

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Semiconductor devices – Discrete devices –
Part 4: Microwave diodes and transistors**

**Dispositifs à semiconducteurs – Dispositifs discrets –
Partie 4: Diodes et transistors hyperfréquences**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

SEMICONDUCTOR DEVICES – DISCRETE DEVICES –

Part 4: Microwave diodes and transistors

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International Standard IEC 60747-4 has been prepared by subcommittee 47E: Discrete semiconductor devices, of IEC technical committee 47: Semiconductor devices.

This second edition cancels and replaces the first edition, published in 1991, its amendments 1, 2 and 3 (1993, 1999 and 2001, respectively), and constitutes a technical revision.

The major technical changes with regard to the previous edition are as follows:

- a) the clause of bipolar transistors has been added;
- b) the clause of field-effect transistors has been amended.

The text of this standard is based on the following documents:

FDIS	Report on voting
47E/330/FDIS	47E/339/RVD

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

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

The list of all parts of the IEC 60747 series, under the general title *Semiconductor devices – Discrete devices*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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- withdrawn;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

SEMICONDUCTOR DEVICES – DISCRETE DEVICES –

Part 4: Microwave diodes and transistors

1 Scope

This part of IEC 60747 gives requirements for the following categories of discrete devices:

- variable capacitance diodes and snap-off diodes (for tuning, up-converter or harmonic multiplication, switching, limiting, phased shift, parametric amplification);
- mixer diodes and detector diodes;
- avalanche diodes (for direct harmonic generation, amplification);
- gunn diodes (for direct harmonic generation);
- bipolar transistors (for amplification, oscillation);
- field-effect transistors (for amplification, oscillation).

2 Normative references

The following referenced documents are indispensable for the application 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 60050-702:1992, *International Electrotechnical Vocabulary – Chapter 702: Oscillations, signals and related devices*

IEC 60747-1:2006, *Semiconductor devices – Part 1: General*

IEC 60747-7:2000, *Semiconductor devices – Part 7: Bipolar transistors*

IEC 60747-8:2000, *Semiconductor devices – Part 8: Field-effect transistors*

IEC 60747-16-1:2001, *Semiconductor devices – Part 16-1: Microwave integrated circuits – Amplifiers*

Amendment 1(2007)

3 Variable capacitance, snap-off diodes and fast-switching schottky diodes

3.1 Variable capacitance diodes

3.1.1 General

The provisions of this part deal with diodes (excluding snap-off diodes) in which the variable capacitance effect is used; they cover four applications: tuning, harmonic multiplication, switching (including limiting), parametric amplification.