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CHICAGO SECTION • IEEE • INSTITUTE OF ELECTRICAL & ELECTRONICS ENGINEERS

NOVEMBER 1976

CALENDAR OF EVENTS

For reservations call the IEEE office at 236-4609

(Unless otherwise indicated)

- Nov. 3 "Electronic Games," Fox V. Sub. (joint with Computer Society & Consumer Electronics Group), Aylwards, 27W103 North Ave., West Chicago, Ill. Dinner 7:00 PM; Meeting 8:00 PM.
- 9 IEEE Executive Committee Meeting; Brown & Root Offices, 2001 Spring Rd., Oak Brook, Ill., 7:30 PM — ALL WELCOME.
- 10 "Surge Protection for Electronic and Power Equipment," IAS/IECI, Nielsen's, 7330 W. North Ave., Elmwood Park, Ill. Social Hour 5:30 PM; Dinner 6:15 PM; Meeting 7:15 PM. For reservations call Bob Loewe at 644-0828.
- 10 "Power System Generation Control," PES, Midland Hotel, 172 W. Adams St., Chicago, Ill. Luncheon.
- 10 "Citizens Band Radio," VT Group. For information call John Zinkus, 298-1591.
- 16 "Pulsed Antenna," MTT/APS, Black Steer, 6446 W. North Ave., Chicago, Ill. Social Hour 6:00 PM; Dinner 7:00 PM; Meeting 8:00 PM.
- 18 "A 24 Channel Digital Echo Suppressor," Comms. Soc., Willowbrook Holiday Inn, 7800 S. Kingery Hwy., Willow Spgs., Ill. Social Hour 5:30 PM; Dinner 6:30 PM; Meeting 7:45 PM, followed by plant tour of Wescom, Inc., 8245 Lemont Rd., Downers Grove, Ill.
- 20 "Reliability Techniques," Reliability Group, Gard, Inc., 7501 N. Natchez Ave., Niles, Ill., 8:30 AM — 12:30 PM.
- Dec. 1 "Structured Programming," Fox V. Sub. (joint with Comp. Soc., Comms, & Infor. Theory Grps.), Bell Labs., Naperville, Ill. Meeting 8:00 PM. No dinner.
- 1 "Responsibility of IEEE PES Members as Communicators," PES, Midland Hotel, 172 W. Adams St., Chicago, Ill. Luncheon.
- 6-7 Fall Conference, Consumer Electronics Group, Ramada — The O'Hare Inn, 6600 N. Mannheim Rd., DesPlaines, Ill. — See Back Page Ad
- 8 "The Chicago High Rise Code," IAS/IECI, Nielsen's, 7330 W. North Ave., Elmwood Park, Ill. Cocktails 5:30 PM; Dinner 6:15 PM; Meeting 7:15 PM.
- 8 "The Role of New Electronics in Nuclear Medicine," NW Sub., Maitre D' Restaurant, 111 E. Higgins Rd., Elk Grove Village, Ill. Social hour 6:00 PM; Dinner 7:00 PM; Meeting 8:00 PM.
- 14 IEEE Executive Committee Meeting; Brown & Root Offices, 2001 Spring Rd., Oak Brook, Ill., 7:30 PM — ALL WELCOME.

Deadline for copy: One month before date of issue

POWER SYSTEM GENERATION CONTROL

At the November 10 noon luncheon meeting of the Power Engineering Society, Robert K. Green, Supervisor, Power System Control Section, Sargent & Lundy, will speak on "Power System Generation Control." The meeting will be held at the Midland Hotel, 172 West Adams Street, Chicago, Illinois.

Within the electric utility industry, there is generally a lack of information exchange between the power, plant and system dispatching groups. This is true for utilities, vendors, consultants and professional societies. Even though sys-

tem dispatching (control) is the vehicle by which the individual power plants are coordinated for the benefit of the generation and bulk power transmission system, dispatch groups know little of the intricacies of the plants they control. Likewise, the power plant groups have only superficial knowledge of the control problems facing the system dispatcher. It is suggested that the generation control problem be thought of as a total system problem by both the dispatch system designer and power plant designer. This talk attempts to systemize the problem

and to delegate responsibility functionally, rather than along classical organizational lines. The ideas expressed are presented in an attempt to stimulate some thinking about new ways of looking at power system generation control.

Mr. Robert K. Green received his B.S. in E.E. from the University of Texas at Arlington in 1965. From 1965 to 1970 he was with the Dallas Power and Light Company as a System Planning Engineer and member of system control center project team. From 1970 to 1973 he was

(Continued on page 2)

RELIABILITY FAMILIARIZATION COURSE

For their first meeting of the 1976-77 season, the Reliability Group will present a familiarization course on reliability fundamentals. The tutorial introduction to the reliability field will benefit all those not familiar with the disciplines. For some companies, the course can be considered as a reliability orientation program.

The course will be held on Saturday, November 20, 1976 at 8:30 A.M. and will last 4 hours. The location is Gard, Inc., 7501 North Natchez Avenue, Niles, Illinois. Natchez is a north/south street running for 2 blocks between Howard Street and Gross Point Road and is one block east of Caldwell.

The staff for this course: Hugh C. Edfors — Senior Engineer of GATX-Gard, Inc.; Rod J. Garcia — Reliability Manager of General Time Corporation; and Henry A. Malec — Senior Engineer of GTE Automatic Electric Laboratories have arranged a very interesting technical session consisting of:

- 1) Basic Concepts — Definitions and purpose of reliability and maintainability;
- 2) Reliability Predictions — Modeling, redundancy and rapid evaluations;
- 3) Component Derating — Resistors, capacitors etc., semi-conductors and practical examples;
- 4) Maintainability — Preventive and corrective maintenance basics;
- 5) "Reliability Can Pay Its Way;"
- 6) Panel with questions and answers.

Mr. Edfors (647-9000, ext. 250), has presented papers and lectures on commercial, military and industrial studies. He is presently involved in component

POWER SYSTEM GENERATION CONTROL

(Continued from page 1)

a Systems Engineer at Harris Controls in the development and application of supervisory control, data acquisition and energy management systems. He joined Sargent & Lundy in 1973. Presently he is Supervisor in the Power System Control Section of the Electrical Analytical Division. Mr. Green is engaged in making studies and recommendations for data acquisition and control system needs. This involves long range planning of facilities and operating strategies. He is a member of IEEE (Power Engineering Society and Industrial Applications Society) and holds offices in the IEEE PES. He has published papers on calculation of transmission line constants, load flow and centralized automatic generation control systems.

evaluation and failure analysis. Mr. Garcia (259-0740, ext. 356), is primarily engaged in military, ground and aerospace reliability programs. He is the present Chairman of the Chicago Section Reliability Group. Mr. Malec (562-7199, ext. 567), is primarily engaged in system diagnostic and effectiveness studies. He has authored the "Monte Carlo Analysis of System Outage" and other papers.

A pre-payment registration fee of \$8.00 is required by November 17. Make your check payable to the IEEE Reliability Group and send to: R. J. Garcia, General Time Corporation, 1200 Hicks Road, Rolling Meadows, Illinois 60008. The fee includes coffee service and printed materials; course notes will be distributed. For further information contact the staff members. For reservations call the IEEE office at (312) 236-4609.



The 1977 International Conference on Communications is scheduled for June 12, 13, 14 and 15, at the O'Hare Inn complex in Chicago, it was announced by Ed Glenner, Conference Chairman. ICC-77 is jointly sponsored by the IEEE Communication Society Conference Board and the Chicago section of IEEE.

ICC-77 is an important national communications conference, for which the Chicago section of IEEE is both co-sponsor and host. A well-run, efficiently managed, properly staffed conference will greatly enhance the already-accepted reputation of the Chicago area as an important center of communications technology. The participation of local members of IEEE and of the local chapter of the Communications Society in ICC-77 is most important if the conference is to be successful. The Executive Committee of ICC-77 earnestly solicits volunteer assistance in the many tasks that will attend preparation for the conference.

(Continued on page 3)

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Meeting Reservations

Remember that the IEEE office, (312) 236-4609 will take your meeting reservations. Call anytime between 8:00 AM and 5:00 PM, Monday through Friday.

The meeting coordinator for any group should call and leave his number with the office, so they can refer questions on matters other than reservations.

Change of Address

If you have moved — or are about to move — please notify the IEEE Service Center in New Jersey. Our SCANFAX mailing labels come from there, and we cannot update your mailing address locally in Chicago.

A change of address form is included in each issue of SPECTRUM. Your local post office will also supply you with cards; mail to Roseann Schulz, Member Services, IEEE Service Center, 445 Hoes Lane, Piscataway, N.J. 08854. Include your SPECTRUM mailing label if possible. We cannot forward this information for you, so please do not send it to the local office.

ICC 77

(Continued from page 2)

Preliminary planning for ICC-77 is progressing on schedule and the ICC-77 Executive Committee has identified many tasks in need of staffing. Positions are open in the areas of local arrangements, exhibits, program and publicity. Interested volunteers are asked to contact either Mr. E. J. (Ed) Glenner (562-7100, ext. 522) or Mike Birck (969-8800) for further details.

FOCUS ON FAX

The Protect Your A-- Syndrome, more often called the PYA Syndrome, has probably been around since the days of Adam and Eve. Sure there was a little bit of "passing the buck", but that is actually a corollary to PYA, for if you pass the buck, then your A-- has been protected. Adam blamed Eve — Eve blamed the serpent — the serpent blamed God for those damn apples to begin with.

The desire to remain blameless varies from person to person, but the true manifestation of the blameless individual occurs with the affliction of the PYA Syndrome. How many times have you written a letter or memo highlighting why something has gone wrong and whose fault it was? How many times have you known something would "hit the fan" and had your little PYA piece of paper ready in advance? How many times when the ship is sinking do you come up with a "It wasn't my idea!" comment? I suppose that it is all too often, but is it really a habit or a game? The rules may certainly vary depending upon who has done what to whom, who did what to whom the last time, or who is about to do something to whom so let's do it to them before it happens to us.

There is something inherently unhealthy about this whole process which contributes to the decay of an organization and a degeneration of the morale of the individuals within it. The defense of what has been done or what should have been done, or who caused what, or why something was not done is certainly not going to positively contribute to improvement or change. If that is truly our emphasis, then the way to get the job done is to spend the PYA time and effort in a more useful direction. Now admittedly this requires a risk in the area of trusting our colleagues, but the long term advantages far outweigh the disadvantages. Do you realize how much paper some of you might begin to save?

— JFJ

DIGITAL ECHO SUPPRESSORS

If you are aware of how many things are becoming digitalized nowadays, how about a digital echo suppressor to really knock out that back reflection you sometimes notice on a long distance telephone call? Full details of the equipment — and a demonstration — will be presented at the November 18 Communications Society meeting. A dinner and meeting will be held at the Holiday Inn of Willowbrook, 7800 South Kingery Highway (Rt. 83) in Willow Springs, Illinois. Social Hour 5:30 P.M. — dinner 6:30 P.M. — meeting 7:45 P.M. Roast sirloin of beef will be served (\$6.75).

Mr. Vijaya Bhatnagar, Senior Engineer, Wescom, Inc. will be the speaker at the meeting. Mr. Allan Bentley, Training Supervisor, Wescom, Inc. will conduct a tour of Wescom facilities (8245 South Lemont Road in Downers Grove) following the meeting.

Mr. Bhatnagar was born in Saharanpur, India. He received his B.S.C. from Agra University, India; his B.E.E.E. from the University of Roorkee, India and his M.E.E.E. from North Carolina State University. He is presently working as a senior design engineer in the new product development activities of the voice frequency products group at Wescom, Inc., Downers Grove, Illinois. Mr. Bhatnagar has been with Wescom for one year.

A new generation of multi-channel digitally controlled echo suppressors has been developed utilizing latest state of the art technology. The first system is a 24 channel analog to digital echo suppressor and is designed to eliminate drift problems due to component aging and temperature variations. The system provides the same level of performance without maintenance requirement over a long period of time. This has been achieved by using drift free digital processing units. Analog components are used wherever drift sensitivity is not critical.

Both transmit and receive signals are processed through the same digital converter. This means that both receive and transmit sides will have same offsets and will not affect comparison decision between transmit and receive signal levels. This assures the break-in capability of echo suppressor to operate at optimum level. Both terrestrial and satellite circuits (single and double hop) will benefit equally from this echo suppressor. The 24 channel unit will be mounted in a standard 19 inch rack and occupy 16 inches of rack space.

The advent of digital speech requires a novel digital echo suppressor. This new digital echo suppressor is different than

what is described above. This all digital echo suppressor will take the signal in PCM format of digital speech. The processor will make all decisions about suppression, break-in, etc.

All IEEE members and guests are invited. Please make reservations for dinner, meeting, or both, by November 16. Call the IEEE office at 236-4609.

FALL CONFERENCE



At the Monday December 6th morning session of the Sixth Annual Chicago Fall Conference on Consumer Electronics, Dr. Gordon E. Moore will be the guest speaker.

Dr. Moore received his B.S. in Chemistry from University of California, Berkeley, California in 1950 and his Ph.D. in Chemistry and Physics from the California Institute of Technology in Pasadena, California. He joined the technical staff of the Applied Physics Laboratory at Johns Hopkins University in 1953 doing basic research in chemical physics.

In 1956, he joined the newly formed Shockley Semiconductor Laboratory of Beckman Instruments, Inc. where he worked on semiconductor process technology development. In 1957, he was a co-founder of Fairchild Semiconductor Corporation which later became the Semiconductor Division of Fairchild Camera and Instrument Corporation. Was Manager of the Engineering Department through 1959, when he became Director of Research and Development, a post he held until mid-1968 when he was a co-founder of Intel Corporation. He was Executive Vice President of Intel Corporation until April 1975, at which time he became President.

He is a Fellow of the IEEE, a member of the American Physical Society, Electrochemical Society and Sigma Xi. He is a member of the National Academy of Engineering. In 1974, he was awarded the first ELECTRONICS magazine Achievement Award in Electronics.

JOHN BARDEEN

SCIENTIST OF THE YEAR

On September 23, 1976 at the Windermere Hotel in Chicago, Dr. John Bardeen was awarded the Eleventh Annual Industrial Research Magazine Scientist of the Year Award. Former winners have been Dr. Bernd T. Matthias in 1968, Dr. Wernher Von Braun in 1969, and Dr. William O. Baker in 1973. Dr. John Bardeen fits easily into this class of scientist. Fortunately, Dr. Matthias was on hand and introduced his colleague. He stated, "Bardeen has had more impact than any other scientist he knows. His transistor work alone makes him unique. Also, in the area of superconductivity, he is one of the few theorists that has listened to experimentalists."

Part of the tradition of the award is to give a lecture following the luncheon on a topic of scientific significance. It was no surprise that Dr. Bardeen chose the lecture title "Superconductivity, Past and Future". It was truly a memorable event with a simple explanation of the phenomenon and walk through its history by a humble man who had been there. Very simply, superconductivity is a characteristic of certain materials under low temperature conditions which permits the flow of current with no voltage applied and no energy dissipation. It was first observed in Leyden in 1911, first exhibited before the Royal Society in England in 1932, and in 1957 finally given a theoretical quantum theory explanation. Dr. Bardeen surveyed the progress of superconductivity during the twentieth century with explanations of significant findings, equations, and several lively anecdotes.

The story of how superconductivity was presented to the Royal Society in England was particularly interesting. Apparently, there was no equipment in England at the time to cool materials down to a few degrees Kelvin. Since most of the research up until 1932 had been done at Leyden, the proper equipment was located there. However, the small problem of negotiating the English Channel presented a challenge. KLM wanted to part of transporting a funny looking metal cannister with something called a superconducting substance in it! Finally a two seated open cockpit aircraft was chartered and during the flight the top of the cannister popped off due to turbulence. Luckily, enough of the liquid nitrogen remained to keep the material cold. The bureaucratic obstacle that still remained after landing in England was the

British Customs agent. His "palm was greased" and after a high speed car trip to the Royal Society, the material was still cool enough to demonstrate the superconductive properties and history was made. Significant work in this area has occurred in England since then.

According to Dr. Bardeen the most promising area in the near future for these materials is with computing devices with low power dissipation requirements. Other areas include superconducting magnets, underground transmission lines, motors, power stations, levitated trains, and electric cars. The criteria of engineering economics and marketplace developments will establish priorities in these areas.

To over one hundred attendees, Dr. John Bardeen, the only person to win two Nobel Prizes in the same field, provided a superb experience. His transistor effect has already had impact in far reaching applications of our society. His theory of superconductivity and his foresight in its potential application areas leaves promise of another significant impact. We should all learn a lesson from this brilliant and persistent individual.

—FJJ

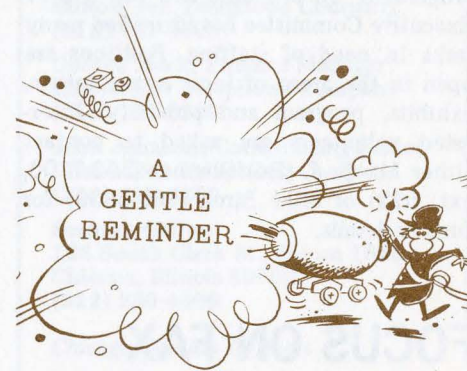
HOW TO TRAP TRANSIENTS

Whatever happened to lighting arresters! Today's terminology for this device is an all encompassing term "surge arresters." This and other enlightening bits of information will be presented for the edification of the IEEE members of the Industry Applications Society IECI at their next meeting November 10, 1976.

The speaker will be Thomas F. Stabosz, Marketing Manager, Electrical Apparatus Division, Joslyn Manufacturing Company. Tom is a Registered Professional Engineer in the State of Illinois, a member of IEEE and has a M.S.E.E. from the Illinois Institute of Technology.

He will cover the following topics in his presentation of "Surge Protection for Power Apparatus and Circuits:"

- A) The Concept of "Insulation Coordination"
- 1) Definitions and Terminology
- 2) Industry Standard Impulse Wave Shapes
- 3) Basic Impulse Level (BIL)
- 4) Surge Generators and the "Volt-Time" Curve



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Mail copy no later than the first of the month. Send it to the IEEE office — 125 South Clark Street — Room 1545 — Chicago 60603.

Remember, it pays to advertise. They can't go if they don't know.

B) Surge Arresters

- 1) Protective Gaps
- 2) Expulsion Arresters
- 3) Valve Arresters — Design and Construction
- 4) Volt Amp Curve — Ideal Valve Arrester

C) Application Concepts

- 1) Utility — Overhead/Underground
- 2) Business and Commercial
- 3) Residential

The meeting will be held at Nielsen's Village, 7330 West North Avenue in Elmwood Park. We will have a social hour at 5:15 P.M. followed by dinner at 6:30 P.M. and the meeting at 7:30 P.M. The drinks are complimentary for those who come for dinner. The price: \$8.00 per person.

Come, bring your friends and associates — have a good time and learn about this important subject. For reservations call Bob Loewe at 644-0828.

U.S. POSTAL SERVICE

STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION (ACT OF AUGUST 12, 1970: SECTION 3685, TITLE 39, UNITED STATES CODE)

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9. For optional completion by publishers mailing at the regular rates (Section 132.121, Postal Service Manual).

10. For completion by nonprofit organizations authorized to mail at special rates (Section 132.122, Postal Manual). The purpose, function, and nonprofit status of this organization and the exempt status for Federal income tax purposes have not changed during preceding 12 months.

11. Extent and nature of circulation

	Avg. No. Copies Each Issue During Preceding 12 Mos.	Actual No. of Copies of Single Issue Published Nearest to Filing Date
A. Total number copies printed (net press run)	5260	5300
B. Paid circulation		
1. Sales through dealers, carriers, street vendors, counter sales	3	3
2. Mail subscriptions	4870	4935
C. Total paid circulation	4873	4938
D. Free distribution by mail, carrier or other means Samples, complimentary, and other free copies	200	200
E. Total distribution (sum of C and D)	5073	5138
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1. Office use, left-over, unaccounted, spoiled after printing	187	162
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TENTATIVE PROGRAM —

SIXTH ANNUAL 1976 CHICAGO *Fall Conference* ON CONSUMER ELECTRONICS
December 6-7, 1976
Ramada The O'Hare Inn
6600 N. Mannheim Road Des Plaines, Illinois 60018

MONDAY — 9:30 AM — December 6, 1976

SESSION I — DISPLAY SYSTEMS

- Session Chairwoman:* IVA M. WILSON
Rauland Division, Zenith
Melrose Park, Illinois
- A. *Picture Tube Spot Analysis Using Direct Photography*
DONALD L. SAY
GTE-Sylvania, Seneca Falls, New York
- B. *Automatic Stabilization of Background Color*
P. J. H. JANSSEN
N. V. Philips' Gloeilampenfabr.
Eindhoven, Netherlands
- C. *Kinescope Spot Blooming as it Relates to Picture Resolution*
PETER GRIFFISS AND J. SHEFER
RCA Consumer Electronics and RCA Laboratories
Indianapolis, Indiana and Princeton, New Jersey
- D. *A New 30V-inch Screen Size Trinitron Color Picture Tube*
SUSUMU YOSHIDA
Sony Corporation, Tokyo, Japan
- E. *Application of Computer Modeling to Color Television Picture Tube Systems*
M. E. CARPENTER, R. A. MOMBERGER AND
T. W. SCHULTZ
GTE-Sylvania, Seneca Falls, New York

Guest Speaker: DR. GORDON E. MOORE, President
Intel Corporation, Santa Clara, California
"The Cost Structure of the Semiconductor Industry and its Implications for Consumer Electronics"

MONDAY — 2:30 PM — December 6, 1976

SESSION II — RF-IF SYSTEMS

- Session Chairman:* ROY E. BAKER
Zenith Radio Corporation, Chicago, Ill.
- A. *A Low-Cost, High-Performance, Digital TV Tuning System*
ERWIN J. DREISKE
Curtis-Mathes Mfg. Co., Athens, Texas
- B. *Varactor-Tuned UHF Tuner Using Microstrip Lines*
KEN-ICHI TORII, S. FUJIMORI AND
K. AMANO
Toshiba R&D Center, Kawasaki-City, Japan
- C. *Past, Present and Future Trends of TV Tuner Designs in Europe*
JOE SCHUERMANN
TI-Germany, Frisen, West Germany
- D. *TV IF Amplifier Utilizing Surface Acoustic Wave and Thick-Film Techniques*
CARL A. ERIKSON AND S. J. HOGAN
Whirlpool Corporation, Benton Harbor, Michigan
- E. *An AM/FM Radio Subsystem IC*
LARRY BLASER AND TSUYOSHI TAIRA
Fairchild Semiconductor, Mountain View, California

MONDAY — 6:00 PM — COCKTAIL HOUR

Admission by Registration Badge Only

**Sponsored by M. Gottlieb Associates, Inc. and
SGS-ATES Semiconductor Corporation**

TUESDAY — 9:30 AM — December 7, 1976

SESSION III — PERSONAL ELECTRONICS

- Session Chairman:* CHUCK ERICKSON
Olivetti Corp., Harrisburg, Pa.
- A. *The History of Video Games*
STEPHEN D. BRISTOW
Atari, Inc., Los Gatos, California
- B. *An Integrated TV Video Modulation System*
MILTON WILCOX
National Semiconductor, Santa Clara, California
- C. *Personal Use Radio (CB) and its Effects on TV Reception*
WILFRED L. HAND
GTE-Sylvania, Batavia, New York
- D. *A Low-Cost Dedicated Microprocessor LSI Circuit Forms the Heart of an Electronic Control System Suitable for Appliance Applications*
MALCOLM PENN
ITT Semiconductors, Sidcup, Kent, England
- E. *A Linear Servo Amplifier for Remote Control Applications*
HANS H. STELLRECHT AND ROBERT V. HAMILTON
Signetics Corporation, Sunnyvale, California

- F. *Application of High Technologies to Bowling—A Fully Automatic Bowling Scoring System*
REG A. KAENEL
AMF Incorporated, Stamford, Connecticut

TUESDAY — 2:30 PM — December 7, 1976

SESSION IV — ADVANCES IN SWEEP CIRCUITRY

- Session Chairman:* GENTARO MIYAZAKI
Hitachi Consumer Products Research
Center, New York, New York
- A. *Design Considerations for HV Silicon Diodes Integrated into Flyback Transformers*
MEL BUECHEL AND DOUG WALTZ
Varo Semiconductor, Inc., Garland, Texas
- B. *The Multi-Stage-Singular Flyback Transformer*
RYOZO TAKEUCHI, HIROJI SAWADA, KAZUO FUJITA,
EIICHI YANAHARA, MITSU HARU AKATSU AND
TAKESHI ISHIZUKA
Hitachi Research Center, Tokyo, Japan
- C. *Development of a New Corona Discharge Detector and a New Hermetically-Sealed Flyback Transformer*
HIRONORI YOSHINO, KOHEI SATO AND
AKIO TOMAGO
Matsushita Electric Industrial Co., Osaka, Japan
- D. *Corona Starting Voltage of Capacitors Driven with Pulsed Waveforms*
HERBERT L. RICE, R. LINZEY AND G. A. SHIRN
Sprague Electric Company
North Adams, Massachusetts

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December 6-7, 1976

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