# SLOVENSKI STANDARD
# SIST EN IEC 60749-12:2018

**01-maj-2018**

**Nadomešča:**
**SIST EN 60749-12:2004**

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**Polprevodniški elementi - Mehanske in klimatske preskusne metode - 12. del: Vibracije, spremenljiva frekvenca (IEC 60749-12:2017)**

Semiconductor devices - Mechanical and climatic test methods - Part 12: Vibration, variable frequency (IEC 60749-12:2017)

Halbleiterbauelemente - Mechanische und klimatische Prüfverfahren - Teil 12: Schwingen, variable Frequenz (IEC 60749-12:2017)



Dispositifs à semiconducteurs - Méthodes d'essais mécaniques et climatiques - Partie 12: Vibrations, fréquences variables (IEC 60749-12:2017)



**Ta slovenski standard je istoveten z:** **EN IEC 60749-12:2018**

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**ICS:**

| | | |
|---|---|---|
| 31.080.01 | Polprevodniški elementi (naprave) na splošno | Semiconductor devices in general |

**SIST EN IEC 60749-12:2018** **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

# EN IEC 60749-12

March 2018

ICS 31.080.01

Supersedes EN 60749-12:2002

English Version

# Semiconductor devices - Mechanical and climatic test methods - Part 12: Vibration, variable frequency (IEC 60749-12:2017)

Dispositifs à semiconducteurs - Méthodes d'essais mécaniques et climatiques - Partie 12: Vibrations, fréquences variables (IEC 60749-12:2017)

Halbleiterbauelemente - Mechanische und klimatische Prüfverfahren - Teil 12: Schwingen, variable Frequenz (IEC 60749-12:2017)

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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 47/2386/CDV, future edition 2 of IEC 60749-12, prepared by IEC/TC 47 "Semiconductor devices" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60749-12:2018.

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) | 2018-10-17 |
| • latest date by which the national standards conflicting with the document have to be withdrawn | (dow) | 2021-01-17 |

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## Endorsement notice

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In the official version, for Bibliography, the following note has to be added for the standard indicated:

| | | |
|---|---|---|
| IEC 60068-2-6 | NOTE | Harmonized as EN 60068-2-6. |

IEC 60749-12

Edition 2.0 2017-12

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

## Semiconductor devices – Mechanical and climatic test methods – Part 12: Vibration, variable frequency



## Dispositifs à semiconducteurs – Méthodes d'essais mécaniques et climatiques – Partie 12: Vibrations, fréquences variables



INTERNATIONAL ELECTROTECHNICAL COMMISSION

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# SEMICONDUCTOR DEVICES – MECHANICAL AND CLIMATIC TEST METHODS –

## Part 12: Vibration, variable frequency

## FOREWORD

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International Standard IEC 60749-12 has been prepared by IEC technical committee 47: Semiconductor devices.

This second edition cancels and replaces the first edition published in 2002. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) alignment with MIL-STD-883J Method 2007, Vibration, variable frequency.

The text of this International Standard is based on the following documents:

| CDV | Report on voting |
|---|---|
| 47/2386/CDV | 47/2434/RVC |

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 60749 series, published under the general title *Semiconductor devices – Mechanical and climatic test methods*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

# SEMICONDUCTOR DEVICES – MECHANICAL AND CLIMATIC TEST METHODS –

## Part 12: Vibration, variable frequency

## 1 Scope

This part of IEC 60749 describes a test to determine the effect of variable frequency vibration, within the specified frequency range, on internal structural elements. This is a destructive test. It is normally applicable to cavity-type packages.

NOTE This test method describes a swept sine test. A random vibration test is described in JEDEC document JESD 22-B103.

## 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 apparatus for this test shall include equipment capable of providing the required variable frequency vibration at the specified level and the necessary optical and electrical equipment for post-test measurements.

## 5 Test method

The device shall be rigidly fastened on the vibration platform and the leads or cables adequately secured to avoid excessive lead resonance. The device shall be vibrated with simple harmonic motion having either a peak to peak amplitude of 1,5 mm (±10 %) or a peak acceleration of the specified test condition A, B, or C in Table 1, below.

Unless required by the relevant specification, the test conditions detailed in Table 1 below shall be applied. Test conditions shall be amplitude controlled below the crossover frequency and acceleration level controlled above. The vibration frequency shall be varied approximately logarithmically between 20 Hz and 2 000 Hz. The entire frequency range of 20 Hz to 2 000 Hz and return to 20 Hz shall be traversed in not less than 4 min. This cycle shall be performed 4 times in each of the orientations X, Y, and Z (total of 12 times), so that the motion shall be applied for a total period of not less than 48 min.

NOTE Alternative test conditions are listed in IEC 60068-2-6 and JEDEC document JESD 22-B103.