



Session Transcript Sep 29 16:34:23 1999

Dans le thème **Ingénierie**

Question: **triac***

Dans le thème **Ingénierie**

Question: **(Recherche précédente) "kick"**

Dans le thème **Ingénierie**

Question: **(Recherche précédente) "triac"**

Dans le thème **Ingénierie**

Question: **(Recherche précédente)
"techno*"**

COMPENDEX Answer Number 7 - Copyright 1999 EI

Title

Universal low cost controller for electric motors with programmable characteristic curves.

Author

Oehm, J. (Universitaet Dortmund, Dortmund, Ger); Graefe, M.; Kettner, T.; Schumacher, K.

Meeting Title

Proceedings of the 1995 21st European Solid-State Circuits Conference, ESSCIRC.

Meeting Location

Lille, Fr

Meeting Date

19 Sep 1995-22 Sep 1995

Meeting Title

Proceedings of the 1995 21st European Solid-State Circuits Conference, ESSCIRC.

Meeting Location

Lille, Fr

Meeting Date

19 Sep 1995-22 Sep 1995

Publication Source

IEEE Journal of Solid-State Circuits v 31 n 7 Jul 1996.p 1041-1045CODEN: IJSCBC ISSN: 0018-9200

Publication Year

1996

Meeting Number

45048

Document Type

Journal

Treatment Code

Application; Theoretical

Language

English

Abstract

The realization of a universal low-cost controller for electric motors in CMOS **technology** with programmable characteristic curves is presented. With regard to the required chip area of 2.7 mm² in a 1.6 μ m, 40 nm **technology**, the general advantage in comparison to microcontroller-based solutions lies in the low factory costs. The analog dc power supply is generated directly from the 230 V ac power line. An on-chip functional unit controls the firing current for the off-chip motor driving **triac**. Features of this functional unit are torque control and overload protection, firing, and post firing control. A new method was used to implement programmable multidimensional characteristic curves which are temperature and **technology** insensitive. In the actual controller application for a drilling machine motor, the mask-programmed curve shapes have been generated with the help of fuzzy algorithms. An impression of the reproducibility of multidimensional characteristic curves in manufacturing, as well as the accuracy of their precalculation, is given by introducing simulated and measured statistics of the actual design.(Author abstract) 4 Refs.

Controlled Indexing

*Electric motors; Fuzzy sets; Microcomputers; Electric power supplies to apparatus; Electric currents; Torque control; Drilling machines (machine tools); Masks; Fuzzy control; CMOS integrated circuits

Supplementary Indexing

Universal low cost controller; Programmable characteristic curves; Analog dc power supply; Firing current; Off chip motor driving **triac**; Overload protection; Post firing control; Mask programmed curve shapes; Fuzzy algorithms

Accession Number

1996(37):4119

COMPENDEX Answer Number 12 - Copyright 1999 EI

Title

Development of 500A, 1200V light triggered **triacs**.

Author

Zhao, Shangji (Jilin Univ, Changchun, China); Gao, Dingsan; Wang, Zhengyuan

Publication Source

Tien Tzu Hsueh Pao/Acta Electronica Sinica v 22 n 5 May 1994.p 54-60CODEN: TTHPAG
ISSN: 0371-2112

Publication Year

1994

Document Type

Journal

Treatment Code

Application

Language

Chinese

Abstract

Light triggered **triacs** of 500A, 1200V, and 40mm in diameter were developed. This device has the characteristics of minimum light triggering power of less than 15mW, on-state voltage of less than 1.6V, commutating dv/dt capacity of more than 100V/ μ s, and commutating di/dt capacity of more than 50A/ μ s. The structural features, theoretical studies on the light trigger characteristics, and key manufacturing **technologies** of the devices were also presented in this paper. (Edited author abstract) 6 Refs.

Controlled Indexing

*Thyristors; Photosensitivity; Processing

Supplementary Indexing

Light triggered **triac**; Light sensitive gate

Accession Number

1995(4):5758

COMPENDEX Answer Number 14 - Copyright 1999 EI

Title

Survey of electronic environmental controllers.

Author

Gates, R.S. (Univ of Kentucky, Lexington, RI, USA); Overhults, D.G.; Turner, L.W.

Publication Source

Trans ASAE v 35 n 3 May-Jun 1992 p 993-998CODEN: TAAEAJ ISSN: 0001-2351

Publication Year

1992

Document Type

Journal

Treatment Code

Experimental

Language

English

Abstract

Sixteen commercially available electronic environmental controllers were evaluated. The units were classified according to enclosure type, analog versus microprocessor based control, power supply, sensors, alarms, control relays and **triac** output, interval timers, outside temperature feedback, and retail price. An assessment of these controllers indicated several critical limitations in the application of this **technology**. The use of integrated controllers for animal production has the potential for substantial improvements in production efficiencies. If the limitations observed in the present controller **technology**, as represented by this sample, are addressed, industry acceptance of the **technology** can be accelerated. A uniform standard to address this **technology** is recommended and specific suggestions are provided for what the standard should address. (Author abstract) 7 Refs.

Controlled Indexing

*CLIMATE CONTROL; EVALUATION; ELECTRONIC EQUIPMENT; STANDARDS; FARM BUILDINGS; CONTROL EQUIPMENT

Supplementary Indexing

ENVIRONMENTAL CONTROLLERS; LIMITATIONS; ANIMAL PRODUCTION;
INTEGRATED CONTROLLERS; PRODUCTION EFFICIENCY

Accession Number

1993(1):5799

COMPENDEX Answer Number 16 - Copyright 1999 EI

Title

Power pollution caused by lighting control systems.

Author

Datta, Samir (California Polytech State Univ, San Luis Obispo, CA, USA)

Meeting Title

1991 IEEE Industry Application Society Annual Meeting.

Organization

IEEE Industry Application Soc

Meeting Location

Dearborn, MI, USA

Meeting Date

28 Sep 1991-04 Oct 1991

Meeting Title

1991 IEEE Industry Application Society Annual Meeting.

Organization

IEEE Industry Application Soc

Meeting Location

Dearborn, MI, USA

Meeting Date

28 Sep 1991-04 Oct 1991

Publication Source

1991 IEEE Industry Application Society Annual Meeting 91 IEEE Ind Appl Soc Annu Meet. Publ by IEEE, IEEE Service Center, Piscataway, NJ, USA (IEEE cat n 91CH3077-5).p 1842-1852 ISBN: 0-7803-0453-5

Publication Year

1991

Meeting Number

16953

Document Type

Conference Article

Treatment Code

Application; Experimental

Language

English

Abstract

The ballasts that control the operation of fluorescent lamps are known to generate peak currents and introduce harmonic currents into the distribution system. Magnetic or electronic ballasts are used with fluorescent lamps. A comparison was made concerning the extent of power pollution caused by these two **technologies** to the distribution system. Magnetic ballast and electronic ballast with dimmer were also compared for power pollution. Input power factor in each case was measured. Incandescent lamps with dimmers are also widely used for lighting control. Present day dimmers utilize a phase-control circuit with **triac** to vary the conducting period of each half cycle of lamp currents, thus reducing the light output. Input power factor, harmonics injected into the distribution system, and the efficiency of the dimmer were experimentally evaluated. The third harmonic current flowing in the neutral of the three-phase system was also measured.

Controlled Indexing

*ELECTRIC LIGHTING:Control Equipment; ELECTRIC LAMPS:Dimming; HARMONIC GENERATION; ELECTRIC LAMPS, FLUORESCENT:Ballasts

Supplementary Indexing

ILLUMINATION SYSTEMS; POWER QUALITY; FLUORESCENT LIGHTING SYSTEMS

Accession Number

1992(10):135193

COMPENDEX Answer Number 26 - Copyright 1999 EI

Title

COMPLEMENTARY METAL OXIDE SEMICONDUCTOR COMPATIBLE HIGH-VOLTAGE TRANSISTORS.

Author

Kempf, P. (Northern Telecom Electronics Ltd, Ottawa, Ont, Can); Hadaway, R.; Kolk, J.

Publication Source

Can J Phys v 65 n 8 Aug 1987, Third Can Semicond Technol Conf, Ottawa, Ont, Can p 1003-1008CODEN: CJPHAD ISSN: 0008-4204

Document Type

Journal

Treatment Code

Experimental

Language

English

Abstract

The purpose of this work was to study the implementation of high-voltage transistors using standard 3-5 μm complementary metal oxide semiconductor (CMOS) **technology** with a minimum of additional photolithographic or implant steps. A fabrication process was designed to accommodate a variety of high-voltage transistors with greater than 450 V breakdown voltage and low-voltage CMOS. Extensive use was made of a two-dimensional device model and a one-dimensional process model to determine suitable process parameters. The necessary conditions to produce a high-voltage double-diffused metal oxide semiconductor (DMOS) structure, as well as both n-well and p-well regions for CMOS transistors, and a thick gate oxide required to sustain the full blocking voltage were the main determinants of the process flow. Lateral DMOS (LDMOS), vertical DMOS (VDMOS), conductivity modulated FET (COMFET), and MOS **triac** (TRIMOS) devices were fabricated on the same chip as standard CMOS transistors using the developed fabrication sequence. (Edited author abstract) 10 refs.

Controlled Indexing

*SEMICONDUCTOR DEVICES, MOSFET:Fabrication; SEMICONDUCTOR DEVICES, MOS:Fabrication

Supplementary Indexing

CMOS **TECHNOLOGY**; COMFETS; DMOS DEVICES; TRIMOS DEVICES; MOS **TRIAC** DEVICES

Accession Number

1988(6):85753

COMPENDEX Answer Number 27 - Copyright 1999 EI

Title

S3X IN CHIPSWITCH SSR HANDLES INDUCTIVE LOADS.

Author

Hyland, S.M. (Int Rectifier)

Publication Source

New Electron v 19 n 19 Sep 30 1986 p 40, 43 CODEN: NWELAC ISSN: 0047-9624

Publication Year

1986

Document Type

Journal

Treatment Code

General Review

Language

English

Abstract

This article introduces a Chipswitch device from Crydom (International Rectifier). The essential part of the device is the S3X chip, which is a light sensitive thyristor derived from HEXFET **technology** containing a zero voltage detector and a noise suppression circuit. Apart from microprocessor compatible applications in the process control area, the Chipswitch can be used as an integrated firing circuit in power SSRs. This is an application which can be extended to include the control of power SCRs, **Triacs** and power modules for all types of inductive loads, i.e. motors, transformers and electromagnetic systems.

Controlled Indexing

*ELECTRONIC CIRCUITS, SWITCHING:Design; INTEGRATED CIRCUITS; THYRISTORS; ELECTRIC RELAYS, SEMICONDUCTOR

Accession Number

1987(4):59155

COMPENDEX Answer Number 28 - Copyright 1999 EI

Title

OPTO COUPLERS FOR CONTROL AND INSTRUMENTATION.

Author

Milligan, Roger (Klippon)

Publication Source

Publication Year

1985

Document Type

Journal

Treatment Code

Application

Language

English

Abstract

Microprocessors and programmable logic controllers now form the heart of many signal processing systems and this has led to a demand for a variety of interface units. Interfacing techniques range from simple signal conditioning by means of resistors and diodes to full analogue-to-digital conversions using integrated **technology**. The article introduces a new breed of opto-coupled interfacing products featuring high-speed operation and noise immunity. Typical of the range now available is the EGO series of optocoupler modules which have 250VAC isolation between the input and output. Standard modules offer inputs for all standard control voltages, and there are TTL compatible and 240VAC types.

Controlled Indexing

*OPTOELECTRONIC DEVICES; SIGNAL PROCESSING; CONTROL EQUIPMENT; SEMICONDUCTOR DIODES, LIGHT EMITTING; INTEGRATED OPTICS; DATA CONVERSION, ANALOG TO DIGITAL

Supplementary Indexing

OPTO COUPLERS; EGO SERIES; **TRIACS**

Accession Number

1987(3) : 37082

COMPENDEX Answer Number 41 - Copyright 1999 EI

Title

SIPMOS **TRIAC**, A NEW **TECHNOLOGY** FOR LOGIC AND MICROPROCESSOR OUTPUT INTERFACE.

Author

Heron, Charles J. (Siemens Corp, USA)

Meeting Title

Conference Digest - International Electrical, Electronics Conference & Exhibition.

Organization

IEEE, Can Reg

Meeting Location

Toronto, Ont, Can

Meeting Date

05 Oct 1981-07 Oct 1981

Meeting Title

Conference Digest - International Electrical, Electronics Conference & Exhibition.

Organization

IEEE, Can Reg

Meeting Location

Toronto, Ont, Can

Meeting Date

05 Oct 1981-07 Oct 1981

Publication Source

Conference Digest - International Electrical, Electronics Conference and Exposition 1981. Publ by IEEE, New York, NY, USA. Available from IEEE Serv Cent (Cat n 81CH1688-1), Piscataway, NJ, USA p 94-95 CODEN: CDIEDW

Publication Year

1981

Meeting Number

00324

Document Type

Conference Article

Language

English

Abstract

No abstract available

Controlled Indexing

*SEMICONDUCTOR DEVICES

Supplementary Indexing

SIPMOS **TRIAC**; LOGIC OUTPUT INTERFACE; MICROPROCESSOR OUTPUT INTERFACE; VLSI **TECHNOLOGIES**; POWER ELECTRONICS; AC POWER SWITCH; DEVICE FABRICATION; LATERAL TOPOGRAPHY

Accession Number

1982(7):83112

COMPENDEX Answer Number 46 - Copyright 1999 EI**Title**

Static-Converter Modules. Results of a New **Technology** of Substrates.STROMRICHTERMODULN-ERGEBNISSE EINER NEUEN SUBSTRATTECHNIK.

Author

Stamberger, Andreas (Int Rectifier, Hurst Green, Oxted Surrey, Engl)

Publication Source

Elektronikpraxis v 10 n 5 May 1975 p 9-10, 12, 14CODEN: EKPXAM

Publication Year

1975

Language

German

Abstract

For the design of ac equipment it has been necessary, in the past, to compare thyristors with **Triacs** in order to decide which of the two solutions is more favorable. It has now become advisable to consider the usefulness of potted static-converter modules. The status of development of these devices is discussed. In German.

Controlled Indexing

*ELECTRIC CONVERTERS; ELECTRONIC CIRCUITS; INTEGRATED CIRCUITS

Supplementary Indexing

STATIC CONVERTERS

Accession Number

1976(2):7052

COMPENDEX Answer Number 48 - Copyright 1999 EI**Title**

Power thyristors, **technology** and industrial applications.Evolution in power thyristor **technology**.Les thyristors de puissance. **Technologie** et applications industrielles.Evolution de la **technologie** des thyristors de puissance.

Author

MERCIER B

Publication Source

Publication Year

1971

Language

English

Abstract

Article shows basic structure of thyristor devices, briefly reviews fabrication methods of diffused and alloyed- diffused thyristors and encapsulation techniques. The effect of **technological** details on the electrical characteristics of thyristors is shown in detail, such as breakdown voltages, switching times and maximum frequency. Finally, principle of switching operation are explained for silicon controlled rectifiers and **triac** devices. In French. 37884

Controlled Indexing

*THYRISTORS; SEMICONDUCTOR DEVICES:Manufacture

Supplementary Indexing

SILICON CONTROLLED RECTIFIERS; **TRIACS**

Accession Number

1972(6):611

INSPEC Answer Number 2 - Copyright 1999 IEE

Title

Microelectronic **technology** in power integrated circuits.

Author

Yevseyev, Y.A.; Kozlov, V.B.; Kovalenko, Y.A.; Rytchkov, E.V. (Inst. of Electron., Moscow, Russia)

Publication Source

14th Australian Microelectronics Conference. Microelectronics: Technology Today for the Future. MICRO '97 Proceedings Milsons Point, NSW, Australia: IREE Soc, 1997. p.65-9 of xii+308 pp. 1 refs. Conference: Melbourne, Vic., Australia, 28 Sept-1 Oct 1997 Sponsor(s): Defence Sci. & Technol. Organ ISBN: 0-909394-43-1

Document Type

Conference Article

Treatment Code

Practical; Experimental

Country of Publication

Australia

Language

English

Abstract

In order to apply the main ideas of microelectronic **technology** (primarily the realisation of circuits in single crystal form) to power electronics, the family of reverse directed cells (diodes, thyristors, **triacs**, photothyristors and phototriacs) were combined with the known forward directed cells to make it possible to project small size power integrated circuits (PICs) of controlled and uncontrolled rectifiers and modules. The insulation between the cells is in excess of 1000 V.

Controlled Indexing

MODULES; PHOTOTHYRISTORS; POWER INTEGRATED CIRCUITS; POWER SEMICONDUCTOR DIODES; POWER SEMICONDUCTOR SWITCHES; SOLID-STATE RECTIFIERS; THYRISTORS

Supplementary Indexing

microelectronic technology; power integrated circuits; single crystal circuit realisation; power electronics; reverse directed cells; diodes; thyristors; **triacs**; photothyristors; phototriacs; forward directed cells; controlled rectifiers; uncontrolled rectifiers; power modules; cell insulation; 1000 V

Physical Properties

voltage 1.0E+03 V

Accession Number

1998:5972218

INSPEC Answer Number 12 - Copyright 1999 IEE

Title

Power semiconductors in 1991. Evolution and consequences.

Author

Peter, J.-M. (SGS-Thomson Microelectron., Rousset, France)

Publication Source

L'Onde Electrique (July-Aug. 1992) vol.72, no.4, p.7-14. 11 refs.CODEN: ONELAS ISSN: 0030-2430

Document Type

Journal

Treatment Code

Practical

Country of Publication

France

Language

French

Abstract

The advantages and disadvantages are given on power components, transistors, darlington, thyristors, **triacs**, MOSFET, IGBT and smart power. The author indicates the forecasted evolution for 1991-5, the limits and the application fields. A number of examples are given. Power components will evolve in two different major directions: a complete system or function in one monolithic package (smart power) or hybrid **technology**; and improved

components, with integration of drive, protection and status.

Controlled Indexing

INSULATED GATE FIELD EFFECT TRANSISTORS; POWER ELECTRONICS; POWER INTEGRATED CIRCUITS; POWER TRANSISTORS; TECHNOLOGICAL FORECASTING; THYRISTORS

Supplementary Indexing

1991 to 1995; power semiconductors; Darlington circuits; power components; transistors; thyristors; **triacs**; MOSFET; IGBT; smart power; monolithic package; **hybrid technology**; drive; protection; status

Accession Number

1992:4232884

INSPEC Answer Number 13 - Copyright 1999 IEE

Title

A multi-channel interface for phase-angle control by computer.

Author

Millan, J.G. (Centro Salesiano de FP, La Almunia, Spain)

Publication Source

Revista Espanola de Electronica (May 1990) no.426, p.66-71. 4 refs.CODEN: RVEEBT
ISSN: 0482-6396

Document Type

Journal

Treatment Code

Practical

Country of Publication

Spain

Language

Spanish

Abstract

The author describes a contribution to the **technology** of power control by variation of phase angle based on the use of the SEMIKRON 150 integrated circuit designed for this purpose. The block schematic of the device is shown and its operation, which includes the control of up to 255 units (thyristors, **triacs**), is explained. The use in parallel and series interfacing is illustrated, describing the 150 EK interface module. An example of application and indications of programming procedures are given.

Controlled Indexing

COMPUTER INTERFACES; COMPUTERISED CONTROL; PHASE CONTROL; POWER CONTROL; POWER ENGINEERING COMPUTING; THYRISTOR APPLICATIONS

Supplementary Indexing

parallel interfacing; multi-channel interface; phase-angle control; computer; power control; SEMIKRON 150 integrated circuit; thyristors; **triacs**; series interfacing; 150 EK interface module; programming procedures

Accession Number

1991:3773404

INSPEC Answer Number 17 - Copyright 1999 IEE

Title

Power semiconductors and ICs.

Publication Source

Machine Design (19 May 1988) no.11, p.179-89. 0 refs.Price: CCCC
0024-9114/88/\$1.00+.50CODEN: MADEAP ISSN: 0024-9114

Document Type

Journal

Treatment Code

General Review; Practical

Country of Publication

United States

Language

English

Abstract

Transistors, SCRs, **triacs**, and diacs switch electrical loads from fractions of an ampere to hundreds of amperes. Unlike relays, they have no moving parts to wear out since they are made of silicon, gallium arsenide (for high frequencies), and germanium. Arrays of solid-state switches are often combined into a single integrated circuit (IC) or hybrid microcircuit package. The article provides an overview of the **technology** and devices.

Controlled Indexing

HYBRID INTEGRATED CIRCUITS; MONOLITHIC INTEGRATED CIRCUITS; POWER INTEGRATED CIRCUITS; SEMICONDUCTOR DEVICES

Supplementary Indexing

power ICs; power semiconductor devices; power switching; bipolar; MOSFET; JFETS; solid-state switches; hybrid microcircuit package

Accession Number

1988:3215730

INSPEC Answer Number 20 - Copyright 1999 IEE

Title

Power control with thyristors.

Author

Manzano, P.

Publication Source

Revista Espanola de Electronica (Dec. 1987) no.397, p.74-7. 0 refs.CODEN: RVEEBT ISSN: 0482-6396

Document Type

Journal

Treatment Code

Application; Practical

Country of Publication

Spain

Language

Spanish

Abstract

Provides an introduction to the **technology** of the control of power by means of silicon controlled rectifiers, thyristors and **triacs**. It exhibits a number of basic circuits, explains their functioning, and illustrates the consequent wave-forms of voltage and current. It concludes with a discussion of the suppression of radio-frequency interference.

Controlled Indexing

POWER SYSTEM CONTROL; THYRISTOR APPLICATIONS

Supplementary Indexing

thyristors; control; power; silicon controlled rectifiers; **triacs**; suppression; radio-frequency interference

Accession Number

1988:3115171

INSPEC Answer Number 24 - Copyright 1999 IEE

Title

Alloy bonding for power semiconductors.

Author

Jonas, A.; Onck, D.

Publication Source

Electronic Components & Applications (1985) vol.7, no.2, p.95-105. 2 refs.CODEN:
ECAPD6 ISSN: 0141-6219

Document Type

Journal

Treatment Code

Experimental

Country of Publication

Netherlands

Language

English

Abstract

The high price of gold is stimulating research into new hard-soldering processes that are less expensive than eutectic bonding but that still meet the electrical performance and quality of the eutectic-bonding **technology**. The authors review one of these hard-soldering processes known as alloy bonding that uses a twin-silver-antimony bonding alloy. Tests on alloy bonded devices demonstrate that they could meet the required standards of reliability and electrical performance, and subsequent production experience has amply confirmed expectations.

Controlled Indexing

ANTIMONY ALLOYS; LEAD BONDING; POWER TRANSISTORS;
SEMICONDUCTOR SWITCHES; SEMICONDUCTOR **TECHNOLOGY**; SILVER
ALLOYS; SOLDERING; THYRISTORS; TIN ALLOYS

Supplementary Indexing

Sn-Ag-Sb bonding alloy; thyristors; **triacs**; transistors; power semiconductors; hard-soldering processes; electrical performance; reliability

Accession Number

1986:2628623

INSPEC Answer Number 25 - Copyright 1999 IEE**Title**

Balance: development trends in power electronics.

Author

Zieboll, W. (Thomson-Semiconductors, Munchen, West Germany)

Publication Source

Elektronik Praxis (June 1985) vol.20, no.6, p.66, 67. 0 refs.CODEN: EKPXAM ISSN: 0341-5783

Document Type

Journal

Treatment Code

Practical

Country of Publication

Germany, Federal Republic of

Language

German

Abstract

Production of competitive cost power electronic equipment requires modular construction, insulated components, and automatic component assembly on printed wiring boards. With reference to Thomson Semiconductors power transistors, diodes and **triacs**, advantages of insulated package components including simpler mounting, reduced thermal resistance, greater reliability, compactness, reduced interference suppression, and ability to include several switching elements in one package, are described. Darlington and diode components for direct mains voltage switching are shown. Further development trends will involve

insulated packages and surface mounted device **technology**, integration of multiple switches in one package, and the use of switching transistors for lower powers.

Controlled Indexing

POWER TRANSISTORS

Supplementary Indexing

Darlington components; power electronics; modular construction; insulated components; automatic component assembly; printed wiring boards; Thomson Semiconductors power transistors; diodes; **triacs**; thermal resistance; reliability; interference suppression; mains voltage switching; **surface mounted device technology**; multiple switches

Accession Number

1985:2512650

INSPEC Answer Number 26 - Copyright 1999 IEE

Title

Comparing power ICs.

Author

Robb, S.P.; Sutor, J.L.

Publication Source

Machine Design (21 Feb. 1985) vol.57, no.4, p.119-22. 0 refs.CODEN: MADEAP ISSN: 0024-9114

Document Type

Journal

Treatment Code

General Review

Country of Publication

United States

Language

English

Abstract

Indications are that the discrete solid-state switch may be supplanted by a new breed of power integrated circuit (PIC) in many applications. A wide variety of techniques are becoming available for fabricating PICs. Some are based on bipolar processes, others on MOS. But the most recently built chips combine these and other techniques. A single PIC now can contain small-signal and power bipolars, DMOS, CMOS, and high-voltage CMOS components, power MOSFETs, SCRs, and **triacs**. Both vertical and lateral power structures can be used. Components in some cases are self isolated, junction or oxide isolated in others. Ratings up to 20 A at over 400 V are feasible. The choice of components, structures, and isolation depends on application requirements.

Controlled Indexing

INTEGRATED CIRCUIT **TECHNOLOGY**; POWER INTEGRATED CIRCUITS

Supplementary Indexing

monolithic IC; power ICs; power integrated circuit; bipolar processes; high-voltage CMOS; power MOSFETs

Accession Number

1985:2479344

INSPEC Answer Number 28 - Copyright 1999 IEE**Title**

Integrated solid state relay circuits.

Publication Source

Elektronik Industrie (1983) vol.14, no.6, p.25-6. 1 refs.CODEN: EKIDAT ISSN: 0374-3144

Document Type

Journal

Treatment Code

Practical

Country of Publication

Germany, Federal Republic of

Language

German

Abstract

Describes optocoupled solid state relays from International Rectifier Company, where the output circuits consist of high speed **TRIACs**, with automatic zero crossing detection. Switching speeds of 300 nanosec. are claimed. The device **technology** employed is referred to as S3X (Solid State Switch with Zero Crossing).

Controlled Indexing

INTEGRATED CIRCUIT **TECHNOLOGY**; OPTO-ISOLATORS; SEMICONDUCTOR RELAYS; SEMICONDUCTOR SWITCHES

Supplementary Indexing

switching speeds; optocoupled solid state relays; International Rectifier Company; **high speed TRIACs**; automatic zero crossing detection; **device technology**

Accession Number

1983:2128009

INSPEC Answer Number 29 - Copyright 1999 IEE

Title

A piezoelectric isolating element.

Publication Source

Sdelovaci Technika (April 1983) vol.31, no.4, p.43-5. 8 refs.CODEN: SDTEAM ISSN: 0036-9942

Document Type

Journal

Treatment Code

Application; Practical

Country of Publication

Czechoslovakia

Language

Czech

Abstract

The principle of piezoelectric isolators based on the use of piezoelectric ceramics such as PZT or Vibrit material is presented. These components are fabricated by thin film **technology** and operate on the principle of acoustic surface waves. As an example, the design of the Siemens PZK 20 piezoelectric isolator is presented. Application possibilities of the piezoelectric isolators are discussed which include control of power MOS transistors, thyristors and **triacs**. Circuits employing the piezoelectric isolators in order to achieve galvanic separation of control and power circuits similar to that based on relays are described. Various control circuits employing TTL and CMOS circuits are presented. The advantages of using piezoelectric components in comparison with conventional isolators include the absence of auxiliary voltage on the secondary side, high resistance against failures of thyristors and **triacs**, low weight and dimensions and simple construction.

Controlled Indexing

CERAMICS; PIEZOELECTRIC DEVICES; PIEZOELECTRIC MATERIALS; SURFACE ACOUSTIC WAVE DEVICES

Supplementary Indexing

piezoelectric isolating element; piezoelectric isolators; piezoelectric ceramics; PZT; Vibrit; **thin film technology**; acoustic surface waves; Siemens PZK 20

Accession Number

1983:2093765

INSPEC Answer Number 30 - Copyright 1999 IEE

Title

600 V/5 A FET-triggered lateral opto-**triac**.

Author

Leipold, L.; Fellingner, C. (Components Div., Siemens AG, Munich, West Germany)

Publication Source

International Electron Devices Meeting. Technical Digest New York, NY, USA: IEEE, 1982.
p.261-3 of 812 pp. 3 refs. Conference: San Francisco, CA, USA, 13-15 Dec 1982 Sponsor(s):
IEEE Price: CCCC CH1832-5/82/0000-0261\$00.75

Document Type

Conference Article

Treatment Code

Practical

Country of Publication

United States

Language

English

Abstract

Besides being used in the production of MOS transistors, the SIPMOS (short for Siemens Power MOS) **technology** permits the manufacture of components in which bipolar and MOS structures are functionally integrated, e.g. an FET-controlled optotriac. This component consists of two inverse-parallel connected lateral thyristors which are driven with the aid of vertical MOS transistors. A highly sensitive phototransistor supplies the gate voltage of the vertical MOS transistors. The lateral thyristors are implemented by means of interlocking, finger-like structures which enable good chip utilization. The **triac** features a 4*4 mm² chip and has a blocking voltage of more than 600 V in both directions. An LED current of 2 mA is sufficient to trigger the component. For a continuous current of 5 A this results in a current-transfer-ratio of 2500 to 1.

Controlled Indexing

INSULATED GATE FIELD EFFECT TRANSISTORS; POWER TRANSISTORS;

SEMICONDUCTOR SWITCHES; THYRISTORS

Supplementary Indexing

FET triggered lateral optotriac; SIPMOS; MOS structures; inverse-parallel connected lateral thyristors; phototransistor; interlocking; LED current

Accession Number

1983:2033079

INSPEC Answer Number 31 - Copyright 1999 IEE

Title

Introduction to electronics. Devices and circuits.

Author

Uffenbeck, J.E.

Publication Source

Englewood Cliffs, NJ, USA: Prentice-Hall, 1982. xii+401 pp.ISBN: 0-13-481507-6

Document Type

Book

Treatment Code

General Review

Country of Publication

United States

Language

English

Abstract

This book discusses solid state devices and their circuit applications, from the pn diode and

bipolar and field-effect transistor, through the silicon controlled rectifier, **TRIAC**, and opto-coupler. It is suitable for a one- or two-semester course in linear applications of electronic devices. However, it is equally valid as a self-study text in this area. As such, numerous examples are presented in each chapter. In these examples, numbers are 'plugged into' the various formulas to familiarize the reader with dealing in actual quantities. Detailed laboratory experiments are included at the end of each chapter and these should be worked out carefully to fully appreciate the capabilities of each device.

Controlled Indexing

INTEGRATED CIRCUIT **TECHNOLOGY**; MONOLITHIC INTEGRATED CIRCUITS; SEMICONDUCTOR DEVICES

Supplementary Indexing

p-n diode; bipolar transistors; FET; semiconductor devices; monolithic ICs; solid state devices; circuit applications; silicon controlled rectifier; **TRIAC**; opto-coupler

Accession Number

1983:1966214

INSPEC Answer Number 32 - Copyright 1999 IEE

Title

Semiconductor power devices: examination of physics and **technology**.

Author

Schlangenotto, H.; Silber, D.; Zeyfang, R.

Publication Source

Wissenschaftliche Berichte AEG-Telefunken (1982) vol.55, no.1-2, p.7-24. 112
refs.CODEN: WBATB3 ISSN: 0043-6801

Document Type

Journal

Treatment Code

Bibliography

Country of Publication

Germany, Federal Republic of

Language

German

Abstract

The work of recent years on power devices in the Frankfurt Research Institute is summarized. Numerical calculations on pin-base structures and anode emitter shorting lead to improved principles for dimensioning. Proceeding from investigations on the on-state behaviour and on recombination, the current capability of different power devices is compared. The switching characteristics are discussed taking into consideration the results of detailed investigations and calculations on different recombination centers. Finally, the work on gate-turn-off thyristors and light activated thyristors including recent aspects of their concepts is discussed.

Controlled Indexing

THYRISTORS

Supplementary Indexing

semiconductor power devices; operation; GTO; **triacs**; **technology**; power devices; Frankfurt Research Institute; pin-base structures; anode emitter shorting; on-state behaviour; recombination; current capability; power devices; switching characteristics; gate-turn-off thyristors; light activated thyristors

Accession Number

1982:1914229

INSPEC Answer Number 33 - Copyright 1999 IEE

Title

Power and **triacs**.

Author

Veil, X.

Publication Source

Electronique Industrielle (1 April 1982) no.31, p.115-20. 0 refs.CODEN: EIDUDA ISSN: 0244-903X

Document Type

Journal

Treatment Code

Practical

Country of Publication

France

Language

French

Abstract

The **technology** of 'all-diffused' **triac** fabrication with several layers of p- and n-doped Si diffused in one operation is outlined. The problem of the rate of rise of inter-anode voltage during switching of inductive loads such as motors is highlighted. The alternator, optimised for power applications from 50 to 400 Hz and capable of withstanding 100 to 200 volts per microsecond, is presented as a solution with its control and conduction regions decoupled at the masking stage. At the other end of the scale, sensitive **triacs** controlled by gate currents of 3 to 10 mA are suitable for interfacing of logic cards and power devices. The packaging of **triacs** is discussed.

Controlled Indexing

THYRISTOR APPLICATIONS; THYRISTORS

Supplementary Indexing

all-diffused triac fabrication; Si; inductive loads; motors; alternator; **sensitive triacs**; logic cards; power devices; packaging

Accession Number

1982:1914224

INSPEC Answer Number 35 - Copyright 1999 IEE

Title

Power electronics.

Author

Lander, C.W.

Publication Source

London, UK: McGraw-Hill, 1981. x+386 pp. 13 refs.ISBN: 0-07-084123-3

Document Type

Book

Treatment Code

General Review

Country of Publication

United Kingdom

Language

English

Abstract

The following topics were dealt with: Power Electronics covers the applications, circuits, and effects related to power semiconductor device usage in the supply and utilization of electricity. Power semiconductor devices, such as the diode, thyristor, **triac** and power transistor and their uses in such applications as rectification, inversion, frequency conversion, inverters, DC and AC machine control, and many other non-motor applications, are treated in depth. Well-established practice and recent advances in power electronics a fast-developing **technology** are described. Many worked examples of varying degrees of difficulty are included to supplement and reinforce the text.

Controlled Indexing

ELECTRICAL ENGINEERING; POWER CONVERTORS

Supplementary Indexing

power semiconductor device; diode; thyristor; **triac**; power transistor; rectification; inversion;

frequency conversion; inverters; machine control; non-motor applications; power electronics;
text

Accession Number

1982:1832557

INSPEC Answer Number 37 - Copyright 1999 IEE

Title

Industrial and appliance control using power **triacs**.

Author

Tso, S.K. (Dept. of Electrical Engng., Univ. of Hong Kong, Hong Kong); Cornish, L.S.

Publication Source

Hong Kong Engineer (Aug. 1980) vol.8, no.8, p.45-57. 49 refs.CODEN: HKOEDU ISSN:
0378-8776

Document Type

Journal

Treatment Code

Application

Country of Publication

Hong Kong

Language

English

Abstract

By discussing in relatively simple terms the alternative methods of control peculiar to solid-state power control using **triacs**, as well as their extensive applicability, it is intended in this paper to shed some useful light on the current state of development of this **technology** and to arouse further interest among consumer product and light industrial

product manufacturers who are seeking opportunities for diversification.

Controlled Indexing

DOMESTIC APPLIANCES; INDUSTRIAL CONTROL; POWER CONTROL;
THYRISTOR APPLICATIONS

Supplementary Indexing

power triacs; industrial control; appliance control

Accession Number

1981:1642672

INSPEC Answer Number 38 - Copyright 1999 IEE

Title

Glassivation for passivation of joints.

Publication Source

Revue Polytechnique (March 1980) no.3bis, p.375. 0 refs.CODEN: RVPTBR ISSN:
0374-4256

Document Type

Journal

Treatment Code

Practical

Country of Publication

Switzerland

Language

French

Abstract

The article deals with the process of glassivation introduced by Thomson-CSF for the protection of the joints between the input and output leads and the active surfaces of semiconductor devices such as rectifiers, thyristors, **triacs**, etc. It consists in covering the joints with a thick layer of glass and gives the so-treated components a reliability comparable with that of encapsulated devices.

Controlled Indexing

GLASS; JOINING PROCESSES; PASSIVATION; SEMICONDUCTOR **TECHNOLOGY**

Supplementary Indexing

glassivation; protection; rectifiers; thyristors; **triacs**; joints passivation; semiconductors

Accession Number

1981:1610056

INSPEC Answer Number 42 - Copyright 1999 IEE

Title

Thyristors: status of **technologies**.

Author

Oswald, E.J.

Publication Source

Electronic Progress (Spring 1979) vol.21, no.1, p.30-2. 0 refs.CODEN: ELTPAP ISSN: 0013-4961

Document Type

Journal

Treatment Code

General Review

Country of Publication

United States

Language

English

Abstract

The four layer device has seen a spectacular evolution since its introduction into the market place in 1957. This article highlights the possibilities of today's device **technology** with emphasis on the lower power portion of the power spectrum. Five layer devices, such as **Triacs**, are also available using the same processes. A brief outlook into the future is given.

Controlled Indexing

SEMICONDUCTOR **TECHNOLOGY**; **TECHNOLOGICAL FORECASTING**;
THYRISTORS

Supplementary Indexing

four layer device; **device technology**; lower power; processes; future; thyristors; five layer devices

Accession Number

1980:1446285

INSPEC Answer Number 46 - Copyright 1999 IEE

Title

High voltage **triac** with outstanding commutating dv/dt capability.

Author

Schafer, H.; Tursky, W. (Semikron Internat., Nurnberg, West Germany)

Publication Source

Industry Applications Society. IEE-IAS 1978 Annual Meeting New York, NY, USA: IEEE, 1978. p.1019-21 of x+1345 pp. 5 refs. Conference: Toronto, Ont., Canada, 1-5 Oct 1978 Sponsor(s): IEEE

Document Type

Conference Article

Treatment Code

Application; Practical

Country of Publication

United States

Language

English

Abstract

Describes a production technique for a 80 A 1200 V **triac**. It is shown that 'electron irradiation' applied to a **triac** geometry is able to improve particularly the dynamic properties.

Controlled Indexing

ELECTRON BEAM APPLICATIONS; HIGH-VOLTAGE TECHNIQUES;
SEMICONDUCTOR **TECHNOLOGY**; THYRISTORS

Supplementary Indexing

commutating dv/dt capability; production technique; **80 A 1200 V triac**; dynamic properties;
electron irradiation

Accession Number

1979:1301923

INSPEC Answer Number 50 - Copyright 1999 IEE**Title**

Static relays.

Author

Fraisse, R.; Nicolao, U.

Publication Source

L'Antenna (Oct. 1977) vol.49, no.10, p.355-61. 0 refs.CODEN: ANTNBO ISSN: 0392-470X

Document Type

Journal

Treatment Code

Application; Practical

Country of Publication

Italy

Language

Italian

Abstract

Solid state relay configuration, **technology** and application are discussed. Examples of **triac**, hybrid and transformer circuits are given with brief description of the applications. Selection criteria are discussed with performance curves and temperature range. Relay behaviour with resistive and reactive loads is shown. Overload protection and control methods are outlined.

Controlled Indexing

OVERCURRENT PROTECTION; RELAY PROTECTION; SEMICONDUCTOR RELAYS

Supplementary Indexing

configuration; **technology**; transformer circuits; performance curves; temperature range; reactive loads; static relays; **triac circuits**; selection criteria; resistive loads; overload protection

Accession Number

1978:1219613

INSPEC Answer Number 53 - Copyright 1999 IEE**Title**

Planar **triac** structures.

Author

Feth, G.C.; Smith, M.G. (IBM, Armonk, NY, USA)

Publication Source

IBM Technical Disclosure Bulletin (Nov. 1976) vol.19, no.6, p.2297-8. 0 refs.CODEN:
IBMTAA ISSN: 0018-8689

Document Type

Journal

Treatment Code

Practical

Country of Publication

United States

Language

English

Abstract

This publication relates to the implementation of planar **triac** structures, and describes how this basic planar structure can be fabricated in a number of ways.

Controlled Indexing

SEMICONDUCTOR **TECHNOLOGY**; THYRISTORS

Supplementary Indexing

planar triac structures; fabrication

Accession Number

1977:1069008

INSPEC Answer Number 54 - Copyright 1999 IEE

Title

Solid state relays where are we going?.

Author

Collins, H.W. (Internat. Rectifier Co. Ltd., Oxted, UK)

Publication Source

New Electronics (22 July 1975) vol.8, no.15, p.41-2 , 45. 0 refs.CODEN: NWELAC ISSN: 0047-9624

Document Type

Journal

Treatment Code

Application; General Review

Country of Publication

United Kingdom

Language

English

Abstract

Discusses the development of solid state relays since 1960s and presents forecasts of the relative growth rate of standard solid state relays (s.s.r) hybrid relays consisting of a reed relay controlling a **triac** (s.s.r.s.), and electro-mechanical relays. Outlines the range of available s.s.r.s. products and standard packages and surveys the main application areas for the s.s.r.s. which feature frequent switching operation, elimination of electrical noise, easy interface with low level digital signals, silent operation and use in hazardous environment.

Controlled Indexing

SEMICONDUCTOR RELAYS; **TECHNOLOGICAL FORECASTING**

Supplementary Indexing

solid state relays; relative growth rate; hybrid relays; **reed relay controlling triac; technological forecasting**; electromechanical relays

Accession Number

1976:843387

INSPEC Answer Number 55 - Copyright 1999 IEE

Title

Power semiconductors.

Author

Murphy, R.

Publication Source

Electron (8 March 1973) no.23, p.17, 19, 21, 3. 0 refs.CODEN: ELTNCL

Document Type

Journal

Treatment Code

General Review

Country of Publication

United Kingdom

Language

English

Abstract

This brief review sets out to show what has been accomplished, and what remains as a challenge to both the semiconductor and the user industries. In some areas the theoretical limits for materials and fabrication techniques are rapidly being approached, and hence revolutionary developments are required to advance the state of the art. Thyristor and application **technology** are discussed in particular.

Controlled Indexing

REVIEWS; SEMICONDUCTOR DEVICES; THYRISTOR APPLICATIONS;
THYRISTORS

Supplementary Indexing

semiconductor switches; thyristor; **triacs**

Accession Number

1973:505917

INSPEC Answer Number 56 - Copyright 1999 IEE

Title

Phase control with **triacs** TX CO1, TX CO2 and Diac A 9903.

Author

Heuwieser, E.

Publication Source

Siemens Electronic Components Bulletin (June 1972) vol.7, no.2, p.37-41. 1 refs.CODEN: SELCBI ISSN: 0037-4679

Document Type

Journal

Treatment Code

Application

Country of Publication

Germany, Federal Republic of

Language

English

Abstract

Composed of two thyristors connected back to back and having a common gate, the **triac** allows the low-loss continuous control of a.c. voltage. For many applications the most suitable form of control is the phase control technique widely used in converter **technology**. The author describes the control of electric lighting systems, a brightness dependent power control, and the speed control of a small motor by a **triac** triggered by a diac.

Controlled Indexing

ELECTRIC MOTORS; LIGHTING; PHASE CONTROL; THYRISTOR APPLICATIONS;
VELOCITY CONTROL

Supplementary Indexing

phase control; TX CO1; TX CO2; Diac A 9903; **converter technology**; electric lighting
systems; speed control; small motor; low loss continuous control; **triacs**; brightness
dependence power control

Accession Number

1972:445575

INSPEC Answer Number 57 - Copyright 1999 IEE

Title

Triac control with no-voltage trip for domestic appliances.

Author

Schott, W.

Publication Source

Siemens Electronic Components Bulletin (June 1972) vol.7, no.2, p.27-30CODEN: SELCBI
ISSN: 0037-4679

Document Type

Journal

Treatment Code

Application

Country of Publication

Germany, Federal Republic of

Language

English

Abstract

In phase control which is widely used in converter **technology**, the load current is increased sharply from zero to the value corresponding to the set trigger angle. The resulting RF interference has to be damped by appropriate RF suppression to a tolerable level. A method of control is described in which a **triac** is triggered as the ac voltage passes through zero, the control effect originating from the fact that the **triac** is not triggered for a certain number of cycles of the ac voltage. Since no RF interference is produced by this type of periodic wave packet control it is ideal for use in domestic electrical appliances.

Controlled Indexing

DOMESTIC APPLIANCES; THYRISTOR APPLICATIONS

Supplementary Indexing

triac control; phase control; **converter technology**; load current; RF interference; periodic wave packet control; domestic electrical appliances; damping; triggering; no voltage trip

Accession Number

1972:445499

INSPEC Answer Number 59 - Copyright 1999 IEE

Title

The **triac**, a modern component for alternating current **technology**.

Author

Zandra, W.

Publication Source

Das Elektron International (1971) no.6-7, p.112-15CODEN: EKITA9 ISSN: 0374-3098

Document Type

Journal

Treatment Code

Application

Country of Publication

Austria

Language

German

Abstract

In this part of his paper, the author gives brief details of applications of **triacs** in circuits for motor control (inductive loads) and for various types of synchronous load switching circuits.

Controlled Indexing

AC MOTORS; POWER CONVERTORS; SWITCHING CIRCUITS; THYRISTOR APPLICATIONS

Supplementary Indexing

triac; AC; motor control circuits; inductive loads; synchronous load switching circuits

Accession Number

1971:275983

INSPEC Answer Number 60 - Copyright 1999 IEE**Title**

Triac-a significant element in the control of an alternating current.

Author

Husa, V.; Kriz, J.; Ladnar, J.

Publication Source

Elektrotechnicky Obzor (1970) vol.59, no.1, p.7-10CODEN: EKOBAJ ISSN: 0013-5798

Document Type

Journal

Country of Publication

Czechoslovakia

Language

Czech

Abstract

The physical problems of the **Triac** and the selection of a structure at which the element can be controlled in the 4th quadrant are dealt with. A structure is also suggested for the case when the element cannot be controlled in this quadrant. In conclusion, a **technological** conception is described according to which the large-scale manufacture of these elements will be introduced in the Tesla- Piestany works. The provisional technical conditions for the type TC 6 (6Aef) are also mentioned.

Controlled Indexing

ELECTRIC CURRENT CONTROL; THYRISTORS

Accession Number

1970:131817
