



UL 248-10

STANDARD FOR SAFETY

Low-Voltage Fuses – Part 10: Class L Fuses

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UL Standard for Safety for Low-Voltage Fuses – Part 10: Class L Fuses, UL 248-10

Third Edition, Dated May 13, 2011

Summary of Topics

This revision of ANSI/UL 248-10 dated August 26, 2020 is being 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, UL, CSA, and ANCE are committed to updating this harmonized standard jointly. However, the revision pages dated August 26, 2020 will not be jointly issued by UL, CSA, and ANCE as these revision pages only address UL ANSI approval dates.

Text that has been changed in any manner or impacted by UL'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 June 12, 2020.

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Association of Standardization and Certification
NMX-J-009/248/10-ANCE
Second Edition



CSA Group
CSA C22.2 No. 248.10-11
Third Edition



Underwriters Laboratories Inc.
UL 248-10
Third Edition

Low-Voltage Fuses – Part 10: Class L Fuses

May 13, 2011

(Title Page Reprinted: August 26, 2020)



ANSI/UL 248-10-2011 (R2020)

Commitment for Amendments

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This ANSI/UL Standard for Safety consists of the Third Edition including revisions through August 26, 2020. The most recent designation of ANSI/UL 248-10 as a Reaffirmed American National Standard (ANS) occurred on August 6, 2020. 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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CONTENTS

Preface	5
1 General	7
1.1 Scope	7
4 Classification	7
5 Characteristics	7
5.2 Voltage rating	7
5.3 Current rating	7
5.5 Interrupting rating	7
5.6 Peak let-through current and clearing I^2t characteristics	7
6 Marking	9
7 Construction	9
7.1 Dimensions	9
7.2 Current-carrying parts	9
8 Tests	12
8.2 Verification of temperature rise and current-carrying capacity	12
8.3 Verification of overload operation	12
8.4 Verification of operation at rated voltage	12
8.5 Verification of peak let-through current and clearing I^2t characteristics	13

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No Text on This Page

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Preface

This is the harmonized ANCE, CSA, and UL standard for Low-Voltage Fuses – Part 10: Class L Fuses. It is the second edition of NMX-J-009/248/10-ANCE, the third edition of CSA C22.2 No. 248.10-11, and the third edition of UL 248-10. This edition of NMX-J-009-248/10-ANCE cancels the previous edition published in 2000. This edition of CSA C22.2 No. 248.10-11 supersedes the previous edition published in 2000.

This harmonized standard was prepared by the Association of Standardization and Certification (ANCE), the Canadian Standards Association (CSA), and Underwriters Laboratories Inc., (UL).

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 CT 32 from the Comité de Normalización de la Asociación de Normalización y Certificación, A. C., CONANCE, with the collaboration of the fuse manufacturers and users.

This standard was reviewed by the CSA Subcommittee on Fuses and Fuseholders, 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.

This standard has been approved by the American National Standards Institute (ANSI) as an American National Standard.

A UL standard is current only if it incorporates the most recently adopted revisions, all of which are itemized on the transmittal notice that accompanies the latest set of revised requirements.

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, 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 10: Class L Fuses

1 General

NOTE –

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 numbering of the clauses in this Part corresponds to like numbered Clauses in Part 1. The requirements of Part 1 apply unless modified by this Part. For Clauses not shown below, refer to the Standard for Low-Voltage Fuses – Part 1: General Requirements, NMX-J-009/248/1-ANCE ♦ CSA C22.2 No. 248.1-11 ♦ UL 248-1.

1.1 Scope

This Part applies to Class L fuses rated 100 – 6000 A and 600 V ac. DC ratings are optional.

4 Classification

Class L fuses are non-renewable, current-limiting bolt-in type with an interrupting rating of 200,000 A, or at the manufacturer's option 300,000 A. Class L fuses are divided into nine body sizes with the maximum current rating I_n for each size specified in this part. Time-delay ratings are optional.

5 Characteristics

5.2 Voltage rating

For AC, the rating shall be 600 V ac.

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

5.3 Current rating

Refer to [Figure A](#) for the range of current ratings in each body size.

5.5 Interrupting rating

For AC, 200,000 A or 300,000 A at the manufacturer's option (300,000 A not applicable in Mexico).

For DC, the preferred ratings are 20,000, 50,000, 100,000, 150,000, 200,000, or 300,000 A.

5.6 Peak let-through current and clearing I^2t characteristics

Maximum values of peak let-through current and clearing I^2t are given in [Table A](#) (see [8.5.3](#)). Peak let-through currents shall not exceed the levels defined by the appropriate Let Through Function specified in [Table A](#), as verified through measurement of peak let-through currents at 50, 100, 200, and, if applicable, 300 kA.

Clearing I^2t values recorded shall not exceed the limits specified in [Table A](#) as verified through measurement of clearing I^2t values at 50, 100, 200, and, if applicable, 300 kA.

Table A
Maximum peak let-through current and clearing I^2t for 600 volt Class L fuses

Current rating I_n , A	Between threshold and 50 kA		At 100 kA		At 200 kA		At 300 kA, if applicable		Peak Let-through Function
	Peak let-through current, A	I^2t , ampere- squared seconds	Peak let-through current, A	I^2t , ampere- squared seconds	Peak let-through current, A	I^2t , ampere- squared seconds	Peak let-through current, A	I^2t , ampere- squared seconds	
100	12,000	60,000	14,000	80,000	20,000	80,000	28,367	96,000	$Y = 1E-07x^2 + 0.02x + 10667$
101 – 200	16,000	200,000	20,000	300,000	30,000	300,000	42,367	360,000	$Y = 1E-07x^2 + 0.06x + 12667$
201 – 400	25,000	1,000,000	30,000	1,100,000	45,000	1,100,000	66,367	1,320,000	$Y = 3E-07x^2 + 0.05x + 21667$
401 – 600	35,000	2,500,000	45,000	2,500,000	70,000	2,500,000	101,367	3,000,000	$Y = 3E-07x^2 + 0.15x + 26667$
601 – 800	80,000	10,000,000	80,000	10,000,000	80,000	10,000,000	79,200	12,000,000	$Y = -6E-07x^2 + 0.3287x + 30712$
801 – 1200	80,000	12,000,000	80,000	12,000,000	120,000	15,000,000	107,800	18,000,000	$Y = -4E-07x^2 + 0.3206x + 48138$
1201 – 1600	100,000	22,000,000	100,000	22,000,000	150,000	30,000,000	143,000	36,000,000	$Y = -9E-07x^2 + 0.5678x + 52225$
1601 – 2000	110,000	35,000,000	120,000	35,000,000	165,000	40,000,000	158,400	48,000,000	$Y = -8.44E-07x^2 + 0.552x + 69400$
2001 – 2500	–	–	165,000	75,000,000	180,000	75,000,000	170,500	90,000,000	$Y = -8E-07x^2 + 0.5775x + 71500$
2501 – 3000	–	–	175,000	100,000,000	200,000	100,000,000	225,500	120,000,000	$Y = -8E-07x^2 + 0.6875x + 93500$
3001 – 4000	–	–	220,000	150,000,000	250,000	150,000,000	286,000	180,000,000	$Y = -1E-06x^2 + 1.035x + 97000$
4001 – 5000	–	–	–	350,000,000	300,000	350,000,000	286,000	420,000,000	
5001 – 6000	–	–	–	350,000,000	350,000	500,000,000	399,300	600,000,000	

6 Marking

6.1 Class L fuses may be marked "Time Delay."

7 Construction

7.1 Dimensions

Fuse dimensions are shown in [Figure A](#) and [Figure B](#).

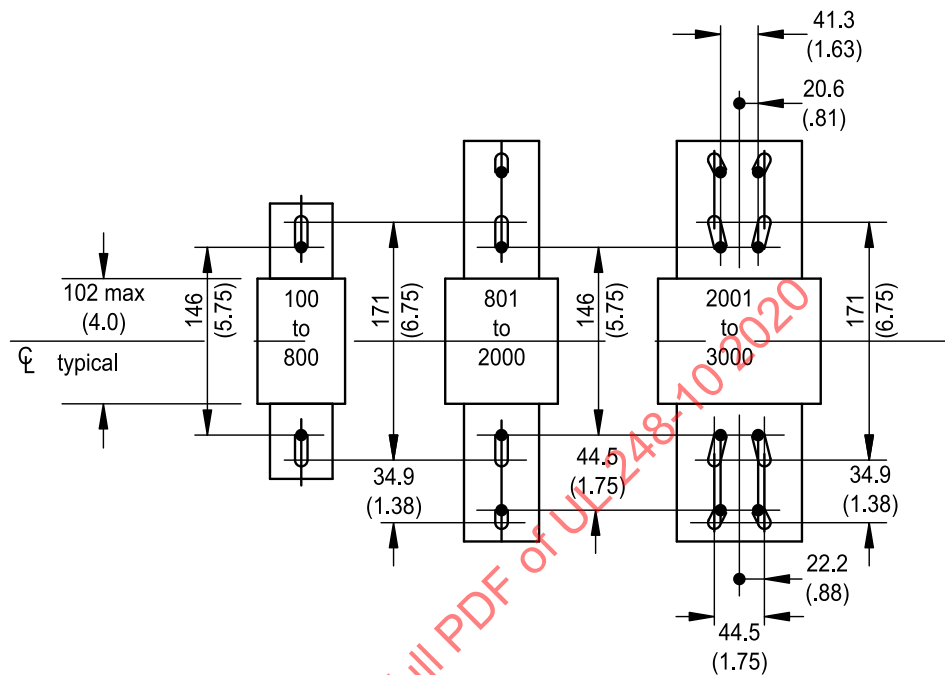
7.2 Current-carrying parts

7.2.1 The terminals of Class L fuses shall be electroplated with nickel, silver, or tin, or treated by other means to provide equivalent protection.

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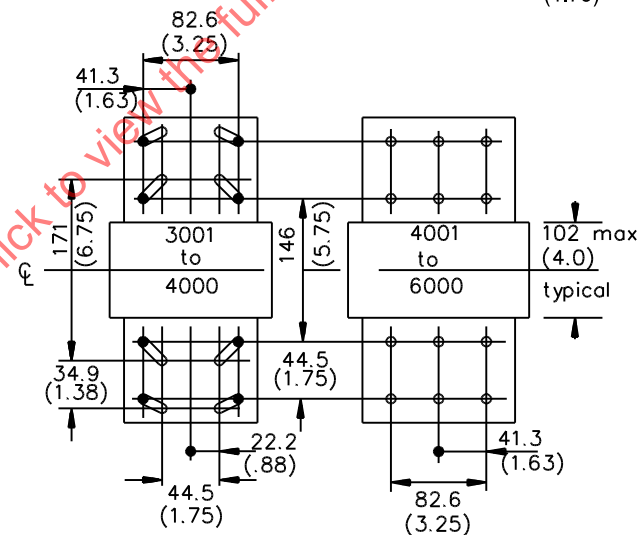
Figure A
Dimensions of Class L fuses in mm (in)

THE MINIMUM DISTANCE
FROM MIDPOINT OF FUSE
TUBE TO THE NEAREST
LIVE PART IS 12.7 mm (.5 IN)



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THE MINIMUM DISTANCE
FROM MIDPOINT OF FUSE
TUBE TO THE NEAREST LIVE
PART IS 12.7 mm (.5 IN)



SM652B