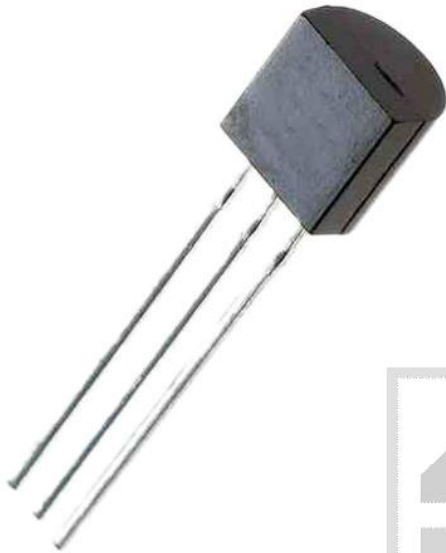




# TR BC368;TO92;tranzystor; NPN;1A;20V;0.8W;Pbf



## Dane techniczne:

Nazwa: BC368

Typ tranzystora: bipolarny

Kierunek przewodnictwa: NPN

Prąd kolektora: 1A

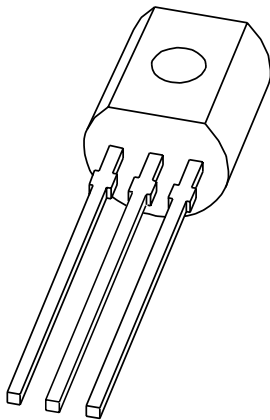
Napięcie kolektor-emiter: 20V

Moc: 0.8W

Obudowa: TO92

Montaż: przewlekany (THT)

# DATA SHEET



## **BC368**

**NPN medium power transistor;  
20 V, 1 A**

Product specification  
Supersedes data of 2003 Dec 01

2004 Nov 05

# NPN medium power transistor; 20 V, 1 A

## BC368

### FEATURES

- High current.

### APPLICATIONS

- Linear voltage regulators
- Low side switch
- Supply line switch for negative voltages
- MOSFET driver
- Audio (pre-) amplifier.

### QUICK REFERENCE DATA

| SYMBOL    | PARAMETER                 | MIN. | MAX. | UNIT |
|-----------|---------------------------|------|------|------|
| $V_{CEO}$ | collector-emitter voltage | –    | 20   | V    |
| $I_C$     | collector current (DC)    | –    | 1    | A    |
| $I_{CM}$  | peak collector current    | –    | 2    | A    |
| $h_{FE}$  | DC current gain           | 85   | 375  | –    |

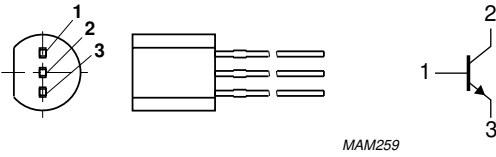
### DESCRIPTION

NPN medium power transistor (see “Simplified outline, symbol and pinning” for package details).

### PRODUCT OVERVIEW

| TYPE NUMBER | PACKAGE |        | MARKING CODE | PNP COMPLEMENT |
|-------------|---------|--------|--------------|----------------|
|             | PHILIPS | EIAJ   |              |                |
| BC368       | SOT54   | SC-43A | C368         | BC369          |

### SIMPLIFIED OUTLINE, SYMBOL AND PINNING

| TYPE NUMBER | SIMPLIFIED OUTLINE AND SYMBOL  | PINNING     |                              |
|-------------|--|-------------|------------------------------|
|             |  | PIN         | DESCRIPTION                  |
| BC368       |  | 1<br>2<br>3 | base<br>collector<br>emitter |

### ORDERING INFORMATION

| TYPE NUMBER | PACKAGE |  |         |
|-------------|---------|--|---------|
|             | NAME    | DESCRIPTION  | VERSION |
| BC368       | SC-43A  | plastic single-ended (through hole) package; 3 leads | SOT54   |

# NPN medium power transistor; 20 V, 1 A

BC368

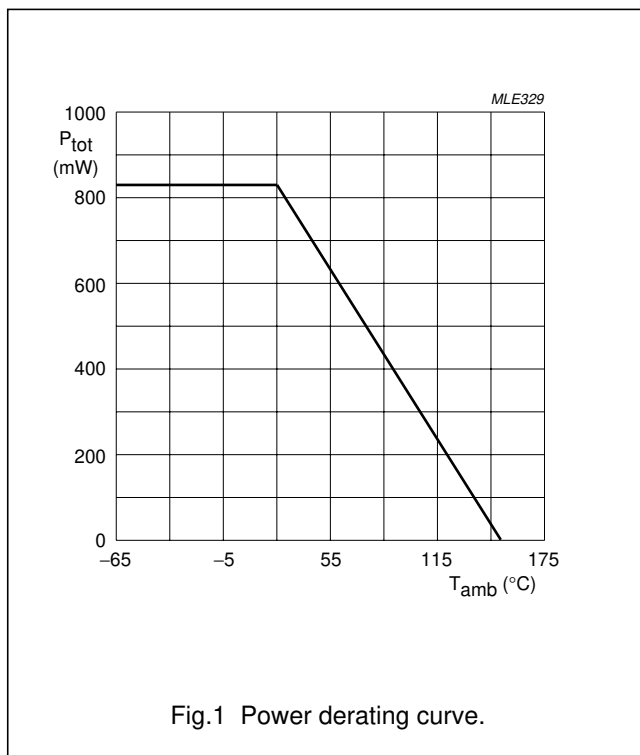
## LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134).

| SYMBOL    | PARAMETER                 | CONDITIONS                                  | MIN. | MAX. | UNIT |
|-----------|---------------------------|---|------|------|------|
| $V_{CB0}$ | collector-base voltage    | open emitter                                | –    | 32   | V    |
| $V_{CEO}$ | collector-emitter voltage | open base                                   | –    | 20   | V    |
| $V_{EBO}$ | emitter-base voltage      | open collector                              | –    | 5    | V    |
| $I_C$     | output current (DC)       |   | –    | 1    | mA   |
| $I_{CM}$  | peak collector current    |   | –    | 2    | mA   |
| $I_{BM}$  | peak collector current    |   | –    | 200  | mA   |
| $P_{tot}$ | total power dissipation   | $T_{amb} \leq 25\text{ °C}$ ; notes 1 and 2 | –    | 0.83 | W    |
| $T_{stg}$ | storage temperature       |   | –65  | +150 | °C   |
| $T_j$     | junction temperature      |   | –    | 150  | °C   |
| $T_{amb}$ | ambient temperature       |   | –65  | +150 | °C   |

## Notes

1. Refer to SOT54 (SC-43A) standard mounting conditions.
2. Device mounted on an FR4 printed-circuit board, single-sided copper, tin-plated footprint.



NPN medium power transistor;  
20 V, 1 A

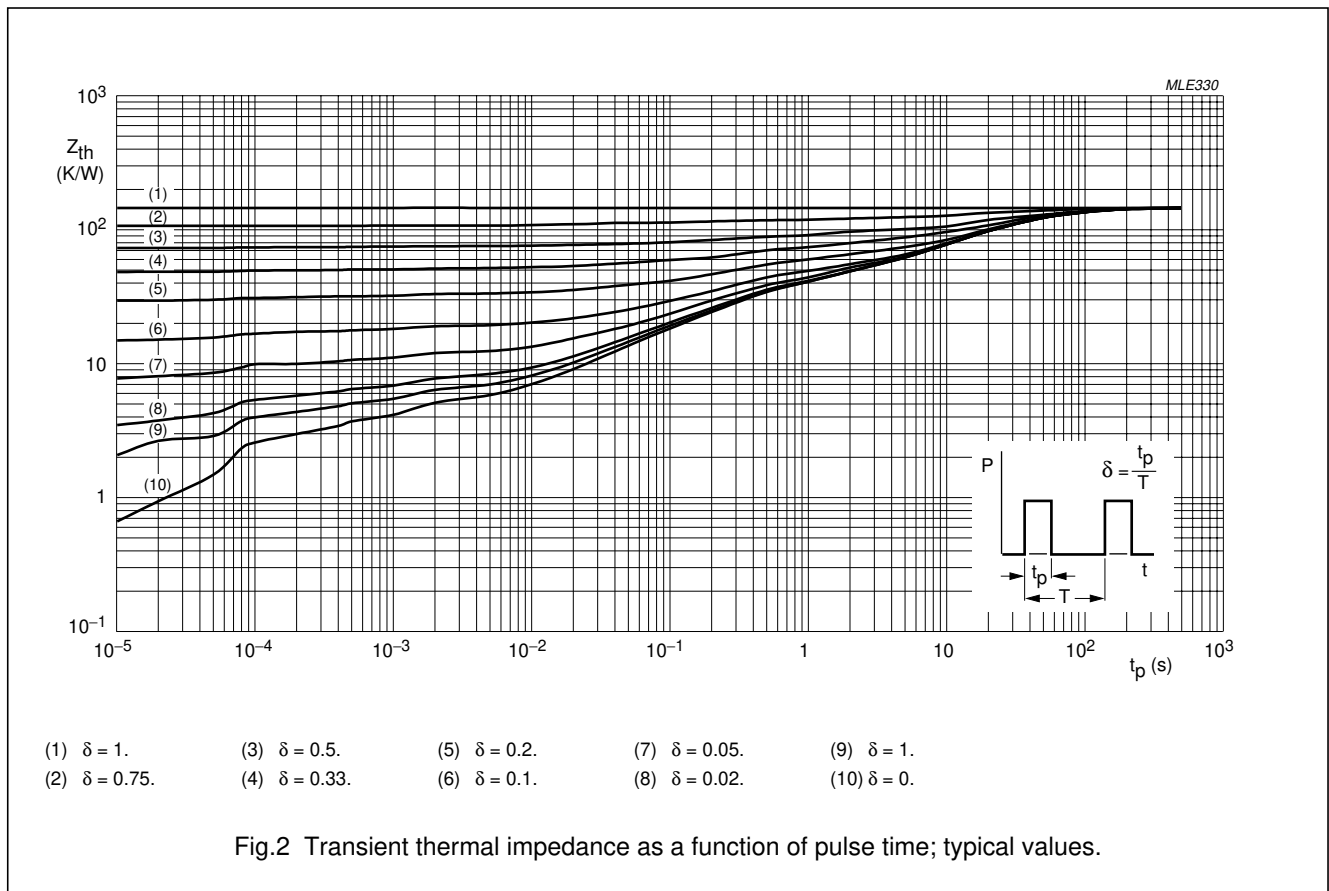
BC368

**THERMAL CHARACTERISTICS**

| SYMBOL        | PARAMETER                                   | CONDITIONS  | VALUE | UNIT |
|---------------|---|---|-------|------|
| $R_{th(j-a)}$ | thermal resistance from junction to ambient | $T_{amb} \leq 25\text{ }^\circ\text{C}$ ; notes 1 and 2 | 150   | K/W  |

**Notes**

1. Refer to SOT54 (SC-43A) standard mounting conditions.
2. Device mounted on an FR4 printed-circuit board, single-sided copper, tin-plated footprint.



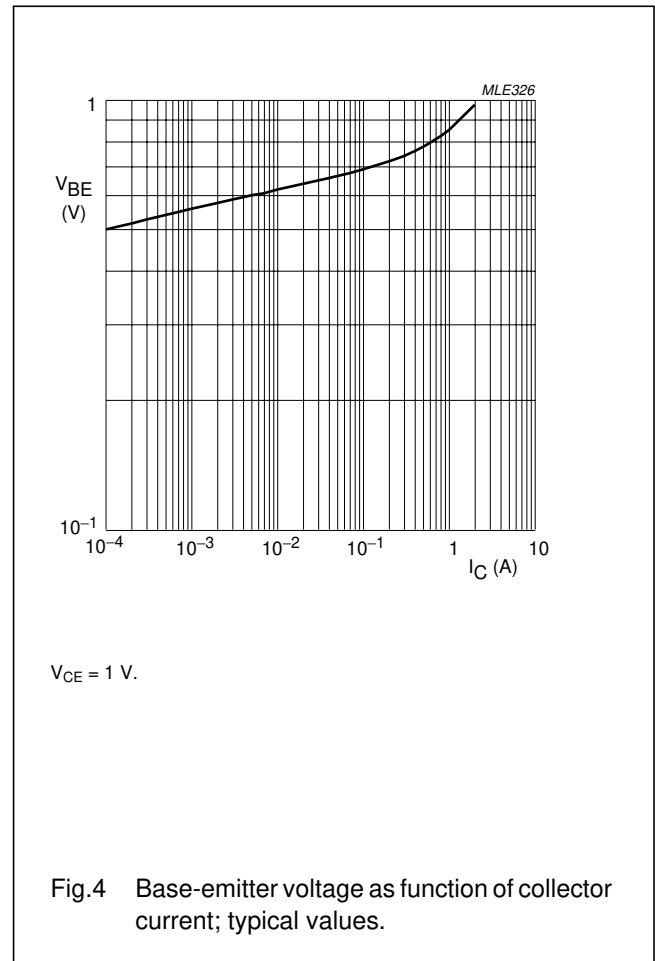
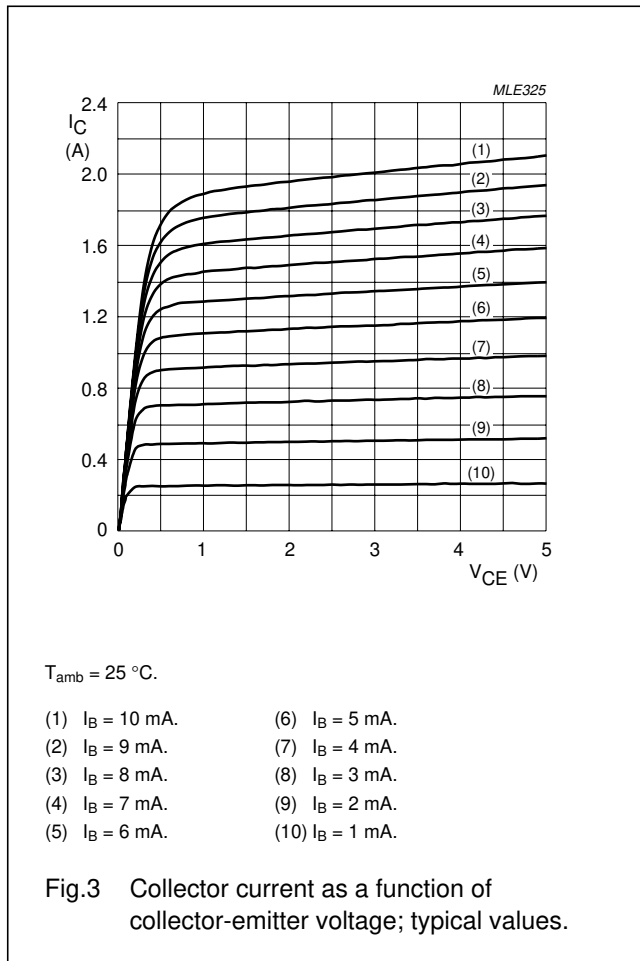
NPN medium power transistor;  
20 V, 1 A

BC368

**CHARACTERISTICS**

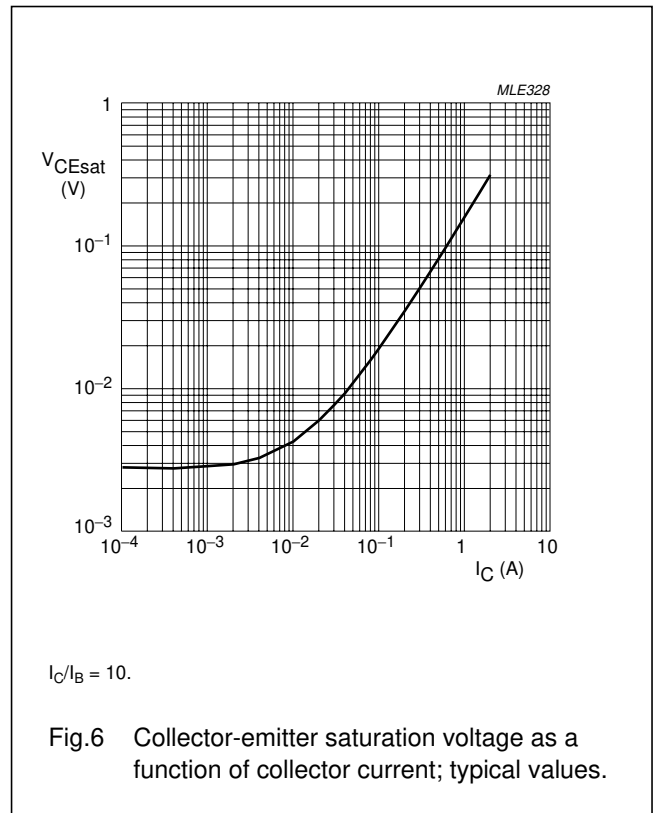
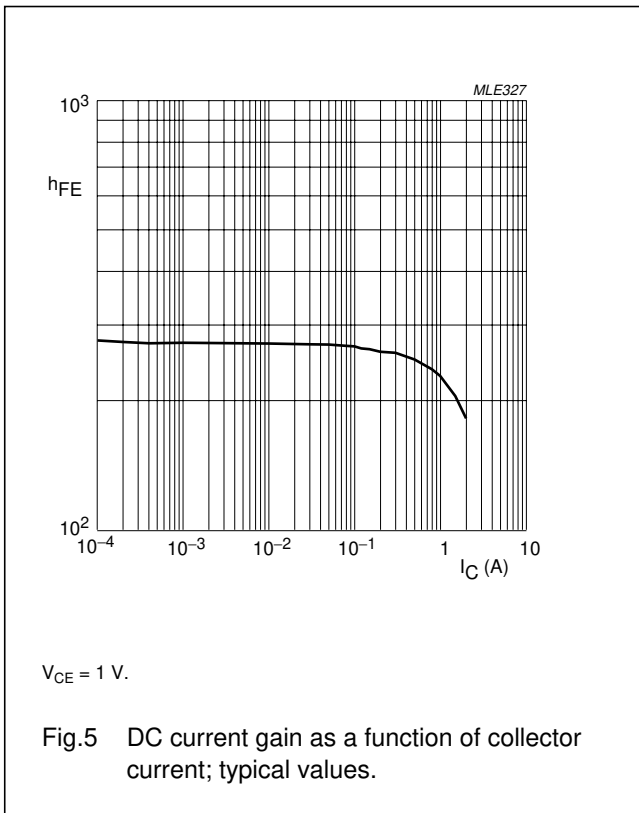
$T_{amb} = 25\text{ }^{\circ}\text{C}$  unless otherwise specified.

| SYMBOL      | PARAMETER                            | CONDITIONS  | MIN. | TYP. | MAX. | UNIT          |
|-------------|--------------------------------------|---|------|------|------|---------------|
| $I_{CBO}$   | collector-base cut-off current       | $V_{CB} = 25\text{ V}; I_E = 0\text{ A}$  | –    | –    | 100  | nA            |
|             |                                      | $V_{CB} = 25\text{ V}; I_E = 0\text{ A}; T_{amb} = 150\text{ }^{\circ}\text{C}$ | –    | –    | 10   | $\mu\text{A}$ |
| $I_{EBO}$   | emitter-base cut-off current         | $V_{EB} = 5\text{ V}; I_C = 0\text{ A}$   | –    | –    | 100  | nA            |
| $h_{FE}$    | DC current gain                      | $V_{CE} = 10\text{ V}; I_C = 5\text{ mA}$                                       | 50   | –    | –    |               |
|             |                                      | $V_{CE} = 1\text{ V}; I_C = 500\text{ mA}$                                      | 85   | –    | 375  |               |
|             |                                      | $V_{CE} = 1\text{ V}; I_C = 1\text{ mA}$  | 60   | –    | –    |               |
| $V_{CEsat}$ | collector-emitter saturation voltage | $I_C = 1\text{ A}; I_B = 100\text{ mA}$   | –    | –    | 500  | mV            |
| $V_{BE}$    | base-emitter voltage                 | $V_{CE} = 10\text{ V}; I_C = 5\text{ mA}$                                       | –    | –    | 700  | mV            |
|             |                                      | $V_{CE} = 1\text{ V}; I_C = 1\text{ A}$   | –    | –    | 1    | V             |
| $C_c$       | collector capacitance                | $V_{CB} = 10\text{ V}; I_E = i_e = 0\text{ A}; f = 1\text{ MHz}$                | –    | 22   | –    | pF            |
| $f_T$       | transition frequency                 | $V_{CE} = 5\text{ V}; I_C = 50\text{ mA}; f = 100\text{ MHz}$                   | 40   | 170  | –    | MHz           |



NPN medium power transistor;  
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BC368



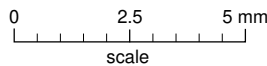
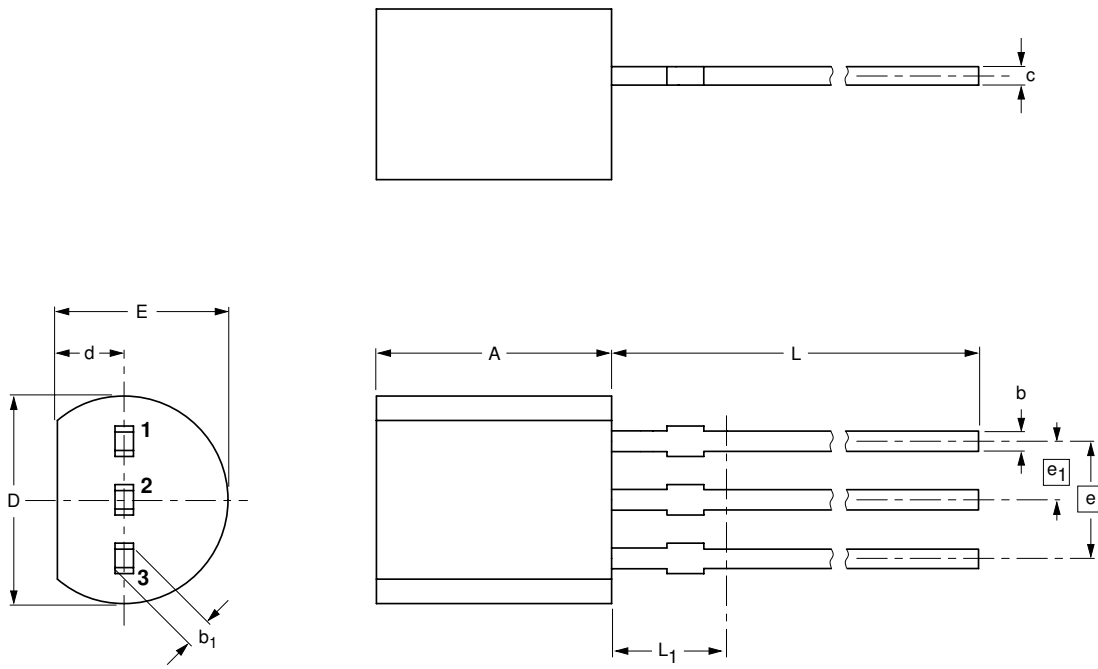
NPN medium power transistor;  
20 V, 1 A

BC368

PACKAGE OUTLINE

Plastic single-ended leaded (through hole) package; 3 leads

SOT54



DIMENSIONS (mm are the original dimensions)

| UNIT | A          | b            | b <sub>1</sub> | c            | D          | d          | E          | e    | e <sub>1</sub> | L            | L <sub>1</sub> <sup>(1)</sup><br>max. |
|------|------------|--------------|----------------|--------------|------------|------------|------------|------|----------------|--------------|---------------------------------------|
| mm   | 5.2<br>5.0 | 0.48<br>0.40 | 0.66<br>0.55   | 0.45<br>0.38 | 4.8<br>4.4 | 1.7<br>1.4 | 4.2<br>3.6 | 2.54 | 1.27           | 14.5<br>12.7 | 2.5                                   |

Note

1. Terminal dimensions within this zone are uncontrolled to allow for flow of plastic and terminal irregularities.

| OUTLINE<br>VERSION | REFERENCES |       |        | EUROPEAN<br>PROJECTION | ISSUE DATE            |
|--------------------|------------|-------|--------|------------------------|-----------------------|
|                    | IEC        | JEDEC | JEITA  |                        |                       |
| SOT54              |            | TO-92 | SC-43A |                        | -97-02-28<br>04-06-28 |



NPN medium power transistor;  
20 V, 1 A

BC368

#### DATA SHEET STATUS

| LEVEL | DATA SHEET STATUS <sup>(1)</sup> | PRODUCT STATUS <sup>(2)(3)</sup> | DEFINITION   |
|-------|----------------------------------|----------------------------------|--|
| I     | Objective data                   | Development                      | This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice.  |
| II    | Preliminary data                 | Qualification                    | This data sheet contains data from the preliminary specification. Supplementary data will be published at a later date. Philips Semiconductors reserves the right to change the specification without notice, in order to improve the design and supply the best possible product.             |
| III   | Product data                     | Production                       | This data sheet contains data from the product specification. Philips Semiconductors reserves the right to make changes at any time in order to improve the design, manufacturing and supply. Relevant changes will be communicated via a Customer Product/Process Change Notification (CPCN). |

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**Limiting values definition** — Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 60134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.

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