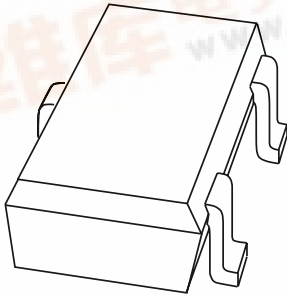


**DISCRETE SEMICONDUCTORS**

# DATA SHEET



## **PMSTA92; PMSTA93** **PNP high-voltage transistors**

Product specification  
Supersedes data of 1996 Dec 09

1999 Jun 01

# PNP high-voltage transistors

# PMSTA92; PMSTA93

### FEATURES

- High voltage.

### APPLICATIONS

- High voltage switching in telephony.

### DESCRIPTION

PNP transistor in a SOT323 plastic package.  
NPN complements: PMSTA42 and PMSTA43.

### MARKING

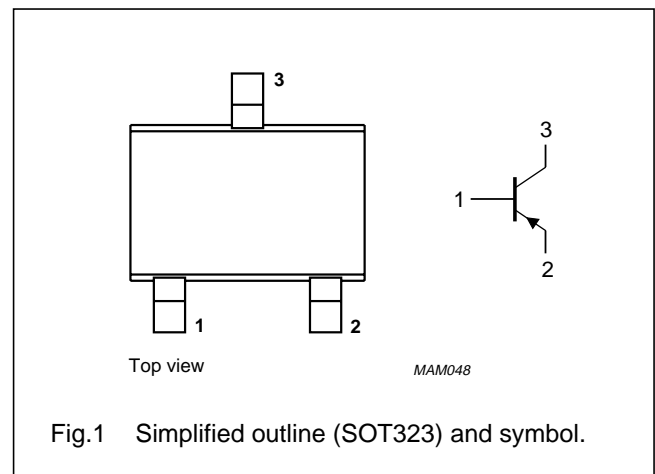
| TYPE NUMBER | MARKING CODE <sup>(1)</sup> |
|-------------|-----------------------------|
| PMSTA92     | *2D                         |
| PMSTA93     | *2E                         |

### 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 <sub>CBO</sub> | collector-base voltage        | open emitter                     |      |      |      |
|                  | PMSTA92                       |                                  | -    | -300 | V    |
|                  | PMSTA93                       |                                  | -    | -200 | V    |
| V <sub>CEO</sub> | collector-emitter voltage     | open base                        |      |      |      |
|                  | PMSTA92                       |                                  | -    | -300 | V    |
|                  | PMSTA93                       |                                  | -    | -200 | V    |
| V <sub>EBO</sub> | emitter-base voltage          | open collector                   | -    | -5   | V    |
| I <sub>C</sub>   | collector current (DC)        |                                  | -    | -100 | mA   |
| I <sub>CM</sub>  | peak collector current        |                                  | -    | -200 | mA   |
| I <sub>BM</sub>  | peak base current             |                                  | -    | -100 | mA   |
| P <sub>tot</sub> | total power dissipation       | T <sub>amb</sub> ≤ 25 °C; note 1 | -    | 200  | mW   |
| T <sub>stg</sub> | storage temperature           |                                  | -65  | +150 | °C   |
| T <sub>j</sub>   | junction temperature          |                                  | -    | 150  | °C   |
| T <sub>amb</sub> | operating ambient temperature |                                  | -65  | +150 | °C   |

### Note

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

## PNP high-voltage transistors

## PMSTA92; PMSTA93

## 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            |  |      |      |      |
|             | PMSTA92                              | $I_E = 0; V_{CB} = -200\text{ V}$                                | –    | –250 | nA   |
|             | PMSTA93                              | $I_E = 0; V_{CB} = -160\text{ V}$                                | –    | –250 | nA   |
| $I_{EBO}$   | emitter cut-off current              | $I_C = 0; V_{EB} = -3\text{ V}$                                  | –    | –100 | nA   |
| $h_{FE}$    | DC current gain                      | $V_{CE} = -10\text{ V}$  |      |      |      |
|             |                                      | $I_C = -1\text{ mA}$   | 25   | –    |      |
|             |                                      | $I_C = -10\text{ mA}$  | 40   | –    |      |
|             |                                      | $I_C = -30\text{ mA}$  | 25   | –    |      |
| $V_{CEsat}$ | collector-emitter saturation voltage | $I_C = -20\text{ mA}; I_B = -2\text{ mA}$                        | –    | –500 | mV   |
| $V_{BEsat}$ | base-emitter saturation voltage      | $I_C = -20\text{ mA}; I_B = -2\text{ mA}$                        | –    | –900 | mV   |
| $C_c$       | collector capacitance                | $I_E = i_e = 0; V_{CB} = -20\text{ V}; f = 1\text{ MHz}$         |      |      |      |
|             | PMSTA92                              |  | –    | 6    | pF   |
|             | PMSTA93                              |  | –    | 8    | pF   |
| $f_T$       | transition frequency                 | $I_C = -10\text{ mA}; V_{CE} = -20\text{ V}; f = 100\text{ MHz}$ | 50   | –    | MHz  |

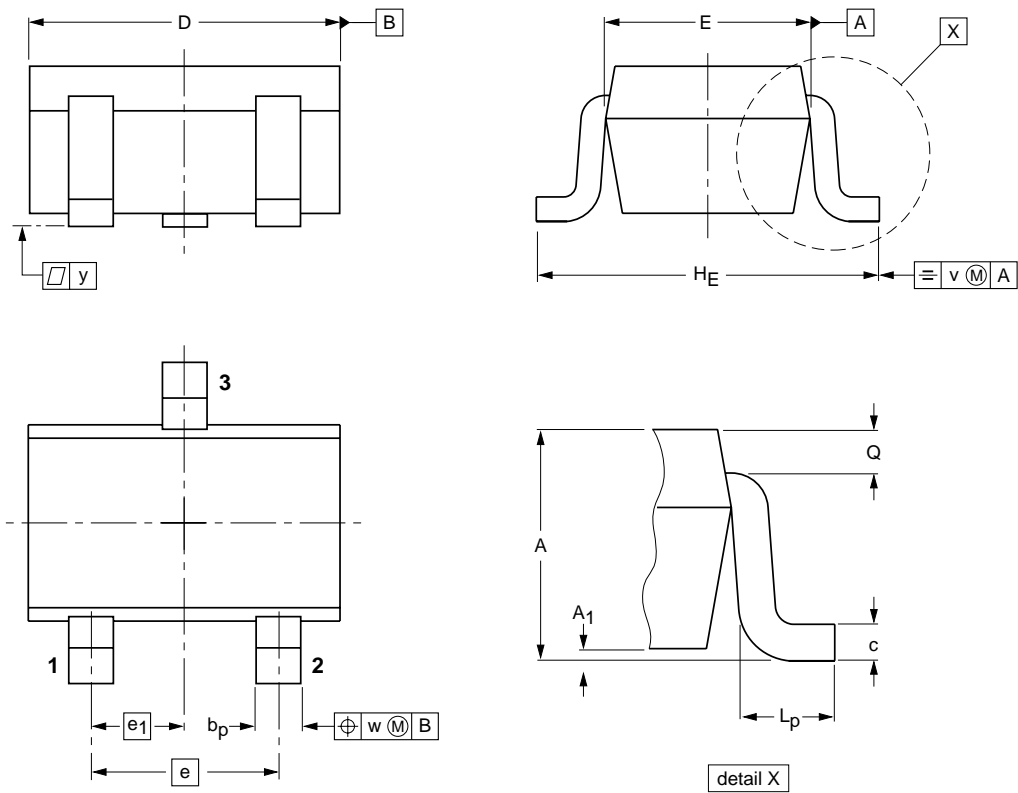
PNP high-voltage transistors

PMSTA92; PMSTA93

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT323



DIMENSIONS (mm are the original dimensions)

| UNIT | A          | A <sub>1</sub><br>max | b <sub>p</sub> | c            | D          | E            | e   | e <sub>1</sub> | H <sub>E</sub> | L <sub>p</sub> | Q            | v   | w   |
|------|------------|-----------------------|----------------|--------------|------------|--------------|-----|----------------|----------------|----------------|--------------|-----|-----|
| mm   | 1.1<br>0.8 | 0.1                   | 0.4<br>0.3     | 0.25<br>0.10 | 2.2<br>1.8 | 1.35<br>1.15 | 1.3 | 0.65           | 2.2<br>2.0     | 0.45<br>0.15   | 0.23<br>0.13 | 0.2 | 0.2 |

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

## PNP high-voltage transistors

## PMSTA92; PMSTA93

**DEFINITIONS**

|   |   |
|---|---|
| <b>Data sheet status</b>  |   |
| Objective specification   | This data sheet contains target or goal specifications for product development.       |
| Preliminary specification   | This data sheet contains preliminary data; supplementary data may be published later. |
| Product specification   | This data sheet contains final product specifications.                                |
| <b>Limiting values</b>  |   |
| Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). 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. |   |
| <b>Application information</b>  |   |
| Where application information is given, it is advisory and does not form part of the specification.   |   |

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PNP high-voltage transistors

PMSTA92; PMSTA93

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**NOTES**

PNP high-voltage transistors

PMSTA92; PMSTA93

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