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

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Replacing GB/T 12560-1999

**Discrete semiconductor devices - Part 1: Sectional
specification
(English Translation)**

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7.1 Packaging

7.2 Transportation and Storage

1 Scope

This document specifies the terms and definitions, technical requirements, test methods, and inspection rules for semiconductor discrete devices (hereinafter referred to as "devices").

And packaging, transportation and storage requirements.

This document applies to semiconductor discrete devices other than optoelectronic devices and discrete device modules.

4.1 General Requirements

The technical requirements of the devices shall meet the requirements of GB/T 4589.1-2006 and this document.

4.2.1 Maximum Rated Parameters

The maximum rated parameters and conditions of the device should be specified.

4.2.2 Main Electrical Characteristic Parameters

The main electrical characteristic parameters and conditions of the device should be specified.

4.2.3 Parameter Curve

The parameter curves of the device should be specified.

4.2.4 Thermal properties

The steady-state thermal resistance and transient thermal resistance of the device should be specified.

4.3 Electrical stress resistance requirements

The device should be able to withstand the electrical stress encountered during operation.

4.4 Environmental stress resistance requirements

The device should be able to withstand environmental stresses encountered during transportation, installation, and operation.

4.5 Requirements for resistance to mechanical stress

The device should be able to withstand the mechanical stress encountered during transportation, installation, and operation.

4.6 Recommended (preferred) operating temperature values

The recommended operating temperature of the device should comply with the provisions of GB/T 17573.

4.7 Recommended (Preferred) Values for Voltage and Current

The recommended voltage and current values for the device should comply with the provisions of GB/T 17573.

4.8.1 Markings on the device

When the device area allows, the following markings should be made on the device.

- a) Lead-out identification mark;
- b) Model and quality assurance level.
- c) Manufacturer's name, trademark, or factory identification code.
- d) Inspection lot identification code;
- e) Where applicable, indicate any special precautions.

When the area of a device does not allow for the marking of all of the above, the minimum marking requirements should be given in the preferred order described above.

4.8.2 Markings on packaging

The following markings should appear on the initial packaging, which serves as the first protection or packaging for delivery.

- a) All marks listed in 4.8.1 except for the lead-out mark;
- b) Special considerations, such as warning signs, etc.

4.8.3

Lead-out polarity marker 4.8.3,1 Diode the polarity of a diode can be clearly indicated using one of the following methods.

- a) Rectifier diode graphic symbol. the arrow points to the cathode end.
- b) Color mark. For smaller devices, mark a distinct color band or dot on the cathode end; when the device size is even smaller, mark the cathode end...

When color codes may be confused with model markings, the latter can be omitted. For larger devices, use color bands (lines) to mark the cathode.

4.8.3.2 Transistor

A polarity identification mark should be specified for the lead-out terminal.

4.8.3.3 Thyristor

Identify the lead-out end using one of the following methods.

- a) Graphic symbol. The graphic symbol for a unidirectional thyristor transistor is an arrow pointing towards the cathode; the graphic symbol for a bidirectional thyristor transistor is a single arrow pointing towards the cathode.

The arrow points towards the first positive extreme, while the other arrow points towards the second positive extreme.

- b) Letter symbol. When marking the anode (first anode of the bidirectional thyristor) terminal, the letter A should be used (corresponding to the bidirectional thyristor).

A1 or T1); When marking the cathode (second anode of the bidirectional thyristor) terminal, the letter K should be used (corresponding to the bidirectional thyristor).

(A2 or T2); When the control terminal (gate end) is marked, the letter G should be used.

- c) When the above marking methods are not technically feasible, a method for identifying the lead-out end should be specified.

4.9 Model Naming

The model designation of discrete semiconductor devices shall comply with the provisions of GB/T 249.

4.10 Quality Assurance Procedures

During the technology research and development phase, the manufacturing process of the device should be technically evaluated to prove that the manufacturing process can guarantee the reliability of the device to meet the specified requirements.

During the device design phase, it is necessary to verify whether the design meets the specified functional and performance requirements. Devices within the structural similarity group should be selected.