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Semiconductor devices – Discrete devices –
Part 7: Bipolar transistors

Dispositifs à semiconducteurs – Dispositifs discrets –
Partie 7: Transistors bipolaires

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SEMICONDUCTOR DEVICES – DISCRETE DEVICES –

Part 7: Bipolar transistors

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This Consolidated version of IEC 60747-7 bears the edition number 3.1. It consists of the third edition (2010-12) [documents 47E/404/FDIS and 47E/408/RVD] and its amendment 1 (2019-09) [documents 47E/635/CDV and 47E/672/RVC]. The technical content is identical to the base edition and its amendment.

This Final version does not show where the technical content is modified by amendment 1. A separate Redline version with all changes highlighted is available in this publication.

International Standard IEC 60747-7 has been prepared by subcommittee 47E: Discrete semiconductor devices, of IEC technical committee 47: Semiconductor devices.

The main changes with respect to previous edition are listed below.

a) Clause 1 was amended by adding an item that should be included.
b) Clauses 3, 4, 5, 6 and 7 were amended by adding terms, definitions, suitable additions and deletions those should be included.
c) The text of the second edition was combined with that of IEC 60747-7-5.

This standard is to be read in conjunction with IEC 60747-1:2006.

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

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

Future standards in this series will carry the new general title as cited above. Titles of existing standards in this series will be updated at the time of the next edition.

The committee has decided that the contents of the base publication and its amendment will remain unchanged until the stability 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- withdrawn,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.

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SEMICONDUCTOR DEVICES – DISCRETE DEVICES –

Part 7: Bipolar transistors

1 Scope

This part of IEC 60747-7 gives the requirements applicable to the following sub-categories of bipolar transistors excluding microwave transistors.

– Small signal transistors (excluding switching and microwave applications);
– Linear power transistors (excluding switching, high-frequency, and microwave applications);
– High-frequency power transistors for amplifier and oscillator applications;
– Switching transistors for high speed switching and power switching applications;
– Resistor biased transistors.

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 60050-521:2002, *International Electrotechnical Vocabulary – Part 521: Semiconductor devices and integrated circuits*

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

IEC 60747-4:2007, *Semiconductor devices – Discrete devices – Part 4: Microwave diodes and transistors*

3 Terms and definitions

For the purposes of this document the following terms and definitions apply.

3.1 Specific functional regions

3.1.1
functional collector region
collection region that acquires principal-current charge carriers from the functional base region through the (collecting) junction between it and the functional base region

Note 1 to entry In the normal operating mode, this functional region is located in the collector region and, in the inverse operating mode, in the emitter region.

3.1.2
functional emitter region
supply region that delivers principal-current charge carriers into the functional base region through the (emitting) junction between it and the functional base region.

Note 1 to entry In the normal operating mode, this functional region is located in the emitter region and, in the inverse operating mode, in the collector region.