with a ceramic substrate.
17	Chip-on-Board (COB)	A configuration in which a chip is directly attached to a printed circuit board or substrate by solder or conductive adhesives.
18	Chip	The individual circuit or component of a silicon wafer, the leadless form of an electronic component.

19	Component Side	The Side of a PCB on which most of components are mounted.
20	Coating	A thin layer of material (conductive, magnetic or dielectric) deposited on a substance surface.
21	Coefficient of Thermal Expansion (CTE)	The ratio of dimensional change of an object to the original dimension when temperature changes, expressed in %/degree C or ppm/degree C.
22	Copper Foil (Base Copper Weight)	Coated copper layer on the board. It can either be characterized by weight or thickness of the coated copper layer. For instance, 0.5, 1 and 2 ounces per square foot are equivalent to 18, 35 and 70 um-thick copper layers.
23	Corrosive Flux	A flux that contains corrosive chemicals such as halides, amines, inorganic or organic acids that can cause oxidation of copper or tin conductors.
24	Curing	The irreversible process of polymerizing a thermosetting epoxy in a temperature-time profile.
25	Curing Time	The time needed to complete curing of an epoxy at a certain temperature.
26	Dry Film Solder Mask (DFSM)	Layer applied to a PCB to aid in the soldering process and protect the copper from oxidizing over time.
27	Dielectric	A property of materials which characterizes their level of insulation towards electric current.
28	DIP	Dual in-line package with two rows of leads from the base in standard spacing between the leads. DIP is a through-hole mounting package.
29	Double-Sided Assembly	PCB assembly with components on both sides of the substrate.
30	DRC	Design rule check. Computer aided analysis by a technician to verify that a design is manufacturable.
31	Dry - Film Resists	Coated photosensitive film on the copper foil of PCB using photographic methods. They are resistant to electroplating and etching processes in the manufacturing process of PCB.
32	Edge Connector	A connector on the circuit-board edge in the form of gold plated used to connect other circuit boards or electronic devices.
33	Edge Clearance	The smallest distance from any conductors or components to the edge of the PCB.
34	Electroless Deposition	The chemical coating of a conductive material onto a base

		material surface by reduction of metal ions in a chemical solution without using electrodes compared to electroplating.
35	Electroplating	The electrochemical deposition of reduced metal ions from an electrolytic solution onto the cathode by applying a DC current through the electrolytic solution between two electrodes, cathode and anode, respectively.
36	ESR	Electro-statically applied Solder Resist. Fine particles of solder resist material are charged and sprayed onto an oppositely charged board for an even application.
37	Fine Pitch	Surface-mount components with a lead pitch of 25 mils (0.5mm) or less.
38	Finger	A gold-plated terminal of a card-edge connector. Also see Gold Finger.
39	Flux	The material used to remove oxides from metal surfaces and enable wetting of the metal with solder.
40	FR4	Flame Retardant laminate made from woven glass fiber material impregnated with epoxy resin
41	Functional Test	The electrical testing of an assembled electronic device with simulated function generated by the test hardware and software.
42	Gerber File	Data file used to control a photo plotter so a pattern may be printed. For PCBs, Gerber files are used by designers to specify their circuit design so a manufacturer may produce it. Each layer of a PCB requires its own Gerber file.
43	Ground Plane	A conductive plane as a common ground reference in a multilayer PCB for current returns of the circuit elements and shielding
44	GI	The woven glass fiber laminate impregnated with polyimide resin.
45	Gold Finger	The gold-plated terminal of a card-edge connector. Also see Finger.
46	HDI	High Density Interconnect. A method of producing printed circuit boards with very small connections between layers and narrow electrical traces. Facilitates much denser circuit designs allowing products to be miniaturized.
47	In-Circuit Test	Electrical test of individual component or part of the circuit in a PCB assembly instead of testing the whole circuit.

48	Hole Density	The number of holes per unit area on a PCB.
49	Interstitial Via Hole	An embedded through-hole with connection of two or more conductor layers in a multilayer PCB.
50	Laminate	A composite material made by bonding together several layers of same or different materials.
51	Lamination	The process manufacturing a laminate using pressure and heat.
52	Legend	A format of printed letters or symbols on the PCB, such as part numbers and product number, reference designator or logos.
53	LPI	Liquid Photo-Imageable solder mask that uses photographic imaging to control a thinner mask deposition than the dry film solder mask.
54	Minimum Conductor Width	The smallest width of any conductors, such as traces, on a PCB.
55	Minimum Conductor Clearance	The smallest distance between any two adjacent conductors, such as traces, in a PCB.
56	Multilayer PCB	Circuit boards consisting three or more layers of printed circuits separated by laminate layers and bonded together with internal and external interconnections.
57	NC Drill	Numeric Control drill machine used to drill holes at exact locations of a PCB specified in NC Drill File.
58	Net list	List of parts and their electrical connection points which are connected in each net of a circuit.
59	Node	A pin or lead to which at least two components are connected through conductors.
60	NPTH	Non-plated through-hole. A hole drilled through a circuit board which is not used for electrical connection and thus not copper plated
61	Pad	The portion of a conductive pattern for connection and attachment of electronic components on the PCB. Also called Land.
62	Passive Components	Simple electrical components which do not vary the basic parameters of a circuit.
63	PCB	Printed Circuit Board. Also called Printed Wiring Board (PWB).
64	PEC	Printed Electronic Component.
65	Pick-and-Place	A manufacturing operation of the assembly process in

		which components are selected and placed onto specific locations according to the assembly file of the circuit.
66	Pitch	The center-to-center spacing between conductors, such as pads and pins, on a PCB.
67	Plastic Leaded Chip Carrier (PLCC)	A component package with J-leads.
68	PTH (plated-through Hole)	A plated hole used as a conducting interconnection between different layers or sides of a PCB either used as connection for through-hole component or as a via.
69	Plating Resist	Material deposited as a covering film on an area to prevent plating on this area.
70	Reflow Soldering	Melting, joining and solidification of two coated metal layers by application of heat to the surface and pre-deposited solder paste.
71	Resist	Coating material used to mask or to protect selected areas of a pattern from the action of an etchant, solder, or plating.
72	Route (or Track)	A layout or wiring of an electrical connection.
73	RF (radio frequency) and wireless design	A circuit design that operates in a range of electromagnetic frequencies above the audio range and below visible light. All broadcast transmission, from AM radio to satellites, falls into this range, which is between 30KHz and 300GHz.
74	Screen Printing	A process for transferring an image from a patterned screen stencil to a substrate using a paste forced through by a squeegee of a screen printer.
75	Silk Screen (Silk Legend)	Epoxy-ink Legend printed on PCB. The most common colors used are white and yellow. See Legend.
76	Small Outline Integrated Circuit (SOIC)	An integrated circuit with two parallel rows of pins in surface mount package.
77	SMOBC	Solder mask over bare copper. The application of a solder mask directly on a circuit board rather than the copper first being plated in another alloy.
78	SMD	Surface Mount Device. Electrical component connected to the surface of a board rather than through a hole.
79	SMT	Surface Mount Technology. Technology associated with placing SMD components.
80	Solder	Tin alloy which is melted then solidified in order to establish an electrical and physical connection between an electrical component and the PCB. There are both leaded

		and lead free varieties.
81	Solder Bridging	Solder connecting, in most cases, misconnecting, two or more adjacent pads that come into contact to form a conductive path.
82	Solder Bumps	Round solder balls bonded to the pads of components used in face-down bonding techniques.
83	Solder Mask or Solder Resist	Round solder balls bonded to the pads of components used in face-down bonding techniques.
84	Solder Wick	A band of wire removes molten solder away from a solder joint or a solder bridge or just for desoldering.
85	Temperature Coefficient (TC)	The ratio of a quantity change of an electrical parameter, such as resistance or capacitance, of an electronic component to the original value when temperature changes, expressed in %/degree C or ppm/degree C.
86	Test Point	A specific point in a circuit board used for specific testing for functional adjustment or quality test in the circuit-based device.
87	Testing	A method for determining whether sub-assemblies, assemblies and/or a finished product conform to a set of parameters and functional specifications. Test types include: in-circuit, functional, system-level, reliability, environmental.
88	Turnkey	A type of outsourcing method that turns over to the subcontractor all aspects of manufacturing including material acquisition, assembly and testing. Its opposite is consignment, where the outsourcing company provides all materials required for the products and the subcontractor provides only assembly equipment and labor.
89	UL	Underwriters Laboratories. A popular safety standard for electrical devices supported by many underwriters.
90	Via	A plated-through hole used for interconnection of conductors on different sides or layers of a PCB.
91	Wave Soldering	A manufacturing operation in which solder joints are soldered simultaneously using a wave of molten solder.