UL 248-8

STANDARD FOR SAFETY

Low-Voltage Fuses – Part 8: Class J Fuses

UL Standard for Safety for Low-Voltage Fuses – Part 8: Class J Fuses, UL 248-8

Third Edition, Dated May 13, 2011

Summary of Topics

This revision of ANSI/UL 248-8 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.

No Text on This Page

Association of Standardization and Certification
NMX-J-009/248/8-ANCE
Second Edition

CSA Group
CSA C22.2 No. 248.8-11
Third Edition

Underwriters Laboratories Inc.
UL 248-8
Third Edition

Low-Voltage Fuses – Part 8: Class J Fuses

May 13, 2011

(Title Page Reprinted: August 26, 2020)

ANSI/UL 248-8-2011 (R2020)

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.

ISBN 978-1-55491-639-9 © 2011 Canadian Standards Association

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.

To purchase CSA Group Standards and related publications, visit CSA Group's Online Store at store.csagroup.org or call toll-free 1-800-463-6727 or 416-747-4044.

This ANSI/UL Standard for Safety consists of the Third Edition including revisions through August 26, 2020. The most recent designation of ANSI/UL 248-8 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.

To purchase UL Standards, visit UL's Standards Sales Site at http://www. shopulstandards. com/HowToOrder.aspx or call toll-free 1-888-853-3503.

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
7 Construction 10
7.1 Dimensions 10
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

No Text on This Page

Preface

This is the harmonized ANCE, CSA, and UL standard for Low-Voltage Fuses – Part 8: Class J Fuses. It is the second edition of NMX-J-009/248/8-ANCE, the third edition of CSA C22.2 No. 248.8-11, and the third edition of UL 248-8. This edition of NMX-J-009-248/8-ANCE cancels the previous edition published in 2000. This edition of CSA C22.2 No. 248.8-11 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 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, 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.

No Text on This Page

Low-Voltage Fuses – Part 8: Class J 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 ♦ CAN/CSA C22.2 No. 248.1-11 ♦ UL 248-1.

1.1 Scope

This Part applies to Class J fuses rated 600 A or less and 600 V ac. DC ratings are optional.

4 Classification

Class J Fuses are non-renewable and current-limiting with an interrupting rating of 200,000 A. Class J fuses are divided into six 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 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 10,000, 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 Class J 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	
1			1,000	800					
3			1,500	1,200					
6			2,300	2,000					
10			3,300	3,000					
15			4,000	4,000					
20			5,000	5,000					
25			6,000	5,500					
30	6,000	7,000	7,500	7,000	12,000	7,000	18,500	8,400	$Y = 1E\text{-}07x^2 + 0.015x + 5000$
35			7,500	12,000					
40			8,000	17,000					
45			8,500	18,000					
50			9,000	22,000					
60	8,000	30,000	10,000	30,000	16,000	30,000	24,367	36,000	$Y = 1E\text{-}07x^2 + 0.02x + 6666.7$
70			11,500	50,000					
80			12,500	60,000					
90			13,500	75,000					
100	12,000	60,000	14,000	80,000	20,000	80,000	28,367	96,000	$Y = 1E\text{-}07x^2 + 0.02x + 10667$
110			14,500	100,000					
125			15,500	150,000					
150			17,000	175,000					
175			18,500	225,000					
200	16,000	200,000	20,000	300,000	30,000	300,000	42,367	360,000	$Y = 1E\text{-}07x^2 + 0.06x + 12667$
225			22,500	350,000					
250			24,000	450,000					

Table A Continued on Next Page

Table A Continued

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	
300			26,000	600,000					
350			29,000	800,000					
400	25,000	1,000,000	30,000	1,100,000	45,000	1,100,000	66,367	1,320,000	$Y = 3E\text{-}07x^2 + 0.05x + 21667$
450			36,000	1,500,000					
500			42,000	2,000,000					
600	35,000	2,500,000	45,000	2,500,000	70,000	2,500,000	101,367	3,000,000	$Y = 3E\text{-}07x^2 + 0.15x + 26667$

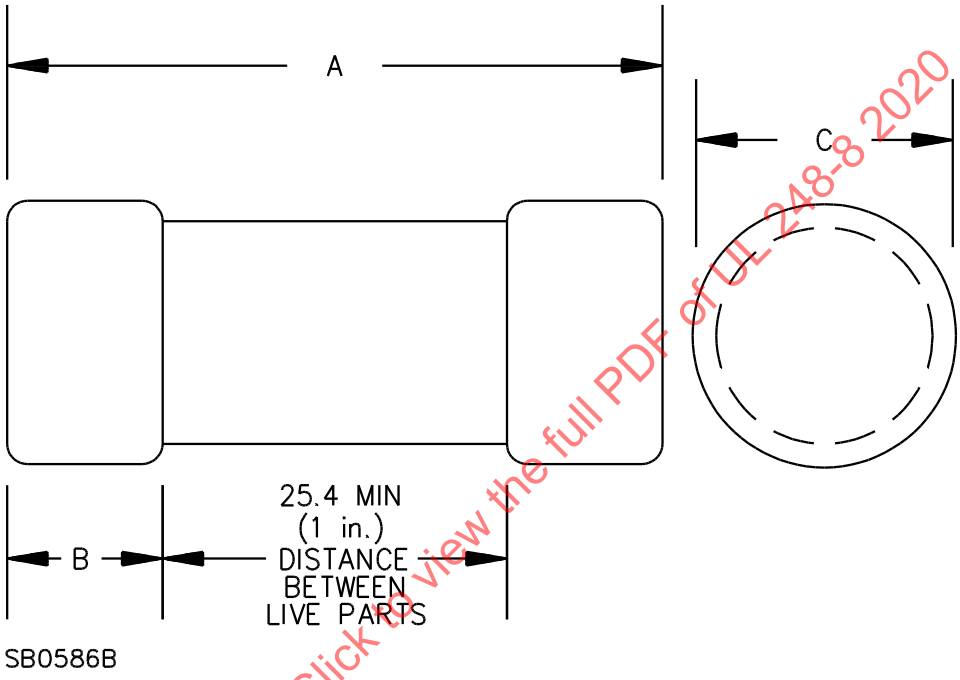
7 Construction

7.1 Dimensions

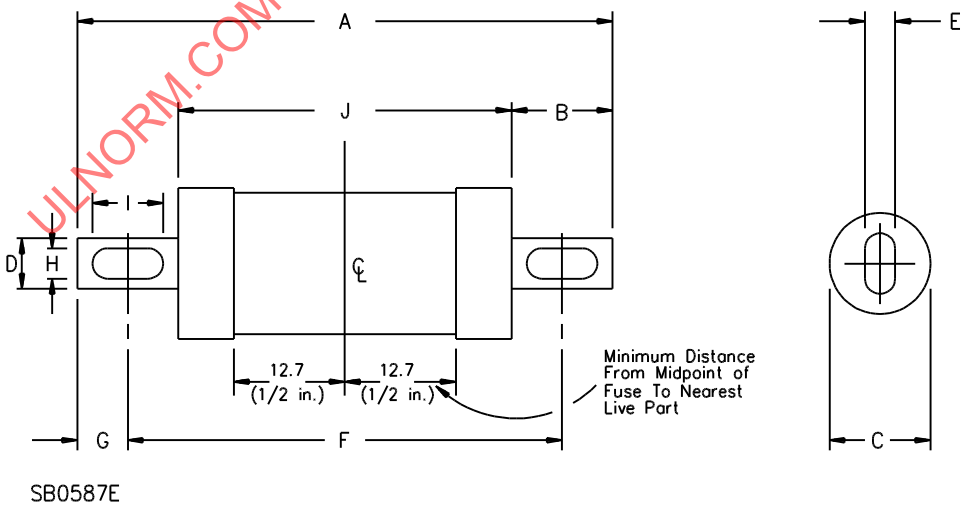
Fuse dimensions are shown in Figure A.

Figure A

Dimensions of Class J fuses in mm (in)[a]



Ferrule Type: 0 – 60 A



Knife-Blade Type: 61 – 600 A