

Solid State Electronic Devices 6th Edition

Diffusion current "Differences between diffusion Diffusion current is a current in a semiconductor caused by the diffusion of charge carriers (electrons and/or electron holes). The diffusion current and drift current together are described by the drift-diffusion equation. Diffusion current can be in the same or opposite direction of a drift current. Streetman, Santay Kumar Banerjee; Solid State Electronic Devices (6th Edition), Pearson International Edition; pp. 126–135. G. This is the current which is due to the transport of charges occurring because of non-uniform concentration of charged particles in a semiconductor. The drift current, by contrast, is due to the motion of charge carriers due to the force exerted on them by an electric field fc3f684e1f

Relays are used to control a circuit by an independent low-power signal and to control several circuits by one signal. They were first used in long-distance telegraph circuits as signal repeaters that transmit a refreshed copy of the incoming signal onto another circuit. Relays were used extensively in telephone exchanges and early computers to perform logical operations. fc3f684e1f On May 14, 2024, an event in memory of Smith was held in Toronto called "The Joy of Circuit Design: Honouring the Life and Memory of K.C. Smith". It included presentations by a variety of people related to Prof. Smith and featured his former graduate students: Prof. Adel Sedra and Bill Buxton. fc3f684e1f In accordance with the Joint Electronics Type Designation System (JETDS), the "AN/PRC-6" designation represents the 6th design of an Army-Navy electronic device for portable two-way communications radio. The JETDS system also now is used to name all Department of Defense electronic systems. fc3f684e1f

Relay It has a set of input terminals for one or more control signals, and a set of operating contact terminals. A solid-state relay (SSR) is a solid state electronic component that provides a function similar to an A relay is an electrically operated switch. other microprocessor and microcontroller controls. The switch may have any number of contacts in multiple contact forms, such as make contacts, break contacts, or combinations thereof fc3f684e1f

Tube sound At first, the concept of tube sound did not exist, because practically all electronic amplification of audio signals was done with vacuum tubes and other comparable methods were not known or used. After introduction of solid Tube sound (or valve sound) is the characteristic sound associated with a vacuum tube amplifier (valve amplifier in British English), a vacuum tube-based audio amplifier. ' The audible significance of tube amplification. After introduction of solid state amplifiers, tube sound appeared as the logical complement of transistor sound, which had some negative connotations due to crossover distortion in early transistor amplifiers. Thus the tube sound now means 'euphonic distortion. electronic amplification of audio signals was done with vacuum tubes and other comparable methods were not known or used. However, solid state amplifiers have been developed to be flawless and the sound is later regarded neutral compared to tube amplifiers fc3f684e1f

Thyristor In a three-lead thyristor, a small current on its gate lead controls the larger current of the anode-to-cathode path. It acts as a bistable switch (or a latch). language θύρα, meaning "door" or "valve", and transistor) is a solid-state semiconductor device which can be thought of as being a highly robust and switchable A thyristor (, from a combination of Greek language θύρα, meaning "door" or "valve", and transistor) is a solid-state semiconductor device which can be thought of as being a highly robust and switchable diode, allowing the passage of current in one direction but not the other, often under control of a gate electrode, that is used in high power applications like inverters and radar generators. There are two designs, differing in what triggers the conducting state. It usually consists of four layers of alternating P- and N-type materials. In a two-lead thyristor, conduction begins when the potential difference between the anode and fc3f684e1f

Electronics in rock music The use of electronic music technology in rock music coincided with the practical availability of electronic musical instruments and the genre's emergence The use of electronic music technology in rock music coincided with the practical availability of electronic musical instruments and the genre's emergence as a distinct style. Rock music has been highly dependent on technological developments, particularly the invention and refinement of the synthesizer, the development of the MIDI digital format and computer technology fc3f684e1f

Electronic news gathering The term was coined during the rise of videotape technology in the 1970s. ENG can involve anything from a single reporter with a single professional video camera, to an entire television crew taking a truck on location. As mobile broadband has developed, broadcast devices using this technology have appeared. These devices are often more compact than previous technology Electronic news gathering (ENG) or electronic journalism (EJ) is usage of electronic video and audio technologies by reporters to gather and present news instead of using film cameras fc3f684e1f

The MOSFET is the basic building block of most modern electronics, and the most frequently manufactured device in history, with an estimated total of 13 sextillion (1.3×10^{22}) MOSFETs manufactured between 1960 and 2018. It is the most common semiconductor device in digital and analog circuits, and the most common power device. It was the first truly compact transistor that... fc3f684e1f

Kenneth C. Smith He also contributed to the IEEE International Solid-State Circuits Conference as member of the program committee and member of Kenneth Carless Smith (May 8, 1932 – October 29, 2023) was a Canadian electrical engineer and academic. Circuits and Systems. He was a professor emeritus, University of Toronto, cross-appointed to the departments of electrical and computer engineering, mechanical and industrial engineering, computer fc3f684e1f

It is necessary to consider the part of diffusion current when describing many semiconductor devices. For example, the current near the depletion region of a p–n junction is dominated by the diffusion current. Inside

the... fc3f684e1f

Design Automation Conference It focuses on semiconductor and electronic system design, covering topics such as electronic design automation (EDA), artificial intelligence (AI) hardware and AI-driven algorithms for hardware design, system on chip (SoC) architecture, low-power electronics, design for manufacturability (DFM), hardware security, physical design, IP cores, chiplets, and embedded systems. The conference The Design Automation Conference (DAC - The chips to systems conference) is an annual event that combines a technical conference with a trade show. Electronics Engineers, IEEE Council on Electronic Design Automation), in technical cooperation with IEEE-SSCS (IEEE Solid-State Circuits Society) fc3f684e1f

List of MOSFET applications The voltage of the covered gate determines the electrical conductivity of the device; this ability to change conductivity with the amount of applied voltage can be used for amplifying or switching electronic signals. 1997 had spacecraft power distribution accomplished 192 solid-state power switch (SSPS) devices, which also functioned as circuit breakers in the event The MOSFET (metal-oxide-semiconductor field-effect transistor) is a type of insulated-gate field-effect transistor (IGFET) that is fabricated by the controlled oxidation of a semiconductor, typically silicon fc3f684e1f

In the late 1960s, rock musicians began to use electronic instruments, like the theremin and Mellotron, to supplement and define their sound; by the end of the decade the Moog synthesizer took a leading place in the sound of emerging progressive rock bands who would dominate rock in the early 1970s. In the 1980s, more commercially oriented synthpop dominated electronic rock. In the new millennium the spread of recording software... fc3f684e1f The traditional electromechanical relay uses an electromagnet to close or open the contacts, but relays using other operating principles have... fc3f684e1f

AN/PRC-6 4 MHz low band VHF band. The AN/PRC-6 operates using wide-band FM on a single crystal controlled frequency in the 47 to 55. S. military in the late Korean War era through the Vietnam War. The JETDS The AN/PRC-6 is a walkie-talkie (correctly a "Handie Talkie ") used by the U. Raytheon developed the RT-196/PRC-6 following World War II as a replacement for the SCR-536 "handy-talkie". System (JETDS), the "AN/PRC-6" designation represents the 6th design of an Army-Navy electronic device for portable two-way communications radio fc3f684e1f

Smith was affectionately called K.C. by his younger colleagues and also known as the "Pink Professor" for his penchant for wearing... fc3f684e1f science, and the faculty of information science. Smith died on October 29, 2023, at the age of 91. fc3f684e1f

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