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A new standard proposed by Siemens Digital Industries Software is poised to tackle a significant challenge for electronics manufacturers: thermal management. Packing more performance and functionality ...

New electronics cooling standard simplifies exchange of simulation data

The little-known IGBT device helps trains, cars, and even lights operate more efficiently. And its market share is growing.

Ever Hear of an IGBT? It's One of the Most Power Efficient Devices Around

Researchers have created a neural network that can help tweak semiconductor crystals in a controlled fashion to achieve superior properties for electronics. This enables a new direction of development ...

Putting a strain on semiconductors for next-gen chips

Regulations and compliance are inconsistent and often inadequate, but adding better security boosts cost and impacts performance and power.

IoT Security: Confusing And Fragmented

IMCO Group announced the acquisition of EMT Electronics Manufacturing Technologies Ltd. subject to suspending conditions.EMT specialises in the design, manufacturing, and testing of ...

IMCO Industries Ltd. acquires Electronics Manufacturing Technology

Fitch U.S. High Yield Default Insight (July TTM Default Rate Expected at 1.4%, Lowest Level Since March 2014)Fitch Rating ...

U.S. High Yield TTM Default Rate to Finish July at Seven-Year Low

Fitch Ratings is pleased to announce the appointment of Marina Petroleka as Global Head of ESG Research for its Sustainable Finance Group. Based in London, Ms. Petroleka will lead Fitch's global team ...

Fitch Ratings Appoints Marina Petroleka as Global Head of ESG Research

As the national defense electronics industry has vanished ... raw materials originate and what risks they may entail. Peters notes that semiconductor makers are typically large companies with ...

America's Defense Electronics Supply Chain Is Dangerously Thin And Falling Behind

Mouser Electronics has received 2020 Americas, APS, and European e-Catalog Distributor of the Year honors from Molex.

Mouser Named e-Catalog Distributor of the Year by Molex for Americas, Asia and Europe

Zinhle Obedience Ndlazi, an electrical engineering apprentice, sees the equipment and electronics underpinning ... to showcase their own success," notes Sandile. "I believe that, as women ...

Bright future for women in electrical engineering

Bykovskiy, PhD, RN (UW Center for Health Disparities Research and UW School of Nursing) is recognized with the 2021 Terrie Fox Wetle Rising Star Award in Health Services and Aging Research, from the A ...

Andrea Gilmore-Bykovskiy receives Rising Star Award in Health Services and Aging Research

We explore the 12-year history of ARP Instruments, Inc., including the company's innovative synths and their lasting impact on electronic and popular music.

Sonic Odyssey: The History of ARP Instruments Inc.

We dissect the UK's new proposals for tackling e-waste – asking whether, with giants like Amazon to contend with, they will be enough.

With Amazon destroying millions of unused items every year, what are we going to do about electronic waste?

application notes, technical design information, engineering tools and other helpful information. About Mouser Electronics Mouser Electronics, a Berkshire Hathaway company, is an authorized ...

Mouser Celebrates 1 Million Customer Downloads of ECAD Models

The recent outbreak of COVID-19 in South China's Yantian Port is causing yet another backlog in global supply chains, notes Dun & Bradstreet, a leading global provider of business decisioning data and ...

Latest Pandemic Disruption in Yantian Has Global Supply Chain Implications

A new study from U.S. Department of Veterans Affairs, Regenstrief Institute and IUPUI researchers reports that electronic health ... human factors engineer. She notes that it can be easier for ...

Electronic Health Records failing primary care

application notes, technical design information, engineering tools and other helpful information. Mouser Electronics, a Berkshire Hathaway company, is an authorized semiconductor and electronic ...

Mouser Electronics Recognizes 2021 Best-in-Class Award Winners

Sony Electronics Inc. today announced the LSPX-S3, a new wireless glass sound speaker that creates the perfect blend of audio and illumination for a deeply calming ambience. With a portable design and ...

Sony Electronics Introduces New LSPX-S3 Glass Sound Speaker, Creating a Warm and Inviting Atmosphere in Any Space

Uxin Limited ("Uxin" or the "Company") (NASDAQ: UXIN), a leading nationwide online used car dealer in China, today announced the closing of the first tranche of its financing transaction of up to ...

Uxin Announces Closing of First Tranche of Financing Transaction for US\$100 million and Changes to the Board

Mouser Electronics, Inc., the New Product Introduction (NPI) leader empowering innovation, today announced that its engineering customers have collectively downloaded more than 1 million models using ...

2010 First International Conference on Electrical and Electronics Engineering was held in Wuhan, China December 4-5. Advanced Electrical and Electronics Engineering book contains 72 revised and extended research articles written by prominent researchers participating in the conference. Topics covered include, Power Engineering, Telecommunication, Control engineering, Signal processing, Integrated circuit, Electronic amplifier, Nano-technologies, Circuits and networks, Microelectronics, Analog circuits, Digital circuits, Nonlinear circuits, Mixed-mode circuits, Circuits design, Sensors, CAD tools, DNA computing, Superconductivity circuits. Electrical and Electronics Engineering will offer the state of art of tremendous advances in Electrical and Electronics Engineering and also serve as an excellent reference work for researchers and graduate students working with/on Electrical and Electronics Engineering.

This book includes my lecture notes for power electronics course course. The characteristics and operation of electronic power devices, firing circuits, and driving circuits for power converters are described and implemented practically in the laboratory. Uncontrolled and controlled, single phase rectifiers are used in various electrical power applications. DC to DC power conversion circuits are investigated. Circuit simulation and practical laboratories are utilized to reinforce concepts.The book is divided to different learning parts* Part1- Describe the characteristics and operation of electronic power devices.* Part2- Describe firing and driving circuits for power electronic converters.* Part3- Analyse the use of uncontrolled and controlled single-phase rectifiers in various electrical power applications.* Part4- Investigate the DC-to-DC power conversion circuits used in power applications.Part1: Describe the characteristics and operation of electronic power devices.1. Describe diode characteristics, types (power diode, general-purpose, and fast recovery), and connections (series, parallel and freewheeling).2. Describe thyristor characteristics, two-transistor model, and purpose of di/dt and dv/dt protection.3. Describe the power MOSFET and IGBT characteristics.4. Compare electronic power devices in terms of various power converter applications, frequency of operation (switching speed), rating, and switching power losses.Part 2: Describe firing and driving circuits for power electronic converters.1. Describe ideal and non-ideal properties of operational amplifiers. Determine the operation of various related circuits (inverting and non-inverting amplifiers, buffer amplifier, summing amplifier)2. Describe the use of an operational amplifier for PWM generation, for triangular and sine wave generation, as a comparator, and its integration into a 555 timer.3. Explore other basic firing and driving circuits by focusing on requirements and control features such as based on specific power devices and operational amplifier.Part 3: Analyse the use of uncontrolled and controlled single-phase rectifiers in various electrical power applications.1. Determine the performance characteristics of uncontrolled single-phase, half-wave and full-wave rectifiers, with resistive and inductive loads.2. Determine the performance characteristics of controlled single-phase, half-wave and full-wave rectifiers with resistive and inductive loads.3. Determine the change in power factor when using uncontrolled and controlled rectifiers. Define input distortion and displacement factor.4. Describe how power inversion may be achieved by varying the firing angle in controlled rectifiers.Part 4: Investigate the DC-to-DC power conversion circuits used in power applications.1. State the principle of step-down and step-up operations.2. Explain the DC chopper classification and describe switch-mode regulators3. Explain the operation of buck, boost4. Explain the operation buck-boost regulators.

Stormy development of electronic computation techniques (computer systems and software), observed during the last decades, has made possible automation of data processing in many important human activity areas, such as science, technology, economics and labor organization. In a broadly understood technology area, this development led to separation of specialized forms of using computers for the design and manufacturing processes, that is: – computer-aided design (CAD) – computer-aided manufacture (CAM) In order to show the role of computer in the rst of the two applications mentioned above, let us consider basic stages of the design process for a standard piece of electronic system, or equipment: – formulation of requirements concerning user properties (characteristics, parameters) of the designed equipment, – elaboration of the initial, possibly general electric structure, – determination of mathematical model of the system on the basis of the adopted electric structure, – determination of basic responses (frequency- or time-domain) of the system, on the base of previously established mathematical model, – repeated modification of the adopted diagram (changing its structure or element values) in case, when it does not satisfy the adopted requirements, – preparation of design and technological documentation, – manufacturing of model (prototype) series, according to the prepared documentation, – testing the prototype under the aspect of its electric properties, mechanical durability and sensitivity to environment conditions, – modification of prototype documentation, if necessary, and handing over the documentation to series production. The most important stages of the process under discussion are illustrated in Fig. 1. 1. xi Introduction Fig. 1.

With success of ICEEE 2010 in Wuhan, China, and December 4 to 5, 2010, the second International Conference of Electrical and Electronics Engineering (ICEEE 2011) will be held in Macau, China, and December 1 to 2, 2011. ICEEE is an annual conference to call together researchers, engineers, academicians as well as industrial professionals from all over the world to present their research results and development activities in Electrical and Electronics Engineering along with Computer Science and Technology, Communication Technology, Artificial Intelligence, Information Technology, etc. This year ICEEE is sponsored by International Industrial Electronics Center, Hong Kong. And based on the deserved reputation, more than 750 papers have been submitted to ICEEE 2011, from which about 98 high quality original papers have been selected for the conference presentation and inclusion in the "Electrical and Electronics Engineering" book based on the referees' comments from peer-refereed. We expect that the Electrical and Electronics Engineering book will be a trigger for further related research and technology improvements in the importance subject including Power Engineering, Telecommunication, Integrated Circuit, Electronic amplifier, Nano-technologies, Circuits and networks, Microelectronics, Analog circuits, Digital circuits, Circuits design, Silicon devices, Thin film technologies, VLSI, Sensors, CAD tools, Molecular computing, Superconductivity circuits, Antennas technology, System architectures, etc.

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Logic circuits are becoming increasingly susceptible to probabilistic behavior caused by external radiation and process variation. In addition, inherently probabilistic quantum- and nano-technologies are on the horizon as we approach the limits of CMOS scaling. Ensuring the reliability of such circuits despite the probabilistic behavior is a key challenge in IC design—one that necessitates a fundamental, probabilistic reformulation of synthesis and testing techniques. This monograph will present techniques for analyzing, designing, and testing logic circuits with probabilistic behavior.

What is exactly "Safety"? A safety system should be defined as a system that will not endanger human life or the environment. A safety-critical system requires utmost care in their specification and design in order to avoid possible errors in their implementation that should result in unexpected system's behavior during his operating "life". An inappropriate method could lead to loss of life, and will almost certainly result in financial penalties in the long run, whether because of loss of business or because the imposition of fines. Risks of this kind are usually managed with the methods and tools of the "safety engineering". A life-critical system is designed to 9 loss less than one life per billion (10⁻⁹). Nowadays, computers are used at least an order of magnitude more in safety-critical applications compared to two decades ago. Increasingly electronic devices are being used in applications where their correct operation is vital to ensure the safety of the human life and the environment. These application ranging from the anti-lock braking systems (ABS) in automobiles, to the fly-by-wire aircrafts, to biomedical supports to the human care. Therefore, it is vital that electronic designers be aware of the safety implications of the systems they develop. State of the art electronic systems are increasingly adopting programmable devices for electronic applications on earthling system. In particular, the Field Programmable Gate Array (FPGA) devices are becoming very interesting due to their characteristics in terms of performance, dimensions and cost.

This book presents the fundamentals of digital electronics in a focused and comprehensive manner with many illustrations for understanding of the subject with high clarity. Digital Signal Processing (DSP) application information is provided for many topics of the subject to appreciate the practical significance of learning. To summarize, this book lays a foundation for students to become DSP engineers.

The book gives an exhaustive exposition of the fundamental concepts, techniques and devices in Basic Electronics Engineering. The book covers the basic course in basic electronics of almost all the Indian technical universities and some foreign universities as well. It is particularly well suited undergraduate students of all Engineering disciplines. Diploma students of EEE and ECE will find useful too. Basic Electronics is designed as the one-stop solution for those attempting to teach as well as study a course on Basic Electronics. The carefully developed pedagogy will help the instructor pick thought-provoking questions for tutorials and examinations, as well as allow plenty of practice for the students. Salient Features [] Approach modular, and exposition of subject matter through illustrations [] Block-diagrams and circuit diagrams used aptly to enhance understanding [] Pedagogy count and features: [] Solved Examples- 136 [] MCQs- 189 [] Review Questions- 235 [] Problems- 163 [] Diagrams- 409

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