

## GLOSSARY of Printed Circuit Design and Manufacturing

No.	GLOSSARY	Meanings
1	ball grid array	(Abbrev. BGA). A flip-chip type of package in which the internal die terminals form a grid-style array, and are in contact with solder balls ( solder bumps ), which carry the electrical connection to the outside of the package. The PCB footprint will have round landing pads to which the solder balls will be soldered when the package and PCB are heated in a reflow oven. Advantages of the ball grid array package are (1) that its size is compact and (2) its leads do not get damaged in handling (unlike the formed "gull-wing" leads of a QFP ' ) and thus has a long shelf life. Disadvantages of the BGA are 1) they, or their solder joints, are subject to stress-related failure. For example, the intense vibration of rocket-powered space vehicles can pop them right off the PCB, 2) they can not be hand-soldered (they require a reflow oven), making first-article prototypes a bit more expensive to stuff , 3) except for the outer rows, the solder joints can not be visually inspected and 4) they are difficult to rework.
2	base	The electrode of a transistor which controls the movements of electrons or holes by means of an electric field on it. It is the element which corresponds to the control grid of an electron tube.
3	beam lead	A metal beam (flat metallic lead which extends from the edge of a chip much as wooden beams extend from a roof overhang) deposited directly onto the surface of the die as part of the wafer processing cycle in the fabrication of an integrated circuit. Upon separation of the individual die (normally by chemical etching instead of the conventional scribe-and-break technique), the cantilevered beam is left protruding from the edge of the chip and can be bonded directly to interconnecting pads on the circuit substrate without the need for individual wire interconnections. This method is an example of flip-chip bonding, contrasted with solder bump
4	BGA	Ball Grid Array
5	board	printed circuit board. Also, a CAD file which represents the layout of a printed circuit.
6	board house	Board vendor. A manufacturer of printed circuit boards. Aka fabricator.
7	body	The portion of an electronic component exclusive of its pins or leads.
8	BOM	[pronounced "bomb"]—Bill of Materials. A list of components to be included on an assembly such as a printed circuit board. For a PCB the BOM must include reference designators for the components used and descriptions which uniquely identify each component. A BOM is used for ordering parts and, along with an assembly drawing , directing which parts go where when the board is stuffed