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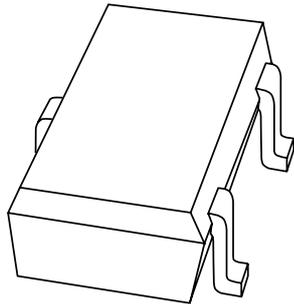
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Kind regards,

Team Nexperia

DATA SHEET



PMST5550; PMST5551 NPN high-voltage transistors

Product data sheet
Supersedes data of 1997 May 20

1999 Apr 29

NPN high-voltage transistors

PMST5550; PMST5551

FEATURES

- Low current (max. 300 mA)
- High voltage (max. 160 V).

APPLICATIONS

- Switching and amplification in high voltage applications such as telephony.

DESCRIPTION

NPN high-voltage transistor in a SOT323 plastic package. PNP complement: PMST5401.

MARKING

| TYPE NUMBER | MARKING CODE ⁽¹⁾ |
|-------------|-----------------------------|
| PMST5550 | *1F |
| PMST5551 | *G3 |

Note

- * = - : Made in Hong Kong.
* = t : Made in Malaysia.

PINNING

| PIN | DESCRIPTION |
|-----|-------------|
| 1 | base |
| 2 | emitter |
| 3 | collector |

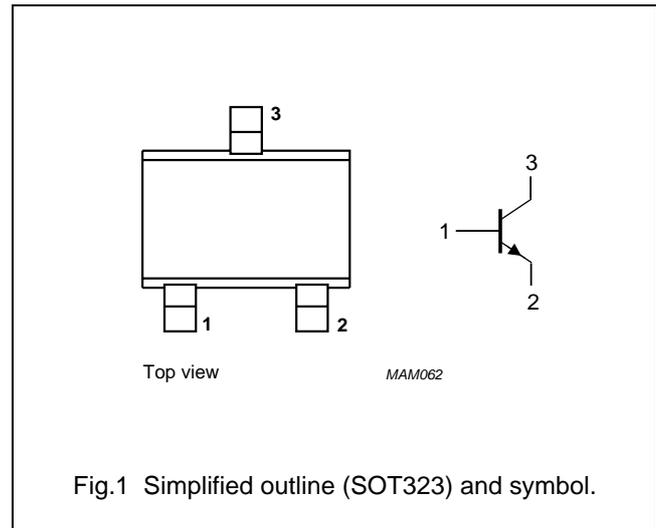


Fig.1 Simplified outline (SOT323) and symbol.

LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|------------------|-------------------------------|----------------------------------|------|------|------|
| V _{CBO} | collector-base voltage | open emitter | | | |
| | PMST5550 | | – | 160 | V |
| | PMST5551 | | – | 180 | V |
| V _{CEO} | collector-emitter voltage | open base | | | |
| | PMST5550 | | – | 140 | V |
| | PMST5551 | | – | 160 | V |
| V _{EBO} | emitter-base voltage | open collector | – | 6 | V |
| I _C | collector current (DC) | | – | 300 | mA |
| I _{CM} | peak collector current | | – | 600 | mA |
| I _{BM} | peak base current | | – | 100 | mA |
| P _{tot} | total power dissipation | T _{amb} ≤ 25 °C; note 1 | – | 200 | mW |
| T _{stg} | storage temperature | | –65 | +150 | °C |
| T _j | junction temperature | | – | 150 | °C |
| T _{amb} | operating ambient temperature | | –65 | +150 | °C |

Note

1. Transistor mounted on an FR4 printed-circuit board.

NPN high-voltage transistors

PMST5550; PMST5551

THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|---------------|---|------------|-------|------|
| $R_{th\ j-a}$ | thermal resistance from junction to ambient | note 1 | 625 | K/W |

Note

1. Transistor mounted on an FR4 printed-circuit board.

CHARACTERISTICS

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

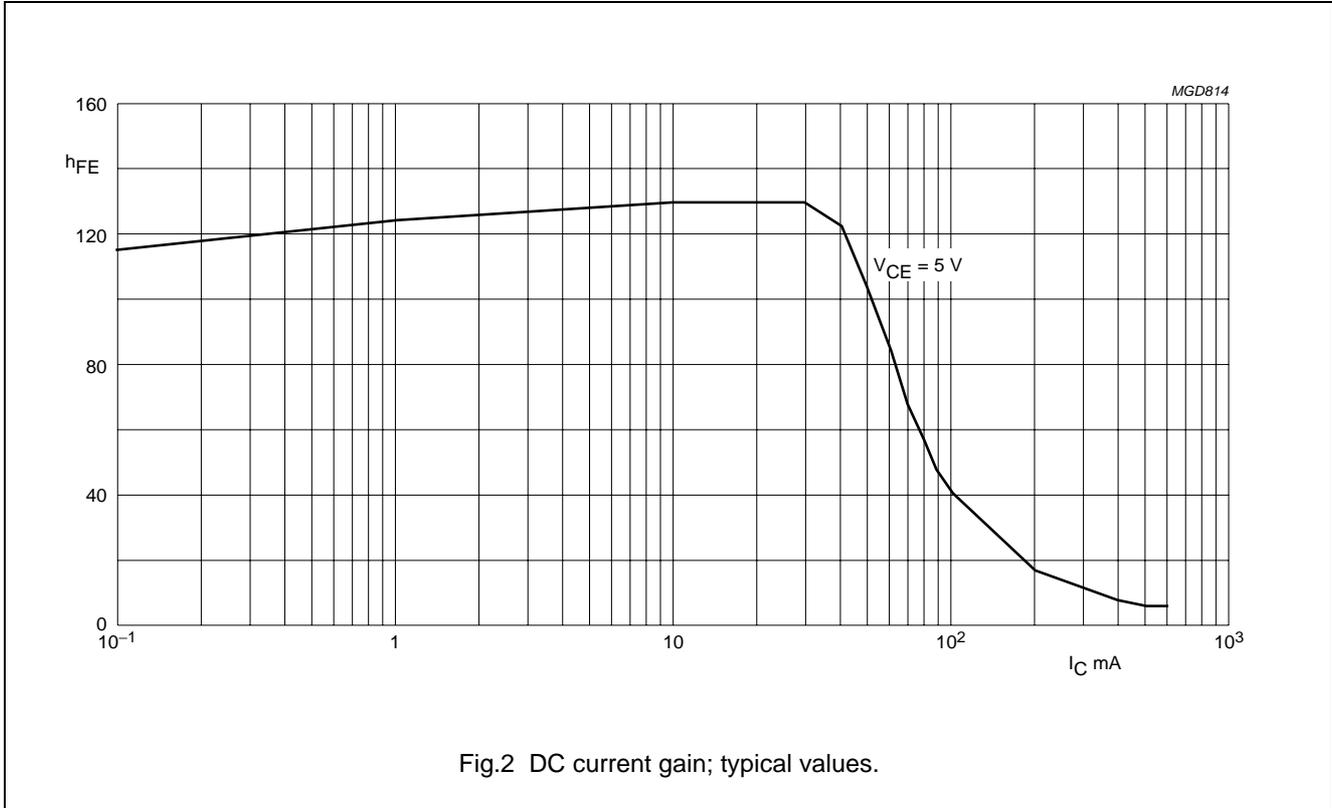
| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|------------------------------|--|---|------|------|---------------|
| I_{CBO} | collector cut-off current PMST5550 | $I_E = 0; V_{CB} = 100\text{ V}$ | – | 100 | nA |
| | | $I_E = 0; V_{CB} = 100\text{ V}; T_{amb} = 100\text{ °C}$ | – | 100 | μA |
| | collector cut-off current PMST5551 | $I_E = 0; V_{CB} = 120\text{ V}$ | – | 50 | nA |
| | | $I_E = 0; V_{CB} = 120\text{ V}; T_{amb} = 100\text{ °C}$ | – | 50 | μA |
| I_{EBO} | emitter cut-off current | $I_C = 0; V_{EB} = 4\text{ V}$ | – | 50 | nA |
| h_{FE} | DC current gain PMST5550 | $V_{CE} = 5\text{ V};$ (see Fig.2) $I_C = 1\text{ mA}$ | 60 | – | |
| | | $I_C = 10\text{ mA}$ | 60 | 250 | |
| | | $I_C = 50\text{ mA};$ note 1 | 20 | – | |
| | DC current gain PMST5551 | $V_{CE} = 5\text{ V};$ (see Fig.2) $I_C = 1\text{ mA}$ | 80 | – | |
| $I_C = 10\text{ mA}$ | | 80 | 250 | | |
| $I_C = 50\text{ mA};$ note 1 | | 30 | – | | |
| V_{CEsat} | collector-emitter saturation voltage | $I_C = 10\text{ mA}; I_B = 1\text{ mA}$ | – | 150 | mV |
| | collector-emitter saturation voltage PMST5550 PMST5551 | $I_C = 50\text{ mA}; I_B = 5\text{ mA};$ note 1 | – | 250 | mV |
| | | | – | 200 | mV |
| V_{BEsat} | base-emitter saturation voltage | $I_C = 10\text{ mA}; I_B = 1\text{ mA}$ | – | 1 | V |
| | base-emitter saturation voltage PMST5550 PMST5551 | $I_C = 50\text{ mA}; I_B = 5\text{ mA};$ note 1 | – | 1.2 | V |
| | | | – | 1 | V |
| C_c | collector capacitance | $I_E = i_e = 0; V_{CB} = 10\text{ V}; f = 1\text{ MHz}$ | – | 6 | pF |
| C_e | emitter capacitance | $I_C = i_c = 0; V_{EB} = 0.5\text{ V}; f = 1\text{ MHz}$ | – | 30 | pF |
| f_T | transition frequency | $I_C = 10\text{ mA}; V_{CE} = 10\text{ V}; f = 100\text{ MHz}$ | 100 | 300 | MHz |
| F | noise figure PMST5551 | $I_C = 200\text{ }\mu\text{A}; V_{CE} = 5\text{ V}; R_S = 2\text{ k}\Omega;$ $f = 10\text{ Hz to }15.7\text{ kHz}$ | – | 8 | dB |

Note

1. Pulse test: $t_p \leq 300\text{ }\mu\text{s}; \delta \leq 0.02.$

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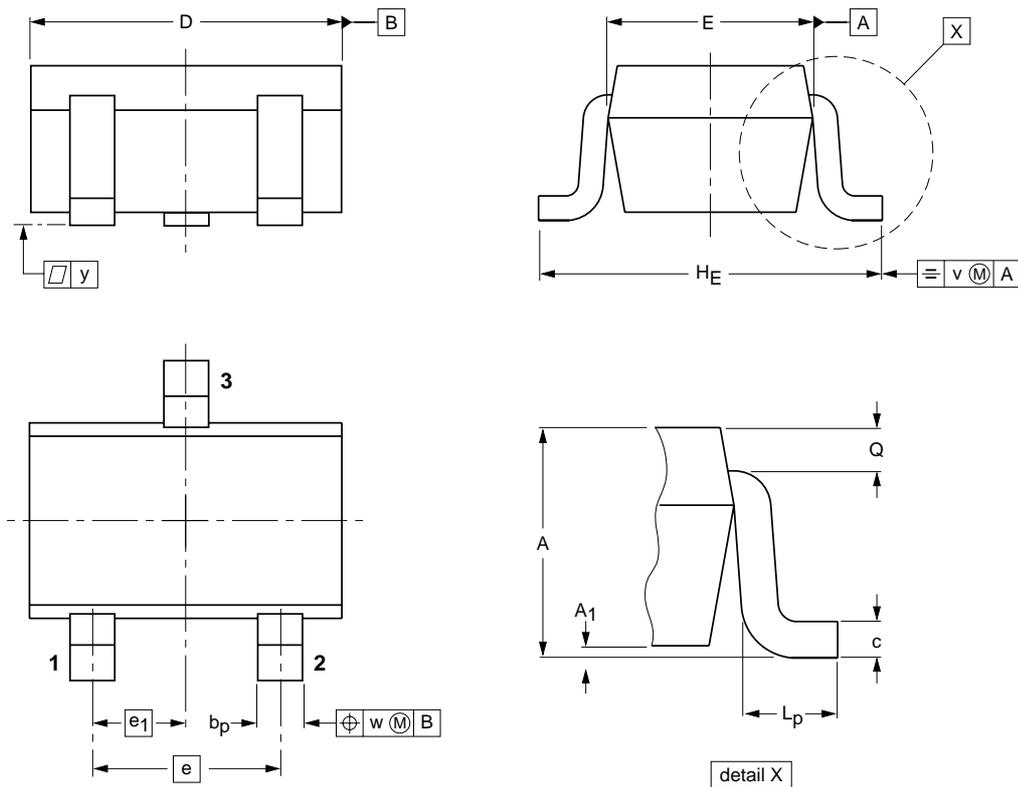
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PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT323



DIMENSIONS (mm are the original dimensions)

| UNIT | A | A ₁ max | bp | c | D | E | e | e ₁ | H _E | L _p | Q | v | w |
|------|------------|-----------------------|------------|--------------|------------|--------------|-----|----------------|----------------|----------------|--------------|-----|-----|
| mm | 1.1 0.8 | 0.1 | 0.4 0.3 | 0.25 0.10 | 2.2 1.8 | 1.35 1.15 | 1.3 | 0.65 | 2.2 2.0 | 0.45 0.15 | 0.23 0.13 | 0.2 | 0.2 |

| OUTLINE VERSION | REFERENCES | | | | EUROPEAN PROJECTION | ISSUE DATE |
|--------------------|------------|-------|-------|--|------------------------|------------|
| | IEC | JEDEC | EIAJ | | | |
| SOT323 | | | SC-70 | | | 97-02-28 |

NPN high-voltage transistors

PMST5550; PMST5551

DATA SHEET STATUS

| DOCUMENT STATUS ⁽¹⁾ | PRODUCT STATUS ⁽²⁾ | DEFINITION |
|--------------------------------|-------------------------------|---|
| Objective data sheet | Development | This document contains data from the objective specification for product development. |
| Preliminary data sheet | Qualification | This document contains data from the preliminary specification. |
| Product data sheet | Production | This document contains the product specification. |

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NXP Semiconductors

Customer notification

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