GADGETRONICX

ELECTRONICS MINI DICTIONARY

simplified definitions for most used terms in Electronics

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A

A / D converter – Abbreviation for Analog to Digital converter, This refers to a device or component that converts input analog signal to digital signal in the output.

Absolute maximum ratings – Limiting values of operating and environmental conditions in which an electronic component or device must be operated above which the device may cease to operate.

Accuracy – The amount of uncertainty in a measurement with respect to an absolute standard.

Active Component – Electronic components which is capable of changing the characteristics of an applied electrical signal by amplification, rectification, switching and etc. Transistors, SCRs, Diodes are common examples of active components.

Aliasing – A phenomenon which occurs due to sampling process in which high frequency components of an analog signal appears as lower frequencies in the sampled signal.

Alternating Current – Electric Current that varies with time, here the current changes polarity with time. AC is usually represented by a sine wave.

Alternator – A device that converts mechanical energy to electrical energy in the form of alternating current.

AM or Amplitude Modulation – A type of modulation in which the amplitude of a signal wave will be altered with reference to a carrier signal.

Ammeter – An instrument that is used to measure alternating or direct current. Digital and Analog Ammeters are two types of Ammeters used.

Amperes – A unit of electrical current or rate of flow of electrons. One volt across one ohm of resistance causes a current flow of one ampere.

Amplifier – A device that draws power from a different source than the input signal and replicates the amplified or enlarged reproduction of the input signal in its output.

Amplitude – Magnitude of voltage or current in a signal. Analog signals will have different amplitude levels, these are referred as peak, RMS, Max etc amplitude.

Analog - Continuous information of voltage, current or any similar quantity.

Anode - Positively charged electrode to which the electron flows from negative charged electrode (Cathode).

Antenna - The section of a communication system that is used for radiating radio waves into or receiving them.

Assembler - A program that converts assembly language of a computer program into machine language of the computer accepting mnemonics and symbolic addresses, instructions and data.

Astable - Pertaining to a device that contains two temporary states to which the devices switches back and forth during operation.

Asynchronous communication - Communication method in which transferring of data in a communication line occurs without regular or predictable time relationships between sender and receiver.

Asynchronous operation - Operation in a digital device that does not proceed in step with some external timing.

Atom - Smallest portion of an element that exhibits all properties of the element. It is composed by positively charged nucleus surrounded by negatively charged electrons.

Attenuation - The decrease in amplitude of a signal during its transmission from one point to another.

Audio signal - Signal that contains frequency components within 15 to 20,000 Hertz.

Avalanche Breakdown - A nondestructive breakdown caused by the cumulative multiplication of carriers through ionization in a semi conductor.

B

Bias - A voltage or current that is usually constant and small in magnitude and used to set a device in a particular state.

Battery - Voltage source which converts chemical energy to electrical energy.

Baud rate - The speed at which data is transmitted and measured in symbols per second.

Bandwidth - It is the range of frequencies which an electronic device can transmit.

Breakdown voltage - The minimum voltage that causes a portion of an insulator to become electrically conductive.

Buffer - It serves as a protective barrier, used to isolate a load from source.

Bistable - A circuit or device with two stable operating states.

Bit - Abbreviation of binary digit.

Bit rate - It is defined as the number of bits transmitted per unit time.

Bleeder - A resistor connected across power source to improve voltage regulation. It provides current path under no load conditions or dissipate energy on shut off.

Band - This term is commonly referred to the range of frequencies of a signal.

Band pass - Specific range of frequencies that will be passed through a device (commonly a filter).

Bandwidth - The difference between highest and lowest frequencies in a band.

Barrier voltage - Voltage necessary to make electron flow possible in a junction of two dissimilar materials such as PN junction diode.

Battery - A DC voltage source that consists of two or more cells connected together that converts chemical energy into electrical energy.

Bipolar device - Semi conductor devices that possess both majority and minority carriers in it.

Bus - A signal path to which a number of inputs may be connected to feed one or more outputs.

Bypass - A shunt or parallel path around one or more elements of a circuit.

C

Capacitance - Ability of a device or component to store electric charge.

Conductance - The extent to which a component can allow can allow current to flow through it. It is the inverse of resistance.

Circuit - It is a closed path which has flow of electrons due to which electric current will flow.

Current - The flow of electric charge in a circuit which will be always in opposite direction w.r.t flow of electrons

Calibration - This is the process of comparing measurement from an instrument or device with a standard to determine its accuracy or to setup correct measurements

Cathode - It is negatively charged electrode.

Center-tap - Midway connection of ends of a winding (example: center-tapped transformer).

Charge - it is the property of electron and protons i.e quantity of electrical energy.

Comparator - It compares two voltages and give out as either 0 or 1.

Cutoff - The point at which a device or component cease to operate.

Cache - A high speed, low capacity memory that stores only the data that computer may need in the immediate future.

Capacitor - A component that consists of two conducting plates separated by an insulating material to store electric energy in its conductive plates.

Carrier - A signal that possess constant amplitude, frequency and phase that can be modulated by another signal with varying amplitude, frequency or pulse.

Cascade - Refers to a type of connection or arrangement where two or more similar circuits or amplifying stages connects to each other in a way the output of one circuit provides input to another.

Charge - It is referred to the electrical energy stored in a battery or Capacitor or held in any insulated device.

Choke - Inductive device used to impede the flow of pulsating direct current or alternating current using the property of self inductance

Chopper - Device that is used to interrupt or chop a DC or low frequency AC signal at regular intervals.

Circuit - Interconnection of devices or components that forms one or more closed paths through which electron flow from negative terminal of a power source back to the positive terminal of power source to perform desired function.

Circuit breaker - It is a device interrupts the current flow in a circuit by opening the closed path

Clamping - The circuit that clamps or holds the voltage of a signal at a specified fixed or variable level

Clipping - Phenomenon in which the peaks of a waveform is clipped or trimmed off. This is common among amplifiers to prevent it from being driven beyond its maximum capacity.

Clock frequency - The frequency of digital signal which synchronizes communication in digital systems.

Coil - Copper wire wound over an insulating material to introduce the property of inductance.

Comparator - Circuit that compares two signals supplied to it and outputs the agreement of disagreement.

Component - Basic building blocks such as resistor, capacitor etc to build circuits and equipment.

Conductor - A material which is capable of serving as a carrier to electric current.

Counter - A circuit that counts input pulses and keep track of them to a specified limit.

Coupler - A component that divides signal from an antenna to feed two or more receivers or combines two or more antenna signals to feed single receiver.

Coupling capacitor - Capacitor that is used in circuits to couple or combine two circuits together, it is also used to allow only alternating current through a circuit and blocks direct current.

Crystal - A thin plate of quartz that is cut to a thickness that causes it to vibrate at a specified frequency when voltage is applied across it.

Current regulator - A regulating device or component that limits the output current from a energy source.

D

Damping - The phenomenon where the energy reduces in a mechanical or electrical oscillating system by absorption, conversion in to heat or by radiation.

Damping Oscillations - The oscillation that occurs when the amplitude of the oscillating quantity decreases with time

Damping Ratio - It is a measure describing how rapidly the oscillations decay from one bounce to the next

Darlington - Commonly known as Darlington pair where two transistors are connected together resulting in high current gain.

Debouncing - The procedure to eliminate bounce signals from mechanical switches. Denouncing is performed by hardware or software delay.

Debugging - The process of Isolating malfunctions aka bugs from a piece of code or hardware to restore its operation.

Decibel - The standard unit for expressing transmission gain or loss and relative power levels.

Decode - The process of retrieving a message signal from encoded signal from transmitter using similar altering signal or sequence used for encoding.

Decoupler - Circuit or device used to isolate two circuits from each other.

Decryption - The process of unscrambling a scrambled or encrypted message to form a valid message.

Demodulation - Reverse operation performed on a modulated signal to retrieve the original message signal.

Demultiplexing - The process of separating a multiplexed signal into its original separate signals. It is the reverse operation of multiplexing.

Depletion region - This region is formed when joining P-type and N-type semiconductor material. Charge carries in this region will be depleted and therefore no current flow occurs unless energized.

Diac - A bidirectional breakdown diode that conducts current only when a specified breakdown voltage is exceeded.

Diaphragm - A flexible membrane used in various electro acoustic transducers for producing audio frequency vibrations when actuated by electric impulses or electric impulses when actuated by audio frequency signals.

Dielectric - An insulating material which has poor conductance

Dielectrics - Insulating medium which is present between two plates of a capacitor. Common dielectric materials are Air, Plastic, Mica etc.

Differential amplifier - An amplifier circuit that amplifies the difference in voltages between two input signals.

Diffusion - The movement of carriers from a region of high concentration to a region of lower concentration.

Digital Circuit - Circuit which has two possible output states - High (1 or ON) or Low (0 or OFF). The more common families of digital circuits are RTL, TTL, CMOS, ECL etc.

Digital Electronics - Study of digital signals in the field of electronics

Digital signal - Electrical signal with possible states - High (1 or ON) or Low (0 or OFF).

Diode - It is a semiconductor device where flow of current will be only in one direction

Discharge - The release of energy stored in a storage devices such as Battery or Capacitor when a load is connected to its terminals

Discrete components - A component that has individual identity of its such as Resistors, Transistors, Capacitors etc.

Distortion - Any change in a signal that alters the basic waveform or the relationship between various frequency components; it is usually a degradation of the signal

Dopant - The substance used for doping

Doping - Process of adding impurities to a substance in a controller manner to introduce new desired properties to it.

Drift current - The flow of charge carriers in a semiconductor material due to applied electric field

Dropout voltage - The factor to which the input voltage should exceed the desired output voltage in order for a regulator to deliver steady output voltage.

Duplex - Type of communication in which the receiver and transmitter can simultaneously receive and transmit information.

Dynamic - Refers to systems which is susceptible to change depending on the conditions or parameters

Dynamo - A machine that converts mechanical energy into electrical energy by electromagnetic induction.

E

Earth ground - A connection from an electrical equipment to the earth or ground through a metal rod. This connection reduces shock hazards from faulty equipment.

Eddy currents - They are currents induced in the body of a conductor due to variation in the magnetic flux.

Efficiency - Defined by the ratio of the output of a physical quantity to the input.

Electrical ground - The zero voltage reference for power supply in an electronic device. Chassis of the equipment is commonly used as electrical ground, sometimes it connects to power mains or earth ground.

Electrode - The conducting element that collects electrons or ions or controls their movement by means of an electric field on it.

Electrolysis - Process of changing the chemical composition of a material by sending an electric current through it.

Electrolyte - The substance in which the conduction of electricity is accompanied by chemical action

Electromagnet - A temporary magnet built using an iron core with solenoid around it. It exhibits magnetic field only when current flows through the solenoid.

Electron - It is a negatively charged subatomic particle, in conductors current flow results from movement of electrons.

Embedded systems - A system into which one or more computing devices are incorporated to perform the desired task

Encode - The process of altering the message signal with another signal to enable secure communication between transmitter and receiver

Encryption - The process of scrambling a message following a specified pattern to hide it from unauthorized user.

Equalizer - A passive device designed to compensate for an undersized amplitude-frequency and or phase-frequency characteristic of a system or component

Equivalent circuit - A circuit that has the same response to changing voltage and frequency as of component or complex circuit. It is used to facilitate mathematical analysis.

Etching - Cutting of any part a substance(example- Etching of oxide to form gate terminal in MOS technology).

F

Fabrication - It involves the manufacture of individual components that make up larger assemblies or end products

Feedback - Process of feeding a portion of output signal back to input. Extensively used in Amplifiers and control systems

Feeder - A transmission line between an antenna and a radio transmitter or receiver

Filter - A circuit built out of Resistors, Capacitors or Inductors that attenuates signals above, below or within specific frequencies.

Firmware - A computer software or program that is stored in PROM, ROM or semi permanently in EEPROM. These instructions are for internal processor functions only and are transparent to the user.

Fission - The splitting of an atomic nucleus into two parts. Commonly known as atomic fission or nuclear fission

Flip-Flop - A digital circuit that can be in either two states, this state is determined by input received and on which state it was in when the input was received

Float-charging - Charging a storage battery at about the same rate that is being discharged by the load

Flux - The number of phones that pass through a surface per unit time

Force - Physical action that is capable of moving a body or modify its motion

Freewheeling diode - A diode which connects in parallel with inductive load. This provides a current flow path when the power supplied to inductive load is turned OFF and continues until all energy stored in the inductor is depleted.

Frequency - The number of recurrences of a periodic signal in an unit of time.

Frequency modulation - A type of modulation where the frequency of message is modulated by a modulating signal to enable transmission of the signal.

Function Generator - A device capable of generating one or more desired waveforms

Fuse - A protective device which uses a thin strand of wire that breaks when a current exceeds the rated value.

G

G - Symbol for Conductance.

Gain - The ratio of output power to the input power of a system of components

Gate - A circuit which has two or more inputs with one output and the output depending upon the combination of logic signals at the inputs

Generator - A machine that converts mechanical energy into electrical energy

Glitch - An undesired pulse or burs of noise that causes crashes and failures in computers

Grid - An interconnected system in which high-voltage, high-capacity backbone lines overlay and are connected with networks of lower voltages.

H

H - Symbol for Henry which denotes magnetic field strength

Half-cell - Electrode which is submerged in electrolyte solution in order to measure potential of single electrodes

Half-Duplex - A communication system in which information can be transmitted in either direction but only one direction at a time.

Hall Effect - Phenomenon which describes the development of voltage that is perpendicular to current and magnetic field when a current carrying semiconductor is placed in a magnetic field that is perpendicular to the direction of its current flow.

Handoff - The transfer of a cellular phone call to a new cell designed to be transparent to he cellular phone user.

Harmonic - A sinusoidal wave having a frequency that is an integral multiple of fundamental frequency.

Heat loss - The loss in a system that occurs die to conversion of part of electrical energy into heat

Heat sink - A metal device that is added to a device for absorption needs or transfer of heat away from critical parts.

Hertz - The standard unit for frequency equivalent to one cycle per second

Hexadecimal - A number system using the equivalent of the decimal number 16 as base.

HF - Abbreviation for High Frequency

High fidelity - The characteristics of amplifiers that enables a system to reproduce sound as nearly like the original as possible

High level language - A sophisticated easy to use computer language that allows a programmer to write software.

Hologram - A photograph that is produced using laser lights.

Horn antenna - A microwave antenna that resembles the shape of a horn

Host - A node computer on a network

Hysteresis - The lag in the response of an instrument or process when a force acting on it changes abruptly.

Hz - Symbol for Hertz

I

I - Symbol of Current

Impedance - The property of resistance offered by a circuit to alternating current aka AC of particular frequency.

Impulse - A pulse which exists only for short span of time.

Incoherent - Indicates the relationship between two waves where they don't have fixed phase relationship with each other.

Inductance - Property of a circuit or component that resists sudden change of current flow due to the magnetic field that's developed around it.

Inductor - A passive component that possess the property of inductance.

Infrared - Abbreviated as IR, this defines the electromagnetic spectrum which has a wavelength that falls within 750nm to 1mm. It is invisible to eyes.

Input - Physical quantities such as current, voltage power or data in computer systems that is fed to a system to enable operation.

Inrush - The surge of high current that flows through Inductive and Capacitive loads of a circuit when it is turned ON.

Insulation - Property of insulators to offer high resistance to current and heat conduction across its surface.

Insulator - A material which possess the property of insulation

Integrator - A device which produces output which is proportional to the integral of input signal.

Interference - A malfunction or degradation of performance in an electrical or electronic equipment that occurs due to electrical or electromagnetic disturbance.

Integrated Circuit - Circuits which comprises of both active and passive elements are bounded on a semiconductor substrate in a way it cannot separated.

Interpreter - A program that translates and executes instructions in high level language into a code that can be interpreted by the target machine

Interrupt - A feature in Microcontroller and Microprocessor that transfer the control of execution to a set of instructions when triggered.

Ion - Refers to the atom that has become charged by gaining or losing orbiting electrons.

Irradiation - Process of exposing materials to high energy radiations such as X-rays.

Isolator - Device which allows signal transmission in one direction while blocking or attenuating signal transmission from other direction.

Isotope - Elements which contains same number of protons but different number of neutrons as compared to another element.

J

J - Symbol for Joule.

Jack - A socket to which wires from a circuit is connected at one end and a plug is connected at the other end

Jammer - A device that produces signal to jam the incoming signals to target receiver

JFET - Abbreviation for Junction Field Effect Transistor. It is a semiconductor device that is operated by voltage.

Joule - The work done through a distance of one meter by a force of one newton.

Jumper - A short wire or connector used to establish a connection between components temporarily or by pass a circuit.

Junction - The contact point formed between two dissimilar metals or materials.

Jitter - The instability incurred to a signal amplitude or phase or both due to mechanical disturbances or changes in supply voltage or component characteristics.

Jam - Process of interfering with signal reception to a target receiver.

Johnson noise - Noise generated by a resistor which operates at a temperature above absolute zero.

Junction barrier - The layer which offers opposition to the diffusion of majority carriers across a PN junction.

K

Kelvin - A unit of absolute temperature equal to 273.16 of the Kelvin scale temperature of the triple point of water.

Kernel - The most basic portion of an operating system that supports task synchronization, scheduling, communication and basic memory allocation capabilities.

Kickback - The voltage that is developed across an inductor by a sudden collapse of the magnetic field when the current to inductor is cut off.

Keying - The formation of signals such as those employed in a telegraph transmission, by an abrupt modulation of the output of a director by an alternating current source.

K - Symbol used for Cathode, Kelvin.

k - Symbol for kilo.

Knee - Referred to the region with maximum curvature in any graph.

L

Lag - The difference in time between two waves same frequency expressed in degrees.

Laser - A device which emits intense beam of coherent light.

Latch - Feedback loop used in a digital circuit to retain a particular state

Latching - A technique to retain a particular state of a digital circuit, this state will be stored until it's been reset.

Latency - Encountered delay in computer and digital systems when waiting for a response

Layout - Topological arrangement of conductors and components in a circuit.

Lead - A wire that establishes connection between circuit elements.

Leakage - Flow of undesired electricity through an insulator

Light Emitting Diode - A PN junction diode that emits light when biased in forward direction.

Limiter - A device which limits the output automatically to a predetermined value.

Limit switch - Type of switch which is operated by making or breaking contact by a moving object's movement.

Linear - The output characteristic of a device which varies in direct proportion to the input.

Linker - A program that ties different software modules into one entity.

Load - Any device or component that draws power from power source and converts into any desired form.

Local Area Network (LAN) - A communication system that allows similar or dissimilar devices to communicate among each other over a common transmission medium.

Loss factor - The rate at which the heat is generated in an insulating medium.

Laminate - The process of making components or devices by bonding two or more materials together

Lattice - Refers to the geometrical arrangement of atoms in a crystalline material

Lagging current - The current which lags the applied voltage

Leading current - The current which leads the applied voltage

Lifetime - The average time interval between the introduction and recombination of minority carriers in a semiconductor

Linear amplifier - Amplifier which offers constant gain to wide variation in amplitude of input signal

LiON - Abbreviation for Lithium ion

Load regulation - Characteristic of a power supply which defines the maximum deviation of the output voltage when load is changed from minimum to maximum rating of the power supply.

Loopback - Testing procedure where signals from test center is looped back to test center for measurement of signals

Loss factor - A reduction in power of a signal when transmitted from one point to another

lux - Unit for illumination

M

m - Symbol for milli

M - Symbol for Mega

Machine code - Commands targeted to microprocessor or microcontroller often written in Binary or Hexadecimal format.

Machine cycle - It represents the time taken for a processor to perform operations such as Read, Write, Fetch etc

Magnet - A body with the property of attracting or repelling magnetic materials.

Magnitude - Refers to a quantity irrespective of its sign

Majority carrier - The predominant carrier in a semiconductor. Electrons are the majority carrier in N-type semiconductors and holes in P-type semiconductors.

Master - A component of a system that controls the action or responses of other components in the system.

Matching - Process in which two circuits or devices connects together with a coupler to provide maximum power transfer between them

Maximum dissipation - The maximum average power a device can dissipate during its normal operation.

Memory - The segment or part of a computing system that holds information to read and process.

Memory Cycle - The operations required for Addressing or Reading and Writing data in memory.

Metal - A material that has high electrical and thermal conductivity at normal temperatures

MHz - Symbol for Megahertz

Microcontroller - A complete microprocessor system on a chip with on-chip CPU, RAM, ROM or EPROM, clock and control circuits, and serial and parallel IO ports that can be programmed for various control functions.

Microphone - A device or component that translates speech signals into electrical impulses.

Microprocessor - An integrated circuit which is capable of receiving and executing coded instructions.

Microwave - Waves that falls within the frequency range of 1000 megahertz and above.

Minority Carrier - The less predominant carrier in a semiconductor. Electrons are the minority carriers in P-type semiconductors, and holes in N-type semiconductors

Mismatch - The condition in which the impedance of a source does not match the impedance of the connected load.

Mixer - A circuit that generates output frequencies equal to the sum and difference of two input frequencies.

Modulate - To alter the properties of a signal such as Amplitude, Frequency or Phase by impressing over another signal with constant properties.

Modulation - The process of modifying characteristic of a signal so that its varies in step with the instantaneous value of another signal.

Monostable - A term used to describe a circuit that has one permanent stable state and one temporary state.

MOSFET - A class of voltage-driven transistors that does not require drive currents for its operation.

Motor - A device or component that converts electric current into rotary motion.

Multiplex - To interweave two or more message signals in order to transmit multiple message signals in a single channel.

Mutual inductance - The process in which the rate of change of current in one circuit, induce electromotive force in another circuit.

N

n - Symbol for Nano.

Negation - Process of inverting a value, that is changing 1 to 0 or 0 to 1.

Negative charge - A state where an element possess more negative charge than its usual quantity.

Negative feedback - This refers to the process of feeding back part of the output signal to the input with a 180 degree phase shift. This results in reduction of amplification and distortion.

Nesting - A technique in programming which involves the embedding of programming routines within other routines.

Network - A combination of electrical elements.

Neutralization - The process of nullifying the feedback signal from output to the input in an amplifier.

NiMH - Abbreviation for Nickel-metal hydride.

Noise - Any unwanted disturbance to an electrical system.

Nominal - The value which a component is rated to operate.

Nonlinear - Characterized by output that does not rise or fall in proportional to its input.

Nonvolatile memory - A memory whose data is undisturbed by interruption in power supply.

Numerical aperture - Defines the maximum acceptable angle in order for total internal reflection to occur in an optical fiber.

O

Octal - A numbering system based on 8 and uses the from digits 0 to 7.

Offline - State of being disconnected from a communication medium.

Offset - Measure of unbalance between halves of a symmetrical circuit.

Ohm's law - The voltage across a component in a DC circuit is equal to the multiplication of current flowing through the component in amperes and resistance of the component in Ohms.

Omnidirectional - Refers to antenna which favors reception in all directions rather than having increased sensitivity or emission in a particular direction.

Open loop - A control system with no self-correcting mechanism for errors in the desired operational condition.

Open-circuit - A circuit that does not provide a closed path for the current to complete its flow.

Operand - The quantity that is affected, manipulated, or operated on.

Operating temperature - The temperature or range of temperatures at or over which a device is expected to operate within specified limits of error.

Operational Amplifier - A versatile linear amplifier used extensively in amplification, control, computation, and measurement applications.

Optical coupler - The component or device that transfers electrical signals by using light waves to provide coupling between circuits but maintaining electrical isolation between circuits.

Optoelectronics - Specialized in electronics which deals with establishing connection or coupling within functional electronic blocks using light beams.

Optoisolator - A isolating device which uses a light sensor for voltage and noise isolation between input and output.

Oscillation - A periodic change in variable of a signal, as it does in the amplitude of an alternating current.

Overcharging - Continued charging of battery even after it has achieved its full charged condition.

Overcurrent - The current that causes an excessive or even dangerous rise in temperature in the conductors.

Overload - The condition where excess current or voltage, more than a circuit could handle is supplied.

Overload protector - A device that automatically disconnects the circuit whenever the current or voltage becomes excessive.

Override - To manually overrule the functions of an automatic control system or circuit.

Oxidation - Process of combining an element with oxygen.

P

p - Symbol for pico 10-12.

Parallel - Type of connection where two or more components connects to same pair of terminals so that current flow branches out to take two or more paths.

Parity - Method to check the accuracy of received binary data in a communication device.

Passive device - Components which cannot provide rectification, amplification but only capable of reacting to current and voltage.

Peak - The maximum instantaneous value of a quantity.

Period - The time required for one complete cycle of a regular, repeating signal.

Permittivity - The ability of a component or device to store electrical energy in an electrical field

Phase - The angular relationship between current and voltage in AC circuits.

Photodiode - A special PN junction semiconductor diode designed to switch and regulate electric current with varying intensity of incident light.

Photoelectric - The process of emission of electrons from a material as a result of absorption of incident photon particles.

Photon - An elementary particle of light.

Photoresistor - A resistor which experience a drop in resistance when light in incident on it and vice versa,

Photovoltaic effect - The phenomenon of development of voltage potential in a material when light of right wavelength falls on it.

Pickup current - Current at which magnetically operated device starts to operate.

Pinout - A list or diagram that shows the number of pins or contact points and functions of a connector or components.

Pipeline - A processor design approach where data processing elements are connected in series and output from one elements goes as input to next element.

Plating - The deposition of a metal layer on a substrate surface by means of electrolytic or chemical reaction.

Polarity - A condition by which the direction of current can be determined in an electrical circuit.

Polarization - The process of separating center of positive charge and center of negative charge in a material.

Polling - A common technique that determines the terminal to be read for data reception.

Positive feedback - The process which increases amplification by feeding back part of the output circuit signal to the input.

Potential - The difference in voltage between two points of a circuit.

Potentiometer - A resistor which facilitates the user to alter its resistance.

Power - The energy dissipated in a circuit or component that is conducting either AC or DC.

Power supply - A unit that supplies electrical power to another unit.

Preamplifier - An amplifier that primarily raises the output of incoming source so that the signal may be further processed without degradation.

Precision - The degree of being sharply or exactly defined.

Preemphasis - A process designed to emphasize the magnitude of some frequency components in a signal.

Pressure - Force per unit area.

Printed circuit board (PCB) - A circuit in which the interconnecting wires have been replaced by conductive strips that is printed and etched onto an insulating board.

Propagation - The travel of electromagnetic waves or sound waves through a medium.

Protocol - Set of rules governing the format and timing of message in a communication system.

Proton - One of the three constituents of an atom, It has a positive charge equivalent to the negative charge of the electron in an atom.

Prototype - Original design or first operating model of any system.

Pseudocode - An instruction which is not meant to be followed directly by a computer. Instead, it initiates the linking of a subroutine to the main program.

Pulse - A signal with variation of a quantity whose value is normally constant.

Pulse code modulation - Pulsed modulation in which the signal is sampled in a predefined period and each signal samples are quantized and transmitted as a digital binary code.

PWM - Acronym for Pulse Width Modulation.

Q

Q - Symbol for electric charge.

Q factor - The ratio of the inductive reactance of the circuit at the resonant frequency to its radio-frequency resistance in a tuned circuit.

QAM - Abbreviation for Quadrature Amplitude Modulation. This modulation technique employs differential phase modulation and amplitude modulation.

Quad - A combination of four elements.

Quantization - The process of converting a continuous analog input signal into a set of discrete output levels.

Quantum - The smallest amount into which energy of a wave can be divided.

Quartz - A mineral which has piezoelectric properties that are highly useful in radio and carrier communication.

Quench - To stop an oscillation abruptly.

Queue - A waiting line for instructions awaiting to be executed in a system.

Quiescence - A state of inactivity in which the circuit or component is not driving any load.

R

R - Symbol for Resistance.

Radar - Acronym for Radio Detection and Ranging. It measures distance and direction of an object by measuring the amount of time required by electromagnetic waves to travel to and return from the object.

Radiation - The emission and propagation of energy through space or a material medium.

Radio - Method of establishing communication by electromagnetic waves which is transmitted through space.

Radio frequency - Abbreviated as RF. It is defined as the frequency band within the range of 20kHz to 300GHz.

Radio wave - Electromagnetic waves which has a frequency lower than 300GHz and capable of propagating through space.

RAM (Random Access Memory) - A storage arrangement from which information can be retrieved with a speed that is independent of the location of the information in the storage.

Ramp - A signal in which voltage or current that varies at a constant rate

Reactance - Resistance provided by a component to the flow of alternating current.

Receiver - The part a communication system that converts electric or electromagnetic signal into a visible or audible form.

Rectification - Conversion of alternating current into unidirectional or direct current by means of a rectifier.

Redundancy - The usage of several devices in a system to perform the same function to improve the reliability of a function.

Reed - A thin bar located in a narrow gap and made to vibrate electrically, magnetically, or mechanically by forcing air through the gap.

Register - A fast-access circuit used to store bits or words in a CPU.

Regulation - The ability of a device or component to maintain a constant load voltage or load current despite changes in line voltage or load impedance.

Relay - An electromechanical device in which contacts open and close by variations in the input conditions. It is used to switch high power applications by taking input from low power devices.

Reluctance - The resistance of a magnetic path to the flow of magnetic lines of force through it.

Resistance - The opposition to the flow of direct current by a component or circuit.

Resistor - A device having electrical resistance and utilized in an electric current for purpose of protection, operation, or control of current.

Resonance - The tendency of an electrical or mechanical system to vibrate or oscillate at a contain frequency.

Reverse bias - An external voltage applied to a semiconductor PN junction to reduce the current across the junction which results in widening of the depletion region. It is the opposite of forward bias.

Reverse voltage - The voltage applied to a semiconductor diode or rectifier diode that causes the respective current in the reverse direction.

Rise time - The time required for leading edge of a pulse to rise from 10 percent to 90 percent of its final value.

ROM (Read Only Memory) - A digital memory which is non volatile in nature capable of retaining the information permanently.

Rotor - It is the moving part of a machine such as motor, generator or alternator.

RTOS (Real Time Operating System) - Operating system specializes in performing real-time task management.

S

Sample - An instantaneous value of a signal obtained at regular intervals

Sampling - The process performed in a signal to obtain instantaneous value at regular intervals.

Saturation - The state of transistor when increase in base current will no longer lead to further increase in collector current

Sawtooth - A waveform which exhibits gradual increase in amplitude, after reaching its peak amplitude it returns to its original state sharply, and repeats the waveform periodically.

Scaling - The changing of a quantity from one notation to another.

Schematic diagram - A diagram of the electrical scheme of a circuit showing connection of components which is represented by graphical symbols.

Schmitt trigger - A regenerative circuit that changes state abruptly when the input signal crosses specified DC triggering levels.

Scintillation - In radio propagation, a random and usually relatively small fluctuation of the received field about its mean value.

Secondary cell - A voltaic cell that can be restored to a charged position after being discharged by an electric current applied to the cell in a direction opposite that of the discharge current. This is commonly known as Rechargeable cells.

Seismic sensor - A sensor that measures minute vibrations of the earth within its detection range.

Selectivity - The characteristic that determines the extent to which the desired signal can be differentiated from disturbances of other frequencies.

Self induction - The phenomenon by which changing electric current produces an induced EMF across the coil itself.

Semiconductor - A material that exhibits relatively high resistance in a pure state and much lower resistance when it contains small amounts of certain impurities

Sensor - A component that translates physical or chemical stimulus such as heat, pressure, magnetic field, or a particular chemical vapor into an electrical signal.

Sequential Circuit - These digital circuits take into account of their previous input state as well as the present input state.

Serial interface - A communication port that sends or receives a byte of data by transferring one bit at a time.

Shield - A metallic covering, usually copper or aluminum, placed around or between electric circuits, around cables or their components, to suppress the effects of undesired signals.

Shift register - A register in which the data is shifted one or more positions on a continual basis to perform its operation.

Short circuit - An undesired path of low or zero resistance between a point of high voltage to a point of low voltage. This results is excess current flow between these points resulting in damage of the circuit or power supply.

Shunt - The act of connecting any component, in parallel with some other component.

Sidebands - The bands of frequencies that are both above and below the carrier frequency during modulation.

Signal - A physical quantity that changes with time

Signaling - Indicating to the receiving end of a communication system that data is to be transmitted.

Silicon Controlled Rectifier (SCR) - Abbreviated as SCR. A semiconductor device that serves as an electrically controlled switch for DC loads. The SCR is one type of thyristor.

Simulation - The process uses mathematical models to replicate the behavior of an actual circuit or device.

Sine wave - A wave that can be expressed as the sine of a linear function of time, space, or both.

Sink - A device that drains off energy from a system.

Skew - The time difference between logic-state changes on different input pins within a particular test pattern

Skin effect - The phenomenon that occurs when AC current flows mostly in the outer parts of a conductor.

Slave - A component or device in a system that does not act independently and takes instructions from a master device.

Slew rate - The maximum rate of change of the output voltage of an amplifier when operated within its linear region.

SMT - Acronym for Surface Mount Technology.

Snubber circuit - A circuit designed to reduce the sensitivity of a solid-state relay to voltage spikes.

Solar cell - A device capable of converting light energy directly into electrical energy

Solder - An alloy that melts at relatively low temperatures and used to join metals with higher melting points.

Solder flux - A chemical substance that transforms a contaminated metal surface into an active, clean surface suited for soldering.

Soldering - A process of joining metallic surfaces with solder, without melting of the base metals.

Solenoid - An electric conductor wound as a spiral with a small pitch, or as two or more coaxial spirals.

SONAR - Device used to collect information regarding underwater objects through the transmission and reception of acoustic waves.

Source code - A non executable computer program written in a high-level language

SPDT - Acronym for Single Pole Double Throw switch.

Spectrum - A continuous range of electromagnetic radiations, from the longest known radio waves to the shortest known cosmic rays.

Spike - An abrupt pulse in a signal which exceeds its average amplitude.

Square - An AC periodic waveform where voltage alternates rapidly from positive to the negative peak and vice versa with a delay between transitions.

SRAM - A readwrite memory in which data are latched and retained. They do not lose their contents as long as power is on.

Standby - The condition of equipment that will permit complete resumption of stable operation within a short period of time.

Stator - The nonrotating part of electrical equipment such as motor, generator or alternator.

Step-up transformer - A transformer in which the voltage is increased as the energy is transferred from the primary to the secondary winding.

Stepper motor - A motor whose which possess discrete angular motion rather than continuous rotation.

Strain gage - A transducer whose electrical output is proportional to the amount it is deformed under strain.

Stray current - A portion of the total current that flows through paths other than the intended circuit.

Stub - A short length of transmission line or cable joined as a branch to another transmission line or cable

Subcircuit - A group of physically realizable components that performs a specific function, typically treated as a black box.

Superposition - A process of adding two or more signals together and having each signal retain its unique identity.

Surge - Sudden current or voltage changes in a circuit.

Switch - A mechanical or electrical device that completes or breaks the path of the current or sends it over a different path.

Synchronize - The precise matching of two waves or functions.

Synthesizer - A device that can generate a number of crystal-controlled frequencies for multichannel communications equipment.

T

Tachometer - An instrument used determine angular velocity of a mechanical system.

Tank Circuit - A circuit capable of storing electrical energy over a band of frequencies continuously distributed about a single frequency at which the circuit is said to be resonant or tuned.

Telecommunication - All types of systems in which electric or electromagnetic signals are used to transmit information between or among points.

Terminals - A point of connection for two or more conductors in an electrical circuit.

Thermal noise - Noise generated by the random thermal motion of charged particles.

Thermal runaway - The temperature can rapidly approach levels that are destructive to the transistor.

Thermistor - A thermally sensitive solid-state semiconducting device made by sintering lnixtures of the oxide powders of various metals.

Thermocouple - A pair of dissimilar-metal wires, joined so that when their junction is heated, the thermoelectric effect causes a voltage to be generated that is proportional to the temperature.

Threshold - That point at which an indication exceeds the background or ambient.

Toroid - A highly efficient type of coil wound on a ring or doughnut type of core.

Torque - A force that tends to produce rotation or twisting.

Transceiver - The combination of radio transmitting and receiving equipment in a common housing, usually for portable or mobile use and employing some common circuit components for both transmitting and receiving.

Transformer - An electrical device that changes voltage in direct proportion to the ratio of the number of turns of its primary and secondary windings.

Transient - Signals that exist for a brief period prior to the attainment of a steady-state condition.

TRIAC - A semiconductor device that functions as an electrically controlled switch for ac loads.

Trickle charge - A continuous charge of a storage battery at a slow rate approximately equal to the internal losses and suitable to maintain the battery in a fully charged condition.

Trigger - A timing pulse used to initiate the transmission of signals through the appropriate circuit signal paths.

Truncate - The dropping of digits or characters from one end of a data, causing loss of precision or information.

TTL - Acronym for Transistor-Transistor Logic level.

Tuned circuit - A circuit consisting of inductance and capacitance that can be adjusted for resonance at the desired frequency.

U

UART - Acronym for Universal Asynchronous Receiver and Transmitter.

UHF - Ultra High Frequency.

Ultrasonic - Sound waves that vibrate at frequencies beyond the hearing power of human beings (above 16,000 Hz).

Unidirectional - Flowing in only one direction.

Unipolar - Having but one pole, polarity, or direction.

Unit - An assembly or device capable of independent operation.

Uplink - The communication apparatus that transmit and receive information from to a communication satellite from earth.

USART - Acronym for Universal synchronous Asynchronous Receiver and Transmitter.

USB - Universal Serial Bus.

V

V - Symbol for voltage.

Valence electrons - The electrons of an atom in the outer shell that determine the chemical valency of the atom.

Varactor diode - Semiconductor diode that exhibits a change in capacitance with a change in applied voltage when operated in a reverse-biased condition.

Varistor - A two electrode semiconductor device with a voltage-dependent nonlinear resistance that drops markedly as the applied voltage is increased.

Vcc - Symbol for supply voltage.

Velocity - A vector quantity that includes both magnitude and direction in relation to a given frame of reference.

Via - A vertical conductor or conductive path forming the interconnection between multilayer hybrid circuit layers.

Vibration - A mechanical oscillation or motion about a reference point of equilibrium.

Virtual memory - The use of techniques by which the computer programmer may use the memory as though the main memory and mass memory were available simultaneously.

Viscosity - The frictional resistance offered by one part tor layer of a liquid as it moves past an adjacent part or layer of the same liquid.

Voice frequency - Any of the frequencies within the band of 32 to 16,000 Hz that are audible to the human ear.

Volatile memory - A computer storage medium in which information cannot be retained without continuous power dissipation.

Voltage - The force that causes current through m electrical conductor.

Voltage divider - A resistor or reactor connected across a voltage and tapped to make a fixed or variable fraction of the applied voltage available.

Volume - The level of an audio signal or the intensity of a sound.

W

Wafer - A thin semiconductor slice of silicon or germanium with parallel faces on which matrices of microcircuits or individual semiconductors can be formed.

Wattage rating - The maximum power that a device can safely handle.

Wave - A physical activity that rises and falls, or advances and retreats, periodically as it travels through a medium.

Waveform generator - An instrumentation that does not necessarily employ mathematically derived relationships between the output voltage and the time base to produce its output wave shape.

Wavelength - In a periodic wave, the distance between points of corresponding phase of two consecutive cycles.

Wet circuit - A circuit that carries direct current.

White noise - Random noise having a special density that is substantially independent of frequency over a specified range.

Width - The distance between two specified points of a pulse.

Wien bridge - An alternating-current bridge used to measure inductance or capacitance in terms of resistance and frequency

Wire - A solid or stranded group of solid cylindrical conductors having a low resistance to current flow, together with any associated insulation

Wiring diagram - A drawing that shows electrical equipment and/or components, together with all interconnecting wiring.

Word - The number of bits needed to represent a computer instruction, or the number of bits needed to represent the largest data element normally processed by a computer.

X

X - Symbol for reactance

XL - Symbol for inductive reactance.

X-axis - The horizontal axis in a graph.

X-rays - A powerful radiation similar to light, but possess much shorter wavelengths.

XL - Symbol for capacitive reactance.

Xenon - A rare gas used in some thyratron and other gas tubes.

XTAL - Abbreviation for crystal.

Y

Y - Symbol for admittance

Y-axis - The vertical axis on a graph

Yagi antenna - An end-fire antenna that consists of a driven dipole (usually a folded dipole), a parasitic dipole reflector, and one or more parasitic dipole directors

Yocta - Abbreviated as y. Represents the numerical quantity of 10^-24

Yoke - A set of coils placed over the neck of a magnetically deflected cathode-ray tube to deflect the electron beam horizontally and vertically when suitable currents are passed through them.

Yotta - Abbreviated as Y. Represents the numerical quantity of 10^24

Young's modulus - A constant that expresses the ratio of unit stress to unit deformation for all values within the proportional limit of the material.

Z

Z - Symbol for impedance.

Zener diode - A PN-junction, two-terminal, single-junction semiconductor device reverse biased into the breakdown region and providing high impedance under less than breakdown voltage but conduction with no impedance above breakdown voltage level.

Zener effect - A reverse current breakdown which occurred due to high reverse voltage applied at terminals of a semiconductor.

Zero state - The condition in a digital system where it exhibits logic zero.

Zoning - Purifying a metal by passing it through an induction coil.

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