UL 5085-2

STANDARD FOR SAFETY

Low Voltage Transformers – Part 2:
General Purpose Transformers

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UL Standard for Safety for Low Voltage Transformers – Part 2: General Purpose Transformers, UL 5085-2

Second Edition, Dated August 16, 2021

Summary of Topics

This reaffirmation of ANSI/UL 5085-2 dated April 28, 2026 is issued to update the title page to reflect the most recent designation as a Reaffirmed American National Standard (ANS). No technical changes have been made.

As noted in the Commitment for Amendments statement located on the back side of the title page, ULSE and CSA are committed to updating this harmonized standard jointly. However, the revision pages dated April 28, 2026 will not be jointly issued by ULSE and CSA as these revision pages only address UL ANSI approval dates.

Text that has been changed in any manner or impacted by ULSE's electronic publishing system is marked with a vertical line in the margin.

The requirements are substantially in accordance with Proposal(s) on this subject dated February 20, 2026.

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This ANSI/UL Standard for Safety consists of the Second Edition including revisions through April 28, 2026.

The most recent designation of ANSI/UL 5085-2 as a Reaffirmed American National Standard (ANS) occurred on April 28, 2026. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, Title Page (front and back), or the Preface.

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Preface

This is the harmonized CSA Group and ULSE standard for low voltage transformers. It is the second edition of CSA C22.2 No. 66.2 and the second edition of UL 5085-2. This edition of CSA C22.2 No. 66.2/UL 5085-2 supersedes the previous edition published on April, 2006.

This harmonized Standard was prepared by a Technical Harmonization Committee comprised of members from CSA Group, ULSE, and representatives of the low voltage transformer manufacturing industry. The efforts and support of members of the Technical Harmonization Committee are gratefully acknowledged.

This Standard is considered suitable for use for conformity assessment within the stated scope of the Standard.

This Standard was reviewed by the CSA Subcommittee on Specialty Transformers, under the jurisdiction of the CSA Technical Committee on Industrial Products and the CSA Strategic Steering Committee on Requirements for Electrical Safety, and has been formally approved by the CSA Technical Committee.

Application of Standard

Where reference is made to a specific number of samples to be tested, the specified number is to be considered a minimum quantity.

Note: Although the intended primary application of this Standard is stated in its scope, it is important to note that it remains the responsibility of the users of the Standard to judge its suitability for their particular purpose.

Level of harmonization

This Standard uses the IEC format but is not based on, nor is it considered equivalent to, an IEC standard.

This Standard is published as an equivalent standard for CSA Group and ULSE.

An equivalent standard is a standard that is substantially the same in technical content, except as follows: Technical national differences are allowed for codes and governmental regulations as well as those recognized as being in accordance with NAFTA Article 905, for example, because of fundamental climatic, geographical, technological, or infrastructural factors, scientific justification, or the level of protection that the country considers appropriate. Presentation is word for word except for editorial changes.

Reasons for Differences from IEC

The THC determined that the safe use of transformers and reactors is critically dependent on the electrical system in which they are intended to be installed. Significant investigation is required to assess safety and system compatibility issues that may lead to harmonization of traditional North American transformers and reactors with those presently addressed in the known IEC standards. The THC agreed such future investigation might be facilitated by completion of harmonization of North American standards for transformers and reactors.

Interpretations

The interpretation by the standards development organization of an identical or equivalent standard is based on the literal text to determine compliance with the standard in accordance with the procedural rules of the standards development organization. If more than one interpretation of the literal text has been identified, a revision is to be proposed as soon as possible to each of the standards development organizations to more accurately reflect the intent.

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Parts

The Standard for Low Voltage Transformers is divided into the following parts:

Part Number	Standard Title	Standard Number
1	General Requirements	CSA C22.2 No. 66.1/UL 5085-1
2	General Purpose Transformers	CSA C22.2 No. 66.2/UL 5085-2
3	Class 2 and Class 3 Transformers	CSA C22.2 No. 66.3/UL 5085-3

NOTES –

1. Part 1 covers the general requirements for transformer characteristics, marking, construction, and tests. Additional specific requirements are provided in the subsequent parts.

2. Part 2 and Part 3 supplement requirements and/or modify the corresponding clauses in Part 1 and should be applied together with Part 1. The numbered clauses in Part 2 and Part 3 correspond to the numbered clauses in Part 1.

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PART 2: GENERAL PURPOSE TRANSFORMERS

1 Scope

1.1 As noted in Low Voltage Transformers – Part 1: General Requirements, UL 5085-1, or CSA C22.2 No. 66.1, Low Voltage Transformers – Part 1: General Requirements, the requirements of Part 2 cover:

a) Air-cooled transformers and reactors for general use;

b) Autotransformers;

c) Ferroresonant transformers;

d) Cord-connected transformers; and

e) Transformers incorporating overcurrent or over-temperature protective devices, transient voltage surge protectors, or capacitors.

1.7 These requirements do not cover Class 2 and Class 3 transformers (which are evaluated in Part 3).

1.8 Part 2 is intended to be used in conjunction with Part 1. The numbering of the clauses in Part 2 corresponds to the numbered clauses in Part 1. The requirements in Part 1 apply unless modified by Part 2.

2 Units of Measurement

2.1 Values stated without parentheses are the requirement. Values in parentheses are explanatory or approximate information.

3 Referenced Publications

3.1 Any undated reference to a code or standard appearing in the requirements of this Standard shall be interpreted as referring to the latest edition of that code or standard.

3.2 When a reference is made to a code or standard, the product shall comply with the code or standard of the country in which the product is intended to be used.

3.3 In Canada, general requirements applicable to this Standard are given in CSA C22.2 No. 0, *General Requirements – Canadian Electrical Code, Part II*.

3.4 Throughout this Standard, the CSA standard references apply to products intended for use in Canada, and the UL standard references apply to products intended for use in the United States. Combined references are separated by a slash (“ / ”) to denote the difference between the applicable requirements specified for use in Canada and the United States.

3.5 The following publications are referenced in this Standard:

CSA C22.2 No. 0, *General Requirements – Canadian Electrical Code, Part II*

CSA C22.2 No. 66.1, *Low Voltage Transformers – Part 1: General Requirements*

CSA C22.2 No. 94.2, *Enclosures for Electrical Equipment, Environmental Considerations*

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IEEE C57.12.91, *Standard Test Code for Dry-Type Distribution and Power Transformers*

UL 50E, *Standard for Enclosures for Electrical Equipment, Environmental Considerations*

UL 5085-1, *Standard for Low Voltage Transformers – Part 1: General Requirements*

5 Mechanical Assembly

5.4 A transformer weighing more than 45 kg (100 lbs) shall be provided with a means for lifting by a forklift, cable, sling, or similar method. The lifting means may be provided on the transformer core or frame if the transformer has a removable top cover. The lifting means shall be subjected to the Lifting or Mounting Means Test in Clause 37.

Note: The lifting means test does not apply to a transformer that is intended to be lifted from underneath by a forklift or other method.

6 Enclosure

6.5 Openings

6.5.2 Openings shall prevent passage of a straight rod 12.7 mm (0.5 inch) in diameter. When the distance between live parts and the enclosure and between the plane of the ventilation opening and live parts is 102 mm (4 inches) or more, openings shall be constructed so that they will prevent passage of a rod 19 mm (0.75 inch) in diameter. When the distance between the plane of the opening and uninsulated live parts is less than 102 mm (4 inches), the rod shall have a cross-section of 13.4 mm (0.53 inch).

8 Connections

8.1 General

8.1.4 A transformer shall have provision for the connection of supply and load conductors, either in the form of busbars, leads, pressure terminal connectors, or terminal pads for pressure terminal connectors.

Note: Studs or wire binding screws may be used for field connections when the full load current of the terminal is 24 A or less and the transformer is marked in accordance with Clause 17.5.5. The studs or wire binding screws may be used for the field connection of 5.3 mm^2 (10 AWG) or smaller conductors.

8.4 Pressure terminal connectors

8.4.5 More than one wire connector may be provided for a single connection point to allow for connection of the various size conductors which require accommodation. In such case, each connector shall be marked in accordance with Clause 17.5.7.

8.5 Leads

8.5.9 A transformer lead shall:

a) Be of stranded wire.

b) Not be smaller than 2.1 mm^2 (14 AWG) copper or 3.3 mm^2 (12 AWG) aluminum.

c) Have a minimum length of 152 mm (6 inches) available for connection.

0.35 mm^2 (22 AWG) copper wire may be used as a lead for a transformer when the transformer is provided with a wiring compartment or is intended for mounting on an outlet box.

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