Semiconductor devices - Mechanical and climatic test methods - Part 6: Storage at high temperature

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NATIONAL FOREWORD

See Eesti standard EVS-EN 60749-6:2017 sisaldab Euroopa standardi EN 60749-6:2017 ingliskeelset teksti.	This Estonian standard EVS-EN 60749-6:2017 consists of the English text of the European standard EN 60749-6:2017.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 16.06.2017.	Date of Availability of the European standard is 16.06.2017.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 31.080.01

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 60749-6

June 2017

ICS 31.080.01

Supersedes EN 60749-6:2002

English Version

Semiconductor devices - Mechanical and climatic test methods - Part 6: Storage at high temperature (IEC 60749-6:2017)

Dispositifs à semiconducteurs - Méthodes d'essais mécaniques et climatiques - Partie 6: Stockage à haute température
(IEC 60749-6:2017)

Halbleiterbauelemente - Mechanische und klimatische Prüfverfahren - Teil 6: Lagerung bei hoher Temperatur
(IEC 60749-6:2017)

This European Standard was approved by CENELEC on 2017-04-07. 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.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

European foreword

The text of document 47/2347/FDIS, future edition 2 of IEC 60749-6, prepared by IEC/TC 47 "Semiconductor devices" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60749-6:2017.

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) 2018-01-07
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2020-04-07

This document supersedes EN 60749-6:2002.

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.

Endorsement notice

The text of the International Standard IEC 60749-6:2017 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 standards indicated:

IEC 60749-20	NOTE	Harmonized as EN 60749-20.
IEC 60749-43	NOTE	Harmonized as EN 60749-43 [1)].

1) At draft stage.

CONTENTS

SEMICONDUCTOR DEVICES – MECHANICAL AND CLIMATIC TEST METHODS –

Part 6: Storage at high temperature

1 Scope

The purpose of this part of IEC 60749 is to test and determine the effect on all solid state electronic devices of storage at elevated temperature without electrical stress applied. This test is typically used to determine the effects of time and temperature, under storage conditions, for thermally activated failure methods and time-to-failure of solid state electronic devices, including non-volatile memory devices (data-retention failure mechanisms). This test is considered non-destructive but should preferably be used for device qualification. If such devices are used for delivery, the effects of this highly accelerated stress test will need to be evaluated.

Thermally activated failure mechanisms are modelled using the Arrhenius equation for acceleration, and guidance on the selection of test temperatures and durations can be found in IEC 60749-43.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

4 Test apparatus

The controlled temperature chamber required for this test shall be capable of maintaining the test temperature within the tolerances specified in Table 1. Electrical equipment shall be capable of performing the appropriate measurements for the devices being tested, including writing and verifying the required data retention pattern(s) for nonvolatile memories.

5 Procedure

5.1 Test conditions

The devices under test (DUT) shall be subject to continuous storage (except when there is a requirement in the applicable procurement document to return the DUTs to room ambient for interim electrical measurements) at one of the temperatures specified in Table 1. Qualification and reliability monitoring test conditions typically require a test duration of 1 000 °C $^{+24}_{0}$ at test temperature B of Table 1. Other test conditions can be used as appropriate.