

WILEY ELECTRICAL AND ELECTRONICS ENGINEERING DICTIONARY

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IEEE PRESS



A JOHN WILEY & SONS, INC., PUBLICATION

HANWHA v. MAXEON
IPR2024-01198
HANWHA 1109

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Published by John Wiley & Sons, Inc., Hoboken, New Jersey.
Published simultaneously in Canada.

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Library of Congress Cataloging-in-Publication Data is available.

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Wiley Electrical and Electronics Engineering Dictionary

ISBN 0-471-40224-9

Printed in the United States of America.

10 9 8 7 6 5 4 3 2 1

- impedance mismatch** A condition in which the impedances between two circuits, or between a signal source and a load, are not equal, thus reducing the transfer of power. Also called **mismatched impedances**.
- impedance parameters** Within an electric network, circuit parameters pertaining to **impedance**. Its abbreviation is **Z-parameters**.
- impedance ratio** The ratio of two impedances, such as those that are mismatched.
- impedance transformer** 1. A transformer utilized to convert one impedance to another. 2. Same as **impedance-matching transformer**.
- impedance triangle** A right triangle whose perpendicular sides are proportional to the resistance and reactance of an AC circuit, and whose hypotenuse is proportional to the impedance of said circuit.
- impedor** A circuit component which has impedance.
- imperative statement** In a computer program, a statement that is executed without the need to meet any given condition. Also called **unconditional statement**.
- imperfect crystal** A crystal which has flaws in the geometric arrangement of its contained atoms, molecules, or ions. A **perfect crystal** has no such defects.
- imperfection** A lattice defect in an **imperfect crystal**.
- implantation damage** The displacement of host atoms when accelerated ions strike them during ion implantation. Such displacements can be corrected by annealing at a high temperature, such as 700 or 800 °C.
- implantation energy** The energy of the implanted ions in a target semiconductor layer when utilizing ion implantation. The energy of the ions determines the depth to which they penetrate.
- implanted device** 1. An electronic device, such as certain pacemakers, which is surgically inserted or embedded. 2. A device which is inserted or embedded in another.
- implement** To put into effect, or to carry out something.
- implementation** The process of putting into effect, or the carrying out of something. Seen, for instance, when putting a given communications protocol into practical use.
- implosion** An explosion inward, as might occur when the glass envelope of a vacuum tube shatters, and the surrounding atmosphere rushes in to fill the vacuum, carrying glass fragments with it.
- import** To accept a file or data in a foreign format, and then convert it to that required for use by the receiving application or environment. The accepting program or system must have the appropriate filters. This contrasts with **export**, where the conversion takes place before the file or data is moved or saved.
- import filter** A filter utilized to **import**.
- impregnate** To fill throughout, permeate, or saturate one substance with another. For instance, to use diffusion to uniformly distribute a gaseous dopant within the crystal lattice of a semiconductor material.
- impregnated cathode** A cathode, such as that of tungsten, which is impregnated with another material, such as barium, to impart the desired properties.
- impregnated tape** Tape which is impregnated with a given substance to impart the desired properties. Examples include tapes impregnated with magnetizable particles for recording, or those impregnated with certain resins to provide resistance to high temperatures.
- impregnation** The process of filling throughout, permeating, or saturating one substance with another. For example, the filling of the spaces of an electrical component with an insulating material.
- impressed voltage** The voltage applied to a component, circuit, or device.
- improved definition television** Same as **improved definition TV**.
- improved definition TV** Abbreviation of **improved definition television**. A standard, such as HDTV, for the transmission and reception of TV signals in which the resolution is superior in comparison to standards such as NTSC or PAL. Other factors, such as sound quality, are also usually enhanced. Its abbreviation is **IDTV**. Sometimes used as a synonym for **HDTV**.
- impulse** 1. A unidirectional surge of current of very short duration. It quickly rises to a maximum, then drops to zero in a similar fashion. Such a surge may be produced, for instance, when switching equipment on or off. Also called **impulse current**, or **pulse current**. 2. A unidirectional surge of voltage of very short duration. It quickly rises to a maximum, then drops to zero in a similar fashion. Such a surge may be produced, for example, by a lightning stroke. Also called **impulse voltage**, or **pulse voltage**. 3. A pulse of very short duration, although both terms are often used synonymously.
- impulse breakdown voltage** An **impulse** (2) whose magnitude equals or exceeds that necessary for breakdown.
- impulse current** Same as **impulse** (1).
- impulse excitation** The production of oscillation in a circuit via a signal of very short duration. The time interval of the resulting oscillation is much greater than the duration of the exciting impulse. Also called **shock excitation**.
- impulse flashover voltage** An **impulse** (2) whose magnitude equals or exceeds that necessary for flashover.
- impulse frequency** The frequency with which **impulses** occur or are generated.
- impulse generator** A circuit or device which produces **impulses**. One or more capacitors may be used, for instance, for storing and then releasing energy in very short pulses. Also called **surge generator**.
- impulse noise** 1. Noise produced by **impulses**. The spark-produced voltages in an internal combustion engine may generate such noise. 2. Noise whose duration is very short. Such noise is generally characterized by large amplitude, and may occur as a series of disturbances which can be random or periodic in nature.
- impulse radar** A pulsed radar utilizing extremely short high-powered pulses. Such pulses may be in the picosecond range.
- impulse ratio** 1. The ratio of impulse breakdown voltage to the peak value of the breakdown voltage. 2. The ratio of impulse flashover voltage to the peak value of the flashover voltage. 3. The ratio of impulse sparkover voltage to the peak value of the sparkover voltage.
- impulse relay** 1. A relay which distinguishes between different types of pulses, and is actuated by one type. For instance, a relay which only operates on strong pulses. 2. A relay which upon receiving a short pulse stores the energy necessary to complete its function.
- impulse sparkover voltage** An **impulse** (2) whose magnitude equals or exceeds that necessary for sparkover.
- impulse test** Any test involving **impulses**. For instance, the applying of an impulse voltage to test a dielectric.
- impulse transmission** In communications, the use of **impulses** for signaling. The impulses denote the transitions in the signals.
- impulse voltage** Same as **impulse** (2).
- impurity** 1. A substance whose presence within another reduces or eliminates the purity of the latter. The presence of an impurity in a crystal can change its properties significantly, as seen in the use of dopants in semiconductors, or in the photoconductivity of an allochromatic crystal. 2. An **impurity** (1) which is introduced into a semiconductor ma-

terial. Such an impurity may be an acceptor impurity, which makes for a p-type semiconductor, or it may be a donor impurity, which makes for an n-type semiconductor. Acceptor impurities include gallium and aluminum, while donor impurities include phosphorus and arsenic. In either case, such an impurity increases the conductivity of the semiconductor. Also called **dopant**, or **semiconductor dopant**.

impurity band In a semiconductor, an energy band arising from the presence of **impurities** (2).

impurity concentration In a semiconductor material, the number of **impurities** (2) present, per unit volume. Also called **impurity density**.

impurity density Same as **impurity concentration**.

impurity level 1. In a semiconductor, an energy level arising from the presence of **impurities** (2). 2. The extent to which **impurities** (2) are present in a semiconductor.

impurity scattering In a semiconductor, scattering of electrons off **impurities** (2).

impurity semiconductor A semiconductor material with introduced **impurities** (2), which determine its electrical characteristics, such as concentration of charge carriers. Also called **extrinsic semiconductor**, or **doped semiconductor**.

in 1. Abbreviation of **input**. 2. Abbreviation of **inch**.

In Chemical symbol for **indium**.

in-band signaling 1. In a telephone circuit, the transmission of control signals, such as dial tones and busy signals, via the same channel utilized for voice transmission. This contrasts with **out-of-band signaling**, in which a separate channel is used. 2. In data transmission, signaling in which the least significant bit is taken from the information stream and utilized for control signals and other overhead. Sometimes used over T1 or E1 lines. Also called **robbed-bit signaling**, or **bit robbing**.

in-circuit emulator A chip which emulates a given processor, and which serves for testing and debugging logic circuits. Its acronym is **ICE**.

in-circuit test A test performed on components without removing them from the circuit they are a part of.

in-circuit tester An instrument which tests components without removing them from the circuit they are a part of.

in-lb Abbreviation of **inch-pound**.

in-line code Same as **inline code**.

in-line graphics Same as **inline graphics**.

in-line image Same as **inline image**.

in-line tuning The tuning of all stages, such as those of an amplifier, to the same frequency. Also spelled **inline tuning**.

in parallel The connection of the components within a circuit in a manner that there are multiple paths among which the current is divided, while all the components have the same applied voltage. An example is the connection of components across each other. This contrasts with **in series**, where components are connected end-to-end, and in which there is a single path for the current. Also called **in shunt**, or **parallel connection**.

in-phase A state in which two or more periodic quantities having the same frequency and waveshape pass through corresponding values, such as maximas and minimas, at the same instant at all times. In an **out-of-phase** state, the periodic quantities do not pass through corresponding values at the same instant at all times.

in-phase component 1. Same as **in-phase current**. 2. Same as **in-phase voltage**.

in-phase current Within an AC circuit, the component of the current that is **in phase** with the voltage. Also known as **in-phase component** (1), **watt current**, **active current**, or **resistive current**.

in-phase rejection The ability of a differential amplifier to reject **in-phase signals**, while responding to signals which are not in phase. Also called **common-mode rejection**.

in-phase signal 1. For a differential device such as an amplifier, a signal applied equally to both inputs. Also called **common-mode signal** (1). 2. The algebraic average of two signals applied to both ends of a balanced circuit, such as that of a differential amplifier. Also called **common-mode signal** (2). 3. Same as **I signal**.

in-phase voltage Within an AC circuit, the component of the voltage that is **in phase** with the current. Also known as **in-phase component** (2), **resistive voltage**, or **active voltage**.

in quadrature Said of two periodic quantities having the same frequency and waveshape which are out-of-phase by 90°, or $\pi/2$ radians.

in/s Abbreviation of **inches per second**.

in series The end-to-end connection of the components within a circuit. There is a single path for the current, which flows through all the components in sequence, while the voltage is divided among the components. This contrasts with **in parallel**, where the connection is side-by-side, or otherwise in a manner where the current is divided among the components. Also called **series connection**.

in shunt Same as **in parallel**.

In-WATS Same as **Inward Wide-Area Telephone Service**.

inaccuracy The quality or condition of being **inaccurate**.

inaccurate Incorrect, in error, or otherwise deviating from a real value. Said, for instance, of a measuring instrument.

inactive 1. Not ready for use, as in an unavailable communications channel. 2. Not currently functioning, as in a satellite which is not transmitting a signal at a given moment. 3. Not energized, as in a circuit that is not powered at the moment. 4. Chemically inert.

inactive application In a computer that has more than one application running, any application other than the one which is currently being interacted with.

inactive arm A component within a transducer that does not vary its electrical characteristics in response to the input of said transducer. Also called **inactive leg**.

inactive computer In a setting with two or more computers, any which is not currently processing.

inactive leg Same as **inactive arm**.

inactive lines In a TV, the lines that do not transmit the visible picture. These lines are above and below the visible picture. Also called **blanking lines**.

inactive window On a computer screen that has more than one window open, any window which is not currently being interacted with. There may be most any number of inactive windows, but there can only be one **active window**, which is the one which will be affected by such actions as keyboard input.

inbox In an email application, the default mailbox which to which incoming messages are directed. The default mailbox for outgoing messages is the **outbox**.

incandescence The emission of visible light by a heated object, such as the filament of an incandescent lamp. Also, the light emitted.

incandescent An object which when heated sufficiently emits visible light. Also, that which incorporates such an object.

incandescent lamp A lamp which incorporates a filament, often made of tungsten or carbon, which emits brilliant visible light when heated by an electric current. Such a lamp is what is commonly referred to as a **light bulb**.

inch A unit of distance equal to exactly 2.54 centimeters, or 0.0254 meters. Its abbreviation is **in**.

inch-pound A unit of work or energy equal to approximately 0.11299 joule. Its abbreviation is **in-lb**.