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Australian Standard®

SEMICONDUCTOR CONVERTORS

Part 1-GENERAL

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 Manufacturers of Australia

Australian Electrical Manufacturers Association

Bureau of Steel Manufacturers of Australia

Department of Defence

Electricity Supply Association of Australia

Railways of Australia Committee

Telecom Australia

Universities

This standard, prepared by the Committee EL/27, Power Electronics, was approved on behalf of the Council of the Standards Association of Australia on 22 July 1976, and was published on 1 July 1977.

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PREFACE

This standard was originally prepared by the Association's Committee EL/27, Power Electronics, in 1977. In 1983 the committee reviewed the standard and reconfirmed it as an Australian standard without change. It is based on Publication 146, Semiconductor Convertors, published by the International Electrotechnical Commission (IEC). Acknowledgement is made of the assistance received from this source.

The IEC standard was examined in terms of Australian practice and amended where necessary. In the main the amendments consist of editorial changes not involving change in basic meanings, renumbering of clauses and re-arrangement of Section 1 to ensure conformity with the style of Australian standards.

Technical changes are few, but where the standard does deviate technically from the IEC standard by way of actual change, or cross-reference to an appropriate Australian standard, this change is indicated by a rule in the margin.

The purpose of the standard is to define the terminology and specify the symbols, requirements and test methods appropriate to semiconductor convertors and transformers. Information is also given on individual semi-conductor diodes and thyristors. Further information on these components may be obtained by reference to the Australian equivalents of IEC Publication 147, Part 0, 1 and 2 and 148. These documents are listed below.

Attention is drawn to the need to cross-refer to the following Australian standards to amplify the information given herein:

AS 1102	Graphical Symbols for Electrotechnology Part 5—Semiconductor Devices Part 10—Signal Transmission Symbols
AS 1852	International Electrotechnical Vocabulary (05) Fundamental Definitions (11) Static Convertors
AS C61	Power Transformers
AS C320	Classification of Insulating Materials for Electrical Machinery and Apparatus on the Basis of Thermal Stability in Service
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 Characteristics Part 2—General Principles of Measuring Methods
AS C367	Letter Symbols for Semiconductor Devices and Integrated Microcircuits

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard Specification for SEMICONDUCTOR CONVERTORS

PART 1—GENERAL

SECTION 1. GENERAL

1.1 Scope

This standard specifies requirements for semicondutor rectifiers, diodes and thyristors, convertor* transformers and reactors, and convertor equipments and assemblies together with tolerances on rated values and conditions, and performance requirements and application information. In addition, letter symbols and definitions are provided for terms used in conjunction with such devices and equipments.

1.2 Application

This standard applies to static power convertors of the line- or machine-commutated type for conversion from a.c. to d.c. or from d.c. to a.c., i.e. rectifiers, inverters and convertors embodying both modes of operation. It applies also to convertors for control of alternating voltage and convertors in which the commutating voltage is supplied by the load circuit, e.g. a resonating load.

The standard is restricted to convertors with semiconductor rectifier diodes, reverse blocking triode thyristors or a combination of these, but it may also be applied for convertors with bidirectional thyristors in so far as applicable. The term ‘thyristor’ is used in the standard as an abbreviation for reverse blocking triode thyristor.

The standard does not apply to convertors in which the commutating voltage is supplied by internal sources, e g. capacitors, frequency convertors, convertors used in telecommunication apparatus other than for power supplied to such equipment, to auxiliaries of measuring instruments, or system control equipments for control of static power convertors.

Special kinds of convertors, e.g. convertors for adjustable speed d.c. motor drives, power convertors for electric traction, convertors for control of alternating voltage, self-commutated inverters, d.c. to d.c. convertors, etc, are not covered by this standard.

1.3 Reference to Other Specifications.

This standard makes reference to the following:

AS 1852	International Electrotechnical Vocabulary
	(05)—Fundamental Definitions; Section 41.
	(11)—Static Convertors.
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 Characteristics
	Part 2—General Principles of Measuring Methods
AS C367	Letter Symbols for Semiconductor Devices and Integrated Micro-circuits
AS 1102	Graphical Symbols for Electrotechnology
	Part 5—Semiconductor Devices
	Part 10—Signal Transmission Symbols.

* The spelling of the word ‘convertor’ in this standard is in line with that used in IEC Publication 146, Semiconductor Convertors, from which the standard is derived. The Committee considered changing this to the form normally used in Australia but decided to leave the spelling unchanged and merely to note that both spellings are acceptable.