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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 7576-2026

Replacing GB/T 7576-1998

**Discrete semiconductor devices - Blank detail specification for
high power bipolar transistors**

半导体分立器件 大功率双极型晶体管空白详细规范

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1. Structure and Drafting Rules of Standardization Documents". Drafting. This document supersedes GB/T 7576-1998 "Semiconductor Devices - Discrete Devices - Part

1 Scope

GB/T 7576-2026 is the Chinese national standard covering the same blank form for power transistors - with the thermal resistance, the safe operating area and the switching parameters that only matter once the device is dissipating tens of watts. It replaces GB/T 7576-1998 and has been in force since 1 October 2026. It was issued on 31 March 2026 and takes effect on 1 October 2026, replacing GB/T 7576-1998. This page is published from the official record of the 2026 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

This document specifies the requirements for developing detailed specifications for high-power bipolar transistors, as well as the test conditions, inspection requirements, packaging, transportation, and storage. This document applies to the development of detailed specifications for high-power bipolar transistors.

3 Terms and Definitions

This document does not contain any terms or definitions that need to be defined.

4 Requirements

4.1 General Rules This document should be used in conjunction with GB/T 4023.1-2026.

4.2 Structure and Shape Detailed specifications should provide the basic structure of the device (including the semiconductor materials used, chip fabrication structure, chip bonding or sintering process, and bonding). The material, diameter and quantity of the wire) and its shape (including the package shape, lead material and coating, dimensions, etc.).

Dimension Code. When the dimensions of a device are listed in GB/T 7581, the dimension code of the device should be given. Outline drawing. When the outline dimensions of a device are not listed in GB/T 7581, a detailed outline drawing of the device should be provided. Lead identification. A lead arrangement diagram should be specified.

4.3 Maximum Ratings and Main Electrical Characteristics

4.3.1 Maximum Rated Value The maximum rated parameters of the device shall conform to the specifications in Table

1. Unless otherwise specified, these rated parameters shall apply throughout the operating temperature range. For internal use only.

4.3.2 Main Electrical Characteristics The electrical characteristics of the device shall conform to the specifications in Table 2 (unless otherwise specified, $T_a = 25^\circ\text{C}$, and other environmental conditions shall conform to GB/T 4589.1-2006). (As specified in 4.1). Inspection requirements are detailed in Chapter 5.

4.3.3 Electrical parameter curves The detailed specifications should provide key electrical parameter curves for the device, including the safe operating area curve and the total power dissipation-temperature derating curve.

4.4 Quality Assessment Categories and Quality Grades Detailed specifications should provide the quality assessment category and quality grade of the device, see GB/T 4589.1-2006 and GB/T 4023.1-2026.

4.5 Marking

4.5.1 Markings on the device The markings on the device shall comply with the provisions of GB/T 4023.1-2026.

4.5.2 Markings on the packaging box The markings on the packaging box should include at least.

---Manufacturer's trademark;

---Contact information for the manufacturer.

4.6 Model Naming Model naming should comply with the provisions of GB/T 249.

5 Test conditions and inspection requirements

5.1 Screening The screening should comply with the provisions of section

6.5 and Table 3 of GB/T 4023.1-2026.

5.2 Quality Consistency Inspection

5.2.1 General Rules Quality consistency inspection shall comply with the provisions of

6.6 and Tables 4 to 6 of GB/T 4023.1-2026.

5.2.2 Group A Test Group A testing is conducted batch-by-batch, and the specific testing items are shown in Table

4. Structural similarity should not be used as a substitute for Group A testing.

5.2.3 Group B Test Group B testing is conducted batch-by-batch; specific testing items are shown in Table

5. Group B testing allows the use of test data from structurally similar devices. Substitute the sample. Samples should be drawn from the batch that passed Group A inspection.

5.2.4 Group C Test Group C testing is a periodic test; specific test items are shown in Table

6. Group C testing is performed once every 12 months. Group C testing is optional. Devices within structurally similar groups should be tested in rotation. If steady-state life testing is not performed in group C8, intermittent life testing should be conducted. Inspection. Samples should be drawn from the batches that have passed Group A inspection.

5.3 Identification and Testing The identification test consists of Group A test, Group C test and Group D test, and is conducted in accordance with the provisions of Tables 4 to 7.

6. Packaging, transportation and storage Packaging, transportation and storage shall comply with the provisions of Chapter 7 of GB/T 4023.1-2026. GB/T 7576-2026. Blank Detailed Specification for High-Power Bipolar Transistors, Discrete Semiconductor Devices ICS

40 National Standards of the People's Republic of China Replaces GB/T 7576-1998 and GB/T 7577-1996 Semiconductor discrete devices High-power bipolar transistor blank detailed specification Published on 2026-03-

31 Implemented on October 1, 2026 State Administration for Market Regulation The State Administration for Standardization issued a statement.

7 Bipolar Transistors - Chapter

4. High Frequency". "Detailed Specifications for Rated Bipolar Transistors in Packages for

Amplifying Tubes" and GB/T 7577-1996 "Low-Frequency Rated Bipolar Transistors in Packages for Amplifying Tubes" The document is based on GB/T 7576-1998, and incorporates content from GB/T 7577-1996. It is consistent with GB/T 7576- Compared to 1998, aside from structural adjustments and editorial changes, the main technical changes are as follows:

---Added total input power requirements at maximum rated temperatures of $T_C=25^{\circ}\text{C}$ and $T_C=100^{\circ}\text{C}$ (see Table 1);

---The highest collector-emitter (DC) voltage V_{CEX} at the specified reverse base voltage has been removed, as well as the requirement for a short circuit between the base and emitter. The highest collector-emitter (DC) voltage V_{CES} at the specified external resistor RBE and the highest collector-emitter (DC) voltage at the specified external resistor RBE Parameters related to application conditions, such as current (V_{CR}) and voltage (V_{CER}), are specified (see Table 4 of GB/T 7576-1998 and GB/T 7577-1996). Table 4);

---A clause on electrical parameter curves has been added (see 4.3.3);

---Added filtering (see 5.1);

---The test for non-functional devices in group A2a has been removed (see Table 1 of GB/T 7576-1998 and GB/T 7577-1996). Table 1);

---The test of the common-base output capacitor for group A3 has been added (see Table 4);

---The test of the common-base output capacitor in the C2a group has been removed (see Table 3 of GB/T 7576-1998). Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents. This document was proposed by the Ministry of Industry and Information Technology of the People's Republic of China. This document is under the jurisdiction of the National Semiconductor Device Standardization Technical Committee (SAC/TC78). This document was drafted by: China Electronics Technology Standardization Institute, the Fifth Research Institute of Electronics Technology of the Ministry of Industry and Information Technology, and Jinan Jingheng Electronics Co., Ltd. Limited Liability Company, Xi'an Huanyu Microelectronics Co., Ltd., Military Project Review Center of the State Administration of Science, Technology and Industry for National Defense, Shenzhen Maxipu Semiconductor The companies mentioned are. Ti Co., Ltd., Qingdao Jiaen Semiconductor Co., Ltd., and Shenzhen Xinzhang Electronics Co., Ltd. The main drafters of this document are. Cao Zan, Zhou Shengze, Sun Ming, Yan Meicun, Hou Xiuping, Bian Yan, Dai Junfu, Tian Yanchun, Wang Hui, Wang Pilog, and Zhou Gang. The release history of this document and the document it replaces is as follows:

---GB/T 7576, first published in 1987, first revised in 1998;

---GB/T 7577, first published in 1987, first revised in 1996;