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Should be replaced with:

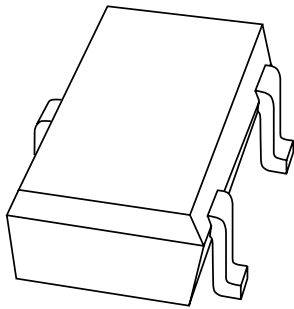
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If you have any questions related to the data sheet, please contact our nearest sales office via e-mail or telephone (details via salesaddresses@nexperia.com). Thank you for your cooperation and understanding,

Kind regards,

Team Nexperia

DATA SHEET



PMSTA42; PMSTA43 NPN high-voltage transistors

Product data sheet
Supersedes data of 1997 Jun 19

1999 May 21



NPN high-voltage transistors

PMSTA42; PMSTA43

FEATURES

- High current (max. 500 mA)
- High voltage (max. 200 V).

APPLICATIONS

- High-voltage switching in telephony applications.

DESCRIPTION

NPN high-voltage transistor in a SOT323 plastic package.
PNP complements: PMSTA92 and PMSTA93.

MARKING

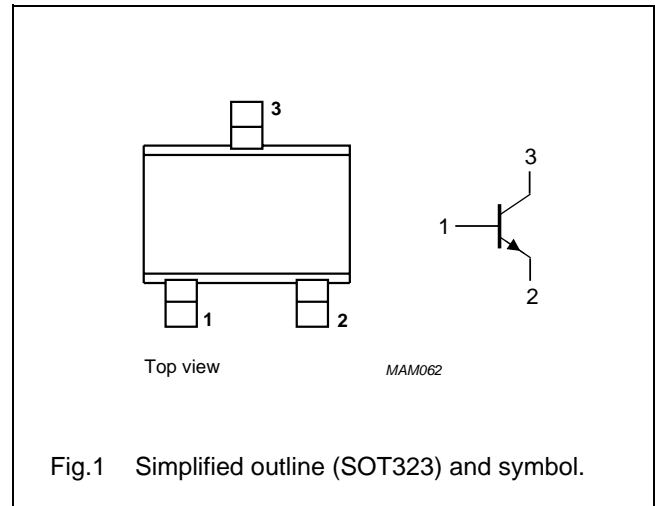
| TYPE NUMBER | MARKING CODE ⁽¹⁾ |
|-------------|-----------------------------|
| PMSTA42 | *1D |
| PMSTA43 | *1E |

Note

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

PINNING

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



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 | | | |
| | PMSTA42 | | – | 300 | V |
| | PMSTA43 | | – | 200 | V |
| V _{CEO} | collector-emitter voltage | open base | | | |
| | PMSTA42 | | – | 300 | V |
| | PMSTA43 | | – | 200 | V |
| V _{EBO} | emitter-base voltage | open collector | – | 6 | V |
| I _C | collector current (DC) | | – | 100 | mA |
| I _{CM} | peak collector current | | – | 200 | 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

PMSTA42; PMSTA43

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

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

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|-------------|--------------------------------------|--|------|------|------|
| I_{CBO} | collector cut-off current | | | | |
| | PMSTA42 | $I_E = 0; V_{CB} = 200\text{ V}$ | – | 100 | nA |
| | PMSTA43 | $I_E = 0; V_{CB} = 160\text{ V}$ | – | 100 | nA |
| I_{EBO} | emitter cut-off current | | | | |
| | PMSTA42 | $I_C = 0; V_{EB} = 6\text{ V}$ | – | 100 | nA |
| | PMSTA43 | $I_C = 0; V_{EB} = 4\text{ V}$ | – | 100 | nA |
| h_{FE} | DC current gain | $I_C = 1\text{ mA}; V_{CE} = 10\text{ V}$ | 25 | – | |
| | | $I_C = 10\text{ mA}; V_{CE} = 10\text{ V}$ | 40 | – | |
| | | $I_C = 30\text{ mA}; V_{CE} = 10\text{ V}; \text{note 1}$ | 40 | – | |
| V_{CEsat} | collector-emitter saturation voltage | $I_C = 20\text{ mA}; I_B = 2\text{ mA}$ | – | 500 | mV |
| C_{re} | feedback capacitance | $I_C = i_c = 0; V_{CB} = 20\text{ V}; f = 1\text{ MHz}$ | | | |
| | PMSTA42 | | – | 3 | pF |
| | PMSTA43 | | – | 4 | pF |
| f_T | transition frequency | $I_C = 10\text{ mA}; V_{CE} = 20\text{ V}; f = 100\text{ MHz}$ | 50 | – | MHz |

Note

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

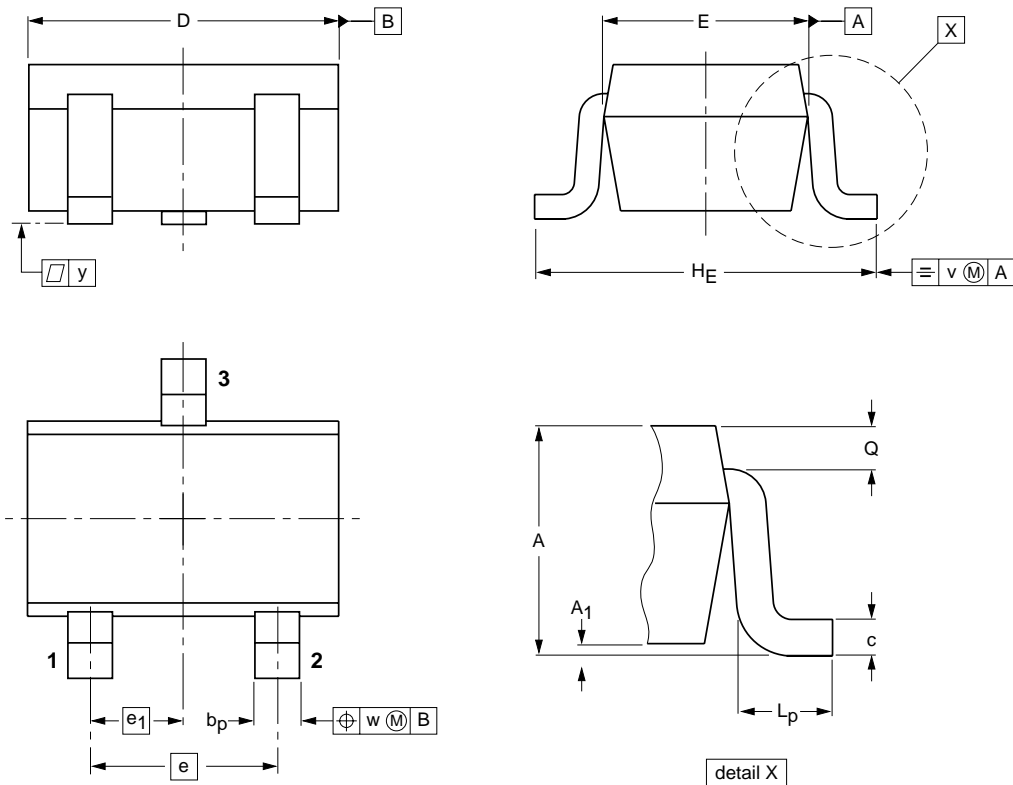
NPN high-voltage transistors

PMSTA42; PMSTA43

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT323



DIMENSIONS (mm are the original dimensions)

| UNIT | A | A ₁ max | b _p | 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

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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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1. Please consult the most recently issued document before initiating or completing a design.
2. The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the Internet at URL <http://www.nxp.com>.

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NXP Semiconductors

Customer notification

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Contact information

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