

Australian/New Zealand Standard™

**Power transformers**

**Part 5: Ability to withstand short circuit  
(IEC 60076-5, Ed. 3.0 (2006) MOD)**



## **AS/NZS 60076.5:2012**

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL-008, Power Transformers. It was approved on behalf of the Council of Standards Australia on 22 March 2012 and on behalf of the Council of Standards New Zealand on 29 March 2012.

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The following are represented on Committee EL-008:

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Australian Chamber of Commerce and Industry  
Australian Industry Group  
Australian Greenhouse Office, Department of the Environmental and Heritage  
Australian Institute of Petroleum  
Department of Climate Change and Energy Efficiency  
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*This Standard was issued in draft form for comment as DR AS/NZS 60076.5.*

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# Australian/New Zealand Standard™

## Power transformers

### Part 5: Ability to withstand short circuit (IEC 60076-5, Ed. 3.0 (2006) MOD)

Originated in Australia as AS C61—1931.  
Previous edition AS 2375.5—1982.  
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## PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-008, Power Transformers to supersede AS 2374.5—1982, *Power transformers, Part 5: Ability to withstand short-circuit*.

The objective of this Standard is to provide designers, manufacturers, test laboratories and purchasers with methods of assessing the ability of a power transformer to sustain external short circuits.

This Standard contains different test methods to those in AS 2374.5—1982.

This Standard is an adoption with national modifications and has been reproduced from IEC 60076-5, Ed.3.0 (2006), *Power transformers—Part 5: Ability to withstand short circuit* and has been varied as indicated in Appendix ZZ to take account of Australian and New Zealand conditions.

As this Standard is reproduced from an International Standard, the following applies:

- (a) Its number appears on the cover and title page while the International Standard number appears only on the cover.
- (b) In the source text ‘this part of IEC 60076’ should read ‘this Australian/New Zealand Standard’.
- (c) A full point substitutes for a comma when referring to a decimal marker.

The term ‘informative’ has been used in this Standard to define the application of the appendix to which it applies. An ‘informative’ appendix is only for information and guidance.

References to International Standards should be replaced by references to Australian or Australian/New Zealand Standards, as follows:

<i>Reference to International Standard</i>	<i>Australian/New Zealand Standard</i>
IEC	AS
60076 Power transformers	60076 Power transformers
60076-1 Part 1: General	60076.1 Part 1: General
	AS/NZS
60076-3 Part 3: Insulation levels, dielectric tests and external clearances in air	60076.3 Part 3: Insulation levels, dielectric tests and external clearances in air (IEC 60076-3, Ed 2 (2000) MOD)
60076-8 Part 8: Application guide	—
	AS
60076-11 Part 11: Dry-type transformers	60076.11 Part 11: Dry-type transformers

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## AUSTRALIAN/NEW ZEALAND STANDARD

**Power transformers**

## Part 5:

## Ability to withstand short circuit (IEC 60076-5, Ed. 3.0 (2006) MOD)

**1 Scope**

This part of IEC 60076 identifies the requirements for power transformers to sustain without damage the effects of overcurrents originated by external short circuits. It describes the calculation procedures used to demonstrate the thermal ability of a power transformer to withstand such overcurrents and both the special test and the theoretical evaluation method used to demonstrate the ability to withstand the relevant dynamic effects. The requirements apply to transformers as defined in the scope of IEC 60076-1.

**2 Normative references**

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60076-1:1993, *Power transformers – Part 1: General*  
Amendment 1 (1999)<sup>2</sup>

IEC 60076-3:2000, *Power Transformers – Part 3: Insulation levels, dielectric tests and external clearances in air*

IEC 60076-8:1997, *Power transformers – Part 8: Application guide*

IEC 60076-11:2004, *Power transformers – Part 11: Dry-type transformers*

**3 Requirements with regard to ability to withstand short circuit****3.1 General**

Transformers together with all equipment and accessories shall be designed and constructed to withstand without damage the thermal and dynamic effects of external short circuits under the conditions specified in 3.2.

External short circuits are not restricted to three-phase short circuits; they include line-to-line, double-earth and line-to-earth faults. The currents resulting from these conditions in the windings are designated as overcurrents in this part of IEC 60076.

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<sup>2</sup> There exists a consolidated edition 2.1 (2000) that includes edition 2.0 and its amendment.