AS 1967—1977
UDC 621.382

# Australian Standard 1967—1977

# ESSENTIAL RATINGS AND CHARACTERISTICS FOR INTEGRATED CIRCUITS

STANDARDS ASSOCIATION OF AUSTRALIA
*Incorporated by Royal Charter*

THE FOLLOWING SCIENTIFIC, INDUSTRIAL AND GOVERNMENTAL organizations and departments were officially represented on the committee entrusted with the preparation of this standard:

Associated Chambers of Manufactures of Australia

Defence Standardization Committee

Department of Productivity

Department of Transport

Institution of Radio and Electronics Engineers, Australia

Telecom Australia

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This standard, prepared by Committee TE/12, Semiconductors and Devices, was approved on behalf of the Council of the Standards Association of Australia on 20 August 1976, and was published on 1 May 1977.

To keep abreast of progress in industry, Australian standards are regularly reviewed. Suggestions for improvements to published standards, addressed to the head office of the Association, are welcomed.

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*This standard was issued in draft form for public review as DR* 74107.

AUSTRALIAN STANDARD SPECIFICATION

# ESSENTIAL RATINGS AND CHARACTERISTICS FOR INTEGRATED CIRCUITS

AS 1967—1977

First published .... .... .... .... .... .... 1977

PUBLISHED BY THE STANDARDS ASSOCIATION OF AUSTRALIA
STANDARDS HOUSE, 80 ARTHUR STREET, NTH SYDNEY, N.S.W.

ISBN 0 7262 1097 8

# PREFACE

This standard is one of a series being prepared by the Association's Committee on Semiconductor Devices.

In its terminology, definitions and treatment of the subject this standard is technically identical with Chapters VI and VII of International Electrotechnical Commission Publication 147-1, issued as Supplements 147-1D and 147-1E. Acknowledgement is made of the assistance received from that source.

The purpose of this standard is to describe for both digital and analogue integrated circuits, a functional format and specification. Additionally, the ratings and characteristics considered necessary for device interchangeability are listed. The manufacturer or supplier may, of course, provide additional information. The standard covers such items as bipolar and MOS digital circuits, operational amplifiers, audio amplifiers, video amplifiers and telecommunication multichannel amplifiers.

This standard may require reference to—

AS C366 Essential Ratings and Characteristics of Semiconductor Devices and General Principles of Measuring Methods
Part 0—General and Terminology
Part 1—Essential Ratings and Characteristicts.

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STANDARDS ASSOCIATION OF AUSTRALIA

# Australian Standard Specification for ESSENTIAL RATINGS AND CHARACTERISTICS FOR INTEGRATED CIRCUITS

## SECTION 1. SCOPE, APPLICATION AND DEFINITIONS

**1.1 SCOPE.** This specification defines, for each type of integrated circuit, the essential ratings and characteristics by which a manufacturer describes a specific product. The lists of characteristics and ratings contain only that information considered essential to determine device interchangeability. Additional information may be given if desired.

**1.2 APPLICATION.** The provisions of Section 2 of this specification apply to combinatorial and sequential digital integrated circuits, including both bipolar and MOS circuits, unless otherwise specified. See Appendix A for an example.

The provisions of Section 3 of this specification apply to all types of analogue integrated circuits and especially to amplifier circuits, e.g. operational amplifiers, audio amplifiers, video amplifiers and multichannel telecommunication amplifiers.

**1.3 DEFINITIONS.** In general, the terminology used in this specification is defined in AS C366, Essential Ratings and Characteristics of Semiconductor Devices and General Principles of Measuring Methods, Part 0, General and Terminology*, and complies with AS 1852, International Electrotechnical Vocabulary.

For the purposes of this specification, the following definitions also apply:

**1.3.1 Micro-electronics**—the concept of the construction and use of highly miniaturized electronic circuits.

**1.3.2 Microcircuit**—a micro-electronic device, having a high equivalent circuit element and/or component density and which is considered as a single unit.

NOTE: A microcircuit may be a micro-assembly or an integrated circuit.

**1.3.3 Integrated circuit**—a circuit in which a number of circuit elements are inseparably associated and electrically interconnected such that for testing, sale and maintenance, it is considered indivisible.

**1.3.4 Integrated microcircuit**—a microcircuit in which a number of circuit elements are inseparably associated and electrically interconnected such that for sale, testing and maintenance, it is considered indivisible.

NOTES:

1. A circuit element does not have an envelope or external connection and is not specified as a separate item.
2. Where no misunderstanding is possible the term 'integrated microcircuit' may be abbreviated to 'integrated circuit'.
3. Further qualifying terms may be used to describe, for instance, the technique used in the manufacture of a specific integrated microcircuit, e.g. hybrid integrated circuit, thick film integrated circuit, thin film integrated circuit, semiconductor monolithic integrated circuit, semiconductor monolithic integrated circuit.

**1.3.5 Micro-assembly**—a microcircuit consisting of various components and/or integrated microcircuits which are constructed separately and which may be tested separately before being assembled and packaged.

NOTES:

1. Under this definition, a component has external connections and possibly an envelope and may be specified as a separate item.
2. Further qualifying terms may be used to describe the form of the components and/or the assembly techniques used in the construction of a specific micro-assembly, e.g. semiconductor multichip micro-assembly, discrete component micro-assembly.

*IEC 147-0 (1966) endorsed as the Australian standard and including IEC 147-0A (1969), 147-0B (1969) and 147-0C (1973).

## SECTION 2. DIGITAL INTEGRATED CIRCUITS

**2.1 FUNCTIONAL SPECIFICATIONS** (See also AS 1102, Graphical Symbols for Electrotechnology, Part 9—Logic Symbols).

**2.1.1 Block Diagram.** A block diagram or equivalent circuit information of the digital integrated circuit shall be given.

The following terminals may be distinguished:

(a) Supply terminals, i.e. terminals intended to be connected to the power supplies.

(b) Input and output terminals, i.e. terminals into or out of which signals are passed. The term 'signal' includes both pulse and more complex waveforms.

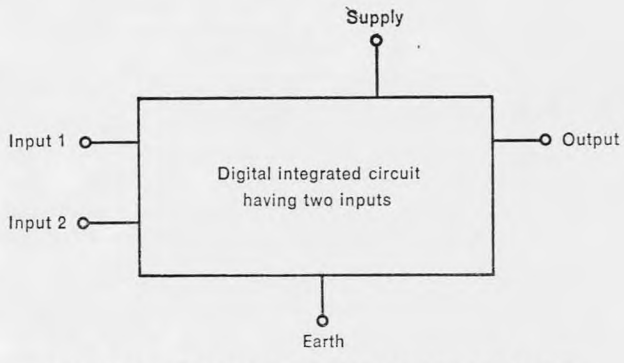


Fig. 2.1. DIGITAL INTEGRATED CIRCUIT HAVING TWO INPUTS