



BSI Standards Publication

Semiconductor devices — Guidelines for reliability qualification plans

Part 2: Concept of mission profile

National foreword

This British Standard is the UK implementation of EN IEC 63287-2:2023. It is identical to IEC 63287-2:2023.

The UK participation in its preparation was entrusted to Technical Committee EPL/47, Semiconductors.

A list of organizations represented on this committee can be obtained on request to its committee manager.

Contractual and legal considerations

This publication has been prepared in good faith, however no representation, warranty, assurance or undertaking (express or implied) is or will be made, and no responsibility or liability is or will be accepted by BSI in relation to the adequacy, accuracy, completeness or reasonableness of this publication. All and any such responsibility and liability is expressly disclaimed to the full extent permitted by the law.

This publication is provided as is, and is to be used at the recipient's own risk.

The recipient is advised to consider seeking professional guidance with respect to its use of this publication.

This publication is not intended to constitute a contract. Users are responsible for its correct application.

© The British Standards Institution 2023
Published by BSI Standards Limited 2023

ISBN 978 0 539 15664 5

ICS 31.080.01; 31.080.99

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 May 2023.

Amendments/corrigenda issued since publication

Date	Text affected
------	---------------

English Version

Semiconductor devices - Guidelines for reliability qualification
plans - Part 2: Concept of mission profile
(IEC 63287-2:2023)

Dispositifs à semiconducteurs - Lignes directrices
concernant les plans de qualification de la fiabilité - Partie 2:
Concept de profil de mission
(IEC 63287-2:2023)

Halbleiterbauelemente - Richtlinien für
Zuverlässigkeitsqualifizierungspläne - Teil 2: Konzept des
Einsatzprofils
(IEC 63287-2:2023)

This European Standard was approved by CENELEC on 2023-05-03. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.



European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

The text of document 47/2796/FDIS, future edition 1 of IEC 63287-2, prepared by IEC/TC 47 "Semiconductor devices" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 63287-2:2023.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2024-02-03
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2026-05-03

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

This document is read in conjunction with EN IEC 63287-1.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 63287-2:2023 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standard indicated:

IEC 60068-2-1 NOTE Approved as EN 60068-2-1

IEC 60068-2-30 NOTE Approved as EN 60068-2-30

IEC 60749-11 NOTE Approved as EN 60749-11

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 63287-1	2021	Semiconductor devices - Generic semiconductor qualification guidelines - Part 1: Guidelines for IC reliability qualification	EN IEC 63287-1	2021

CONTENTS

FOREWORD	3
1 Scope	5
2 Normative references	5
3 Terms and definitions	5
4 Mission profile	5
4.1 Concept of mission profile	5
4.2 Example of reliability test plan considering the mission profile of automotive engine peripherals application (1)	6
4.3 Example of reliability test plan considering the mission profile of automotive engine peripherals application (2)	8
4.4 Example of reliability test plan considering the mission profile of automotive cabin peripherals application	9
5 Calculation examples of mission profiles (Calculation of sample and test time of life tests)	10
Bibliography	15
Figure 1 – Example of mission profile for automotive application	6
Table 1 – Trial calculation example of equivalent time under operating life test based on consideration of the mission profile (automotive application in the engine peripheral)	7
Table 2 – Trial calculation example of number of samples/test time of operating life test with consideration of the mission profile (Automotive application in the engine peripheral)	7
Table 3 – Trial calculation example of equivalent time under operating life test with consideration of the mission profile (automotive application in the engine peripheral)	8
Table 4 – Trial calculation example of equivalent time under operating life test with consideration of the mission profile (Automotive application in the engine peripheral)	9
Table 5 – Trial calculation example of equivalent time under operating life test with consideration of the mission profile (automotive application in the cabin peripheral)	9
Table 6 – Trial calculation example of number of samples/test time of high temperature operating life test with consideration of the mission profile (Automotive application in the cabin peripheral)	10
Table 7 – Calculation examples of mission profiles (Calculation of sample and test time of life tests)	11
Table 8 – Calculation examples of mission profiles (Calculation of sample and test time of life tests)	13