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**LC oscillator** Abbreviation of inductance-capacitance oscillator. An oscillator whose frequency is determined by inductances and capacitances.

**LCC** 1. Abbreviation of leadless chip carrier. 2. Abbreviation of leaded chip carrier.

**LCCC** 1. Abbreviation of leadless ceramic chip carrier. 2. Abbreviation of leaded ceramic chip carrier.

**LCD** Abbreviation of liquid-crystal display. A display incorporating liquid crystals sandwiched between glass plates which have a transparent conductive coating, or electrodes, which serve to vary the electric field surrounding said crystals, thus changing their optical properties. LCDs can be reflective or transmissive, and are used in a variety of flat-display devices, such as those of portable computers, calculators, or watches. Improved viewing characteristics may be seen, for instance, in active-matrix displays and nematic-crystal displays. Also called LCD display (1).

**LCD display** 1. Same as LCD. 2. Same as LCD monitor.

**LCD monitor** Abbreviation of liquid-crystal display monitor. A computer monitor incorporating an LCD. Also called LCD display (2).

**LCD panel** Abbreviation of liquid-crystal display panel. A data projector that presents the visual output of a computer through an LCD. It may incorporate its own light source, or be used in conjunction with an overhead projector for display on a remote screen.

**LCD printer** Abbreviation of liquid-crystal display printer. A type of printer similar to a laser printer, but which utilizes a bright lamp instead of a laser to create an image on the drum or other photoconductive surface.

**LCD projector** Abbreviation of liquid-crystal display projector. A projector which incorporates an LCD panel and a light source. Such a projector is usually portable, and has a much more powerful output than an LCD panel without the light source. An LCD projector may also incorporate other features, such as a cordless mouse for simplified operation.

**LCD screen** Abbreviation of liquid-crystal display screen. The viewing screen of an LCD display.

**LCI** Abbreviation of logical channel identifier.

**LCN** Abbreviation of logical channel number.

**LCP** Abbreviation of Link Control Protocol.

**LCR** Abbreviation of least cost routing.

**LCR** Abbreviation of inductance-capacitance-resistance. 1. A combination of inductance, capacitance, and resistance in a circuit. 2. A circuit or device with a combination of inductance, capacitance, and resistance, such as that provided by coils and capacitors. For example, certain tuned circuits. 3. Pertaining to an LCR (1), or that incorporating or measuring such a combination, such as a meter.

**LCR meter** Abbreviation of inductance-capacitance-resistance meter. A meter which measures and indicates inductances, capacitances, and resistances.

**LD** Abbreviation of Laserdisc.

**LDAP** Abbreviation of Lightweight Directory Access Protocol.

**LDC** Abbreviation of leaded chip carrier.

**LDCC** Abbreviation of leaded ceramic chip carrier.

**LDE** Abbreviation of long-delayed echo.

**LDM** Abbreviation of limited-distance modem.

**LDMOS** Abbreviation of laterally-diffused metal-oxide semiconductor, or laterally-diffused metal-oxide silicon. A modified metal-oxide semiconductor whose characteristics include added flexibility, enhanced performance, higher efficiency, and superior reliability. Used, for instance, in high-power RF applications, such as wireless communications infrastructure systems.

**LDMOS transistor** A transistor incorporating LDMOS technology.

**LDR** Abbreviation of light-dependent resistor.

**LDV** Abbreviation of laser Doppler velocimetry.

**lead** 1. A conductor, usually a wire, by which circuit elements or points are connected to components, devices, equipment, systems, points, or materials. Also called lead wire. 2. The state or condition of being ahead, or preceding, in time or phase. Also, that which leads. Also, the extent of such a lead. For example a lead angle, or a leading current. 3. A dense and soft grayish silvery-blue metallic chemical element whose atomic number is 82. It is poisonous, malleable, ductile, and corrosion resistant. Lead is a poor electrical conductor, and has about 35 known isotopes, of which 4 are stable. It has many applications including its use in storage batteries, in cable coverings, in solder and fusible alloys, in ceramics, certain glasses, and as a radiation shield. Its chemical symbol, Pb, is from the Latin word for lead: plumbum.

**lead-acid battery** A storage battery in which the cathode is lead plated with an oxide, such as lead oxide, the anode is lead, and the electrolyte is dilute sulfuric acid. Each cell produces about 2.1 volts, and a typical car battery, for instance, has 6 such cells for a total output of about 12.6 volts. Also called lead storage battery, or lead battery.

**lead-acid cell** A single cell in a lead-acid battery. Also called lead cell.

**lead angle** For two periodic quantities with the same frequency, the lead in phase of one relative to the other. Expressed in radians or degrees. Also called angle of lead.

**lead battery** Same as lead-acid battery.

**lead borate** A white powder used in certain ceramic or glass conductive coatings.

**lead cell** Same as lead-acid cell.

**lead coplanarity** The arrangement of component leads along the same plane.

**lead dioxide** A brown powder whose chemical formula is PbO<sub>2</sub>. It is used in storage batteries and in battery electrodes.

**lead fluoride** Colorless crystals whose chemical formula is PbF<sub>2</sub>. It is used in lasers and optics.

**lead-in** A transmission line that connects an antenna to a receiver or transmitter. Also called lead-in wire (2), or down-lead.

**lead-in insulator** An insulator in the form of a tube through which a lead-in wire is passed. Also called lead-in tube.

**lead-in tube** Same as lead-in insulator.

**lead-in wire** 1. A wire by which power is introduced to a structure, such as a building. 2. Same as lead-in. 3. A wire by which an electrode is connected to an external circuit.

**lead lanthanum zirconate titanate** A ferroelectric ceramic which exhibits the piezoelectric effect, and whose properties are similar to lead zirconate titanate. Its abbreviation is PLZT. The first letter of its abbreviation is taken from Pb, the chemical symbol for lead.

**lead magnesium niobate** An electrostrictive ceramic utilized in ultrasonic imaging devices and sonar systems.

**lead oxide** A red powder whose chemical formula is Pb<sub>3</sub>O<sub>4</sub>. It is used in storage batteries and in ceramics. Also called lead tetroxide.

**lead plating** The plating of component leads with a material such as tin, gold, or an eutectic alloy of tin and lead.

**lead selenide** Gray colored crystals whose chemical formula is PbSe. It is used in infrared detectors and in semiconductors.

**lead silicate** A red powder whose chemical formula is PbSiO<sub>3</sub>. It is used in ceramics.

**lead spacing** The distance between adjacent component leads.

**lead storage battery** Same as lead-acid battery.

**lead sulfate** White crystals whose chemical formula is  $\text{PbSO}_4$ . It is used in storage batteries.

**lead sulfide** Silver colored crystals or a black powder whose chemical formula is  $\text{PbS}$ . It is used in ceramics, infrared detectors, and in semiconductors. Lead sulfide is found chiefly in the mineral galena.

**lead telluride** Silver-gray crystals whose chemical formula is  $\text{PbTe}$ . It is used in photodetectors, and in semiconductors.

**lead tetroxide** Same as lead oxide.

**lead wire** Same as lead (1).

**lead zirconate titanate** A ferroelectric ceramic which exhibits the piezoelectric effect. Used, for instance, as transducers, electro-optic devices such as electro-optic modulators, and as actuators in active control systems. Its abbreviation is PZT. The first letter of its abbreviation is taken from Pb, the chemical symbol for lead.

**leaded ceramic chip carrier** Same as **leaded chip carrier**. Its abbreviation is LDCC, or LCCC.

**leaded chip carrier** A ceramic package which has leads consisting of metal prongs or wires, as opposed to metallic contacts which are flush with the package or recessed, as is the case with **leadless chip carriers**. Its abbreviation is LDC, or LCC. Also called **leaded ceramic chip carrier**.

**leader** 1. A section of nonmagnetic tape, usually plastic, which is affixed to the beginning of a length of recording tape, such as a reel. A section attached at the end of a tape is called a **trailer** (1). Also called **leader tape**. 2. In computers, a record which precedes and describes other records. 3. An initial discharge which sets the path for a subsequent lightning stroke. The leader ionizes the air along its trajectory, and such a discharge may occur between a cloud and the ground, between clouds, or within the same cloud. Also called **leader stroke**.

**leader stroke** Same as **leader** (3).

**leader tape** Same as **leader** (1).

**leadframe** 1. In a packaged chip, a metal frame which provides the leads for electrical connections. 2. In a packaged chip, a metal frame upon which leads may be mounted.

**leading current** An alternating current which leads the alternating voltage producing it. In a purely capacitive circuit this lead is  $90^\circ$ . This contrasts with a **lagging current**, where the voltage leads the current.

**leading edge** 1. The portion of a pulse waveform which first increases in amplitude. That is, the rising portion. The portion which first decreases is the **trailing edge** (1). 2. The initial portion of a pulse or signal. The latter part is called **trailing edge** (2).

**leading load** A load in which current leads voltage. The capacitive reactance exceeds the inductive reactance in such a load. This contrasts with a **lagging load**, where the voltage leads the current. Also called **capacitive load**.

**leading zero** A zero preceding the leftmost nonzero integer of a number. The presence or absence of leading zeroes does not change the value of a number, so zeroes preceding the leftmost nonzero integer, but which appear after a decimal point, are not leading zeroes. Leading zeroes may be used, for instance, to occupy blank spaces in a data field.

**leading zero blanking** Same as **leading zero suppression**.

**leading zero suppression** The blanking of any leading zeroes. Used, for instance, in some digital meters. Also called **leading zero blanking**.

**leadless ceramic chip carrier** Same as **leadless chip carrier**. Its abbreviation is LCCC.

**leadless chip carrier** A ceramic package which is hermetically sealed, and which instead of leads consisting of metal prongs or wires, has metallic contacts called castellations, which are flush with the package or recessed. The contacts

are usually on all four sides of the package, although they may be located elsewhere. Its abbreviation is LCC. Also called **leadless ceramic chip carrier**, or **ceramic leadless chip carrier**.

**leaf** 1. In a hierarchical structure, such as a tree, a node which has no descendants. In a hierarchical file system, for example, a file is a leaf. Also called **leaf node**, or **terminal node**. 2. A very thin sheet of metal. A leaf is thinner than a foil. A gold leaf may have a thickness of about 100 nanometers.

**leaf electroscope** An electroscope, especially a gold-leaf electroscope, in which one or two suspended metallic leaves serve to detect electric charges by means of electrostatic forces.

**leaf node** Same as **leaf** (1).

**leak** 1. A flaw or fault which allows the undesired escape of something, such as a fluid or energy. Also, the location of such a flaw or fault. Also, that which escapes. May also refer to such a flaw or fault which allows the undesired entry of something. 2. The flow of current through unwanted paths of a circuit, along the surface or through the body of a dielectric or insulator, or that which is otherwise undesired or lost. Also, the current which flows in this manner, or is lost.

**leak proof** Constructed and/or arranged in a manner which does not allow **leakage**. Said, for instance, of an enclosure or apparatus. Also spelled **leakproof**. Also called **leak tight**.

**leak tight** Same as **leak proof**. Also spelled **leaktight**.

**leakage** 1. The usually undesired escape or entry of something, such as a fluid or energy, due to a **leak** (1). 2. The undesired flow of **leakage current**.

**leakage current** Also called **current leakage**. 1. Current which flows through unwanted paths of a circuit, such as from the output to the input when not intended. 2. Current which flows between electrodes of an electron tube by any route except the interelectrode space. 3. Current which flows along the surface or through the body of a dielectric or insulator. 4. Direct current which flows through the dielectric of a capacitor. 5. Alternating current which flows through a rectifier without being rectified. 6. Current which flows through a component, circuit, or device which is in the off state. Also called **off-state leakage current**.

**leakage detection** The use of a **leakage detector**.

**leakage detector** An instrument or device which detects **leakage**. Such a detector may also quantify said leakage. Also called **leakage indicator**.

**leakage flux** Magnetic flux which does not pass through a useful or intended part of a magnetic circuit. Also called **flux leakage**.

**leakage indicator** Same as **leakage detector**.

**leakage inductance** Self-inductance, especially in a transformer, due to **leakage flux**.

**leakage path** The path followed by a **leakage current**. Also called **sneak path**.

**leakage power** Power which is dissipated in an undesired manner.

**leakage radiation** Radiation which escapes in an undesired manner. For example, electromagnetic radiation escaping through an unintended part of an antenna system, or X-rays emanating in an unwanted direction from an X-ray tube.

**leakage reactance** Inductive reactance, especially in a transformer, due to **leakage flux**.

**leakage resistance** Resistance along the path which **leakage current** flows. In a capacitor, for instance, this resistance is usually very high.

**leakproof** Same as **leak proof**.

**leaktight** Same as **leak proof**. Also spelled **leak tight**.