

History of the Power Semiconductor Committee

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THE Power Semiconductor Committee has been a major stimulator of technological discovery for the industries serviced by the Industrial Applications Society of the IEEE. The committee's activities are a principal reason why a major portion of the industrial tools supported by the IAS now incorporate some type of power semiconductor device.

Between 1967 and 1978 there was only one year when less than fifteen Power Semiconductor Committee papers were presented at the Societies Annual Meeting. In 1967-1977, and 1978 the Power Semiconductor Committee sponsored over twenty papers with a peak of twenty five in 1978.

At the 1967 Annual Meeting it was the most prolific committee sponsoring almost twice as many papers as any other committee. A leadership position was maintained for five of the next six years until 1974 when the Electrostatic Process Committee began to dominate the conference.

The early years saw papers on the development of power devices such as diodes, transistors, and thyristors of various types and of ever greater capabilities. There was also considerable work presented in the area of device testing, rating procedures and philosophies, device simulation and reliability histories. This series of papers also followed the development of associated components and their correlation with the Power Semiconductor device such as fuses, snubbers, and heatsink designs.

The committee has also traditionally been an enthusiastic supporter of innovative circuit applications for the devices under its charter, as well as the development of sophisticated methods of analyzing these circuits. These include inverters, motor drives, and induction heating circuits, among many others. This support of collateral activities was sufficient to

produce a series of special events such as a working group on capacitors at the 1972 conference and a single session of seven papers devoted to fuse correlation with semiconductors at the 1970 conference.

By the middle seventies, developments such as the gate turn-off thyristor and the reverse conducting thyristor were generating committee papers. Also by this time, papers in the area of innovative packaging were present. The multidevice electrically isolated, power module is an example of one such idea which has continued to evolve and benefit from increasing usage in the industry. The original work horse devices also saw continued development. By 1975 three and four inch diameter thyristors and diodes had appeared in the committee's papers.

Since the peak year of 1978 when the committee sponsored 25 papers there has been a steady decline in the quantity of papers. No more than ten papers have been offered in any year since then and the most recent conference in 1983 saw only four papers scheduled by the conference opening day.

If the study of the past can provide any clue to the future, then it will require the development a new kind of power device to revitalize the activities of this committee. Perhaps the power mosfet which has been the subject of recent committee papers is just such an event.

No record of human events is philosophically complete without mention of the people who lived that history. The committee members and chairmen, the organizations that supported the committee's activities, and especially the authors are primarily responsible for the performance of the committee.

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