

SEVENTH EDITION

DICTIONARY *of* ELECTRONICS

RUDOLF F. GRAF



MODERN
DICTIONARY
of
ELECTRONICS

SEVENTH EDITION
REVISED AND UPDATED

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bonding wire — bootstrap loader

strip to some specific circuit point to which an external connection is to be made. 2. A metallized area at the end of a thin metallic strip to which a connection is to be made. *See also* beam lead.

bonding wire—Fine gold or aluminum wire for making electrical connections to a semiconductor die or a hybrid circuit between various bonding pads on the semiconductor device substrate and device terminals or substrate lands.

bond liftoff—The failure mode whereby the bonded lead separates from the surface to which it was bonded.

bond schedule—The values of the bonding machine parameters used when adjusting for bonding. For example, in ultrasonic bonding, the values of the bonding force, time, and ultrasonic power.

bond site—*See* bonding area.

bond strength—A measure of the amount of stress required to separate a layer of material from the base to which it is bonded. Peel strength, measured in pounds per inch of width, is obtained by peeling the layer; pull strength, measured in pounds per square inch, is obtained by a perpendicular pull applied to a surface of the layer.

bond-to-bond distance—The distance, measured from the bonding site on the die to the bond impression on the post, substrate land, or fingers, that must be bridged by a bonding wire or ribbon.

bond-to-chip distance—In beam-lead bonding, the distance from the heel of the bond to the component.

bone conduction—The process by which sound is conducted to the inner ear through the cranial bones.

book capacitor—A two-plate trimmer capacitor that has its plates hinged together like the pages of a book. The capacitance is varied by changing the angle between the plates.

Boolean algebra—1. A system of mathematical logic dealing with classes, propositions, on-off circuit elements, etc., associated by operators such as AND, OR, NOT, EXCEPT, IF ... THEN, etc., thereby permitting computations and demonstration as in any mathematical system. Named after George Boole, famous English mathematician and logician, who introduced it in 1847. 2. Algebraic rules for manipulating logic equations. 3. Shorthand notation for expressing logic functions.

Boolean calculus—Boolean algebra modified to include time.

Boolean equation—Expression of relations between logic functions.

Boolean function—A mathematical function in Boolean algebra.

Boolean operator—The symbol or word used to specify the inclusion or exclusion of criteria such as AND, OR, NOT, etc. Same as logical operator.

boom—A mechanical support for a microphone, used in a television studio to suspend the microphone within range of the actors' voices but out of camera range.

boost capacitor—A capacitor used in the damper circuit of a television receiver to supply a boosted B voltage.

boost charge—The partial charge of a storage battery, usually at a high current rate for a short period.

boosted B voltage—In television receivers, the voltage resulting from the combination of the B-plus voltage from the power supply and the average value of voltage pulses coming through the damper tube from the horizontal deflection-coil circuit. The pulses are partially or wholly smoothed by filtering. This boosted voltage may be several hundred volts higher than the B-plus voltage.

booster—1. A carrier-frequency amplifier, usually a self-contained unit, connected between the antenna

or transmission line and a television or radio receiver. 2. An intermediate radio or TV station that retransmits signals from one fixed station to another. 3. A small, self-contained transformer designed to be connected to a cathode-ray tube socket to increase the filament voltage and thereby extend the life of the tube. 4. A device inserted into a line (or cable) to increase the voltage. Boosting generators are also used to raise the level of a dc line. Transformers are usually employed to boost ac voltages. The term booster also is applied to antenna preamplifiers.

booster amplifier—A circuit used to increase the output current of the voltage capabilities of an operational amplifier circuit without loss of accuracy (ideally) or inversion of polarity. Usually employed inside the loop for accuracy.

booster voltage—The additional voltage supplied by the damper tube of a television receiver to the horizontal-output, horizontal-oscillator, and vertical-output tubes, resulting in a greater sawtooth sweep output.

boot—1. A form placed around the wire termination of a multiple-contact connector for the purpose of containing the liquid potting compound until it hardens. 2. A housing, usually made from a resilient material, used to protect connector or other terminals from moisture. 3. An accessory, usually of a flexible material, designed to be placed around the terminals of a component as a protective housing. 4. To make a computer operate by loading in a program. 5. The initial starting-up of a PC. The operating system is brought into main memory and takes over control. 6. The automatic routine that clears the memory, loads the operating system, and prepares a computer for use. A *cold boot* occurs when the power is first switched on. A *warm boot* refers to restarting a computer that is already turned on (clearing the memory and reloading the operating system) without first switching it off. Also called boot up.

booting—Loading a computer's memory with the necessary information so it can function. A cold boot occurs when a computer's power is turned on and there is nothing in memory.

boot loader—Also called bootstrap. A program in a minicomputer that usually works on a simple data format called core image. The data format, in this context, is the organization of the data as it appears on the input device from which the program is being loaded. Core image data is binary, bit-for-bit identical to what will appear in memory after loadings. The boot loader is used to bring simple programs into memory and run them immediately.

bootstrap—1. A technique or device that brings itself into a desired state through its own action; for example, a routine whose first few instructions are sufficient to cause the rest of the routine to be brought into the computer from an input device. 2. A feedback technique that tends to improve linearity and input impedance of circuits operating over a wide range of input signals. *See* boot loader.

bootstrap circuit—A single-stage amplifier in which the output load is connected between the negative end of the plate supply and the cathode, the signal voltage being applied between the grid and cathode. The name *bootstrap* arises from the fact that the change in grid voltage also changes the potential of the input source (with respect to ground) by an amount equal to the output signal.

bootstrap driver—An electronic circuit used to generate a square pulse to drive a modulator tube.

bootstrap loader—Device for loading first instructions (usually only a few words) of a routine into memory, then using these instructions to bring in the rest of the routine.