TRANSISTORS IN PULSE CIRCUITS

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AUDIOFREQUENCY TRANSISTORS

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TRANSISTORS IN PULSE CIRCUITS

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G. FONTAINE

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FOREWORD

With the wider application of electronic systems in industry, and the ever-increasing use of computers, all types of engineers and technicians must be well-informed on the operating principles and the nature of circuits and components.

Information to be produced, transmitted or transformed is now nearer to a square or triangular signal, rather than the sinusoidal oscillations already met with in audio- and radiofrequency. These new signals have their own characteristics, parameters and behaviour patterns, and it is the purpose of this book to study and explain these. Moreover, semiconductors (diodes, transistors, integrated circuits) can distort the functioning of equipment, and a thorough understanding of the basic physical principles involved is necessary to explain these effects and to find ways of reducing or eliminating them.

This book is divided into three main parts: the first deals with factors relating to the purely electrical behaviour of diodes and transistors, and defines the principle 'switching' parameters, i.e. forward and reverse recovery time of the diodes, rise and fall time of the current, delay and desaturation time, etc. The second part outlines the limiting operating conditions of semiconductors by linking the considerations of maximal power and critical temperature. The third and final part of the book is a thorough study of the principal components of switching circuits: astable, monostable and bistable multivibrators, astable and triggered blocking oscillators.

This knowledge is essential for the design, construction and maintenance of components or equipment for numerical and logical systems. For the sake of simplicity, however, we have omitted complex mathematical treatments, as the design of a multivibrator and the definition of its limiting operating conditions can be worked out by very simple equations.

Furthermore, the systematic examination of density graphs enables useful and practical conclusions to be drawn from an apparently qualitative study; a thorough and detailed explanation of all the terms likely to be met in the literature will be found in this book.

G. FONTAINE

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