UL 248-13

STANDARD FOR SAFETY

Low-Voltage Fuses – Part 13: Semiconductor Fuses

UL Standard for Safety for Low-Voltage Fuses – Part 13: Semiconductor Fuses, UL 248-13

Third Edition, Dated March 31, 2022

Summary of Topics

The Third Edition of the Standard for Low-Voltage Fuses – Part 13: Semiconductor Fuses, ANSI/UL 248-13 dated March 31, 2022.

As noted in the Commitment for Amendments statement located on the back side of the title page, UL, CSA, and ANCE are committed to updating this harmonized standard jointly.

The requirements are substantially in accordance with Proposal(s) on this subject dated July 9, 2021.

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Second Edition

CSA Group
CSA C22.2 No. 248.13:22
Third Edition

Underwriters Laboratories Inc.
UL 248-13
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Low-Voltage Fuses – Part 13: Semiconductor Fuses

March 31, 2022

ANSI/UL 248-13-2022

Commitment for Amendments

This standard is issued jointly by the Association of Standardization and Certification (ANCE), the Canadian Standards Association (operating as “CSA Group”), and Underwriters Laboratories Inc. (UL). Comments or proposals for revisions on any part of the standard may be submitted to ANCE, CSA Group, or UL at anytime. Revisions to this standard will be made only after processing according to the standards development procedures of ANCE, CSA Group, and UL. CSA Group and UL will issue revisions to this standard by means of a new edition or revised or additional pages bearing their date of issue. ANCE will incorporate the same revisions into a new edition of the standard bearing the same date of issue as the CSA Group and UL pages.

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This Standard is subject to review within five years from the date of publication, and suggestions for its improvement will be referred to the appropriate committee. To submit a proposal for change, please send the following information to inquiries@csagroup.org and include "Proposal for change" in the subject line: Standard designation (number); relevant clause, table, and/or figure number; wording of the proposed change; and rationale for the change.

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This ANSI/UL Standard for Safety consists of the Third edition. The most recent designation of ANSI/UL 248-13 as an American National Standard (ANSI) occurred on March 31, 2022. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, Title Page (front and back), or the Preface.

Comments or proposals for revisions on any part of the Standard may be submitted to UL at any time. Proposals should be submitted via a Proposal Request in UL's On-Line Collaborative Standards Development System (CSDS) at https://csds.ul.com.

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Preface

This is the harmonized ANCE, CSA Group, and UL Standard for Low-Voltage Fuses – Part 13: Semiconductor Fuses. It is the second edition of NMX-J-009/248/13-ANCE, third edition of CSA C22.2 No. 248.13, and the third edition of UL 248-13. This edition of NMX-J-009/248/13-ANCE supersedes the first edition published in 2000. This edition of CSA-C22.2 No. 248.13 supersedes the second edition published in 2000. This edition of UL 248-13 supersedes the second edition published in 2000.

This harmonized standard was prepared by the Association of Standardization and Certification, (ANCE), CSA Group, and Underwriters Laboratories Inc. (UL). The efforts and support of the Technical Harmonization Subcommittee, 32B, Fuses, Fuseholders, on the Harmonization of Electrotechnical Standards of the Nations of the Americas (CANENA), are gratefully acknowledged.

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

The present Mexican Standard was developed by the TC 32 Fuses from the Comite de Normalizacion de la Asociacion de Normalizacion y Certificacion, A.C., CONANCE, with the collaboration of the fuse manufacturers and users.

This Standard was reviewed by the CSA Subcommittee on Fuses and Fuseholders and approved by the CSA Technical Committee on Industrial Products under the jurisdiction of the CSA Strategic Steering Committee on the Requirements for Electrical Safety. This standard has been developed in compliance with the Standards Council of Canada requirements for National Standards of Canada. It has been published as a National Standard of Canada by CSA Group.

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 is published as an identical standard for ANCE, CSA Group and UL.

An identical standard is a standard that is exactly the same in technical content except for national differences resulting from conflicts in codes and governmental regulations. Presentation is word for word except for editorial changes.

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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Low-Voltage Fuses – Part 13: Semiconductor Fuses

1 Scope

1.1 This Part is intended to be read together with the Standard for Low-Voltage Fuses – Part 1: General Requirements, hereafter referred to as Part 1. The titles of the Clauses in this Part correspond to the similarly titled Clauses in Part 1. The requirements of Part 1 apply unless modified by this Part. For the Part 1 requirements, refer to the Standard for Low-Voltage Fuses – Part 1: General Requirements, NMX-J-009-248/1-ANCE / CSA C22.2 No. 248.1 / UL 248-1.

1.2 This Part applies to semiconductor fuses rated 2000 Vac or less. DC ratings are optional.

NOTE: CSA C22.1, Canadian Electrical Code, Part I, defines low voltage as any voltage exceeding 30 V but not exceeding 1000 V inclusive and high voltage as any voltage exceeding 1000 V. The National Electrical Code, NFPA 70, defines high voltage as more than 600 V, nominal.

2 Referenced Publications

2.1 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.

2.2 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.

2.3 Throughout this Standard, the CSA standard references apply to products intended for use in Canada, the ANCE NMX standard references apply to products intended for use in Mexico, 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, Mexico, and the United States.

2.4 The following publications are referenced in this Standard:

United States	Canada	Mexico
NFPA 70, National Electrical Code	CSA C22.1, Canadian Electrical Code, Part I	NOM – 001, Mexican Electrical Code
	CSA C22.2 No. 0, General Requirements – Canadian Electrical Code, Part II	
UL 248-1, Low-Voltage Fuses – Part 1: General Requirements *(Trinational)*	CSA C22.2 No. 248.1, Low-Voltage Fuses – Part 1: General Requirements *(Trinational)*	NMX-J-009/248/1-ANCE, Low-Voltage Fuses – Part 1: General Requirements *(Trinational)*

3 Units of Measurement

3.1 The values given in SI (metric) shall be normative. Any other values given shall be for information purposes only.

4 Definitions

4.1 "a" FUSE – A fuse capable of interrupting, under specified conditions, all currents between the lowest current specified by the manufacturer and its interrupting rating.

4.2 "g" FUSE – A fuse capable of interrupting under specified conditions all currents which cause melting of the fuse-element up to its interrupting rating.

4.3 SEMICONDUCTOR FUSE – A fuse, letter designation "R," intended only for protection or isolation of semiconductor devices such as SCR's, diodes, and the like, and not branch-circuit protection.

5 General

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

6 Classification

6.1 Semiconductor fuses are non-renewable. They shall provide short-circuit protection and may provide overload protection. The following class designations apply to Semiconductor Fuses:

gR – Full-range, overload and short-circuit protection

aR – Partial-range, short-circuit protection

7 Characteristics

7.1 Voltage rating

7.1.1 For AC, the rating shall be 2000 Vac or less.

7.1.2 The DC voltage rating may be different from the AC rating.