

CONSOLIDATED VERSION

VERSION CONSOLIDÉE



**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 –
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**Semiconductor devices – Discrete devices –
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DISCRETE DEVICES –****Part 7: Bipolar transistors****FOREWORD**

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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.

In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted 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.

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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 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 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.