

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Semiconductor devices – Mechanical and climatic test methods –
Part 13: Salt atmosphere**

**Dispositifs à semiconducteurs – Méthodes d'essais mécaniques et climatiques –
Partie 13: Atmosphère saline**



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INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 31.080.01

ISBN 978-2-8322-5369-4

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**SEMICONDUCTOR DEVICES –
MECHANICAL AND CLIMATIC TEST METHODS –****Part 13: Salt atmosphere**

FOREWORD

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International Standard IEC 60749-13 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 1009.8, Salt Atmosphere (Corrosion), including information on conditioning and maintenance of the test chamber and mounting of test specimens (including explanatory figures).

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

FDIS	Report on voting
47/2446/FDIS	47/2455/RVD

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- withdrawn,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 13: Salt atmosphere

1 Scope

This part of IEC 60749 describes a salt atmosphere test that determines the resistance of semiconductor devices to corrosion. It is an accelerated test that simulates the effects of severe sea-coast atmosphere on all exposed surfaces. It is only applicable to those devices specified for a marine environment.

The salt atmosphere test is considered destructive.

2 Normative references

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.

IEC 60749-14, *Semiconductor devices – Mechanical and climatic test methods – Part 14: Robustness of terminations (lead integrity)*

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 following items are required for performing the salt atmosphere test.

- a) Temperature-controlled chamber with suitable non-corrodible rack for supporting devices. All parts within the test chamber which come in contact with test specimens shall be of materials that will not cause electrolytic corrosion. The chamber shall be properly vented to prevent pressure build-up and allow uniform distribution of salt fog.
- b) Salt solution reservoir adequately protected from the surrounding ambient.

The salt concentration shall be 0,5 % to 3,0 % by weight in deionized or distilled water as required to achieve the deposition rates required by 5.4. The salt used shall be sodium chloride containing on the dry basis not more than 0,1 % by weight of sodium iodide and not more than 0,3 % by weight total impurities. The pH of the salt solution shall be maintained between 6,5 and 7,2 when measured at 35 °C ± 3 °C. Only CP grade (dilute solution) hydrochloric acid or sodium hydroxide shall be used to adjust the pH.