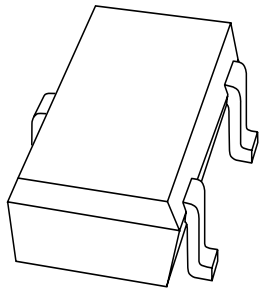


# DATA SHEET



**2PB1219A**

PNP general purpose transistor

Product data sheet  
Supersedes data of 1997 Mar 25

1999 Apr 12

## PNP general purpose transistor

## 2PB1219A

## FEATURES

- High current (max. 500 mA)
- Low voltage (max. 50 V)
- Low collector-emitter saturation voltage (max. 600 mV).

## APPLICATIONS

- General purpose switching and amplification.

## DESCRIPTION

PNP transistor in a SOT323; SC70 plastic package.  
NPN complement: 2PD1820A.

## MARKING

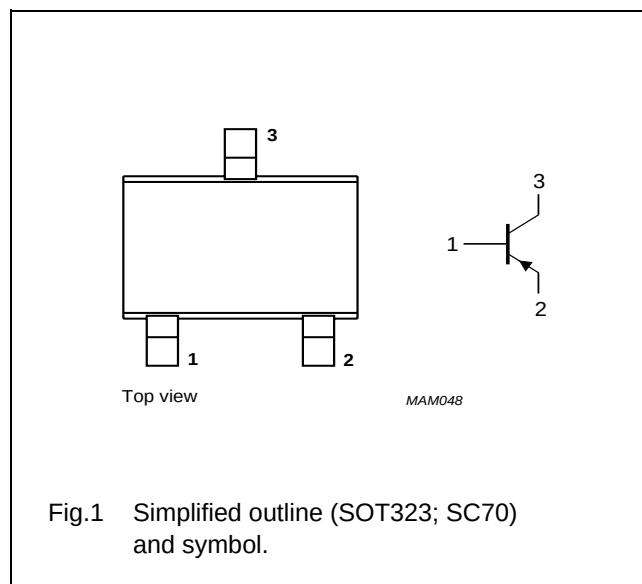
| TYPE NUMBER | MARKING CODE <sup>(1)</sup> |
|-------------|-----------------------------|
| 2PB1219AQ   | D*Q                         |
| 2PB1219AR   | D*R                         |
| 2PB1219AS   | D*S                         |

## 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                         | –    | –60  | V    |
| $V_{CEO}$ | collector-emitter voltage     | open base                            | –    | –50  | V    |
| $V_{EBO}$ | emitter-base voltage          | open collector                       | –    | –5   | V    |
| $I_C$     | collector current (DC)        |                                      | –    | –500 | mA   |
| $I_{CM}$  | peak collector current        |                                      | –    | –1   | A    |
| $I_{BM}$  | peak base current             |                                      | –    | –200 | mA   |
| $P_{tot}$ | total power dissipation       | $T_{amb} \leq 25\text{ °C}$ ; 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. Refer to SOT323; SC70 standard mounting conditions.

## PNP general purpose transistor

## 2PB1219A

## THERMAL CHARACTERISTICS

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

## Note

1. Refer to SOT323; SC70 standard mounting conditions.

## CHARACTERISTICS

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

| SYMBOL      | PARAMETER                                                   | CONDITIONS                                                                        | MIN. | MAX. | UNIT          |
|-------------|-------------------------------------------------------------|-----------------------------------------------------------------------------------|------|------|---------------|
| $I_{CBO}$   | collector cut-off current                                   | $I_E = 0$ ; $V_{CB} = -20\text{ V}$                                               | –    | –100 | nA            |
|             |                                                             | $I_E = 0$ ; $V_{CB} = -20\text{ V}$ ; $T_j = 150\text{ }^{\circ}\text{C}$         | –    | –5   | $\mu\text{A}$ |
| $I_{EBO}$   | emitter cut-off current                                     | $I_C = 0$ ; $V_{EB} = -4\text{ V}$                                                | –    | –100 | nA            |
| $h_{FE}$    | DC current gain<br>2PB1219AQ<br>2PB1219AR<br>2PB1219AS      | $I_C = -150\text{ mA}$ ; $V_{CE} = -10\text{ V}$ ; note 1                         | 85   | 170  |               |
|             |                                                             |                                                                                   | 120  | 240  |               |
|             |                                                             |                                                                                   | 170  | 340  |               |
| $h_{FE}$    | DC current gain                                             | $I_C = -500\text{ mA}$ ; $V_{CE} = -10\text{ V}$ ; note 1                         | 40   | –    |               |
| $V_{CEsat}$ | collector-emitter saturation voltage                        | $I_C = -300\text{ mA}$ ; $I_B = -30\text{ mA}$ ; note 1                           | –    | –600 | mV            |
| $V_{BEsat}$ | base-emitter saturation voltage                             | $I_C = -300\text{ mA}$ ; $I_B = -30\text{ mA}$ ; note 1                           | –    | –1.5 | V             |
| $C_c$       | collector capacitance                                       | $I_E = I_E = 0$ ; $V_{CB} = -10\text{ V}$ ; $f = 1\text{ MHz}$                    | –    | 15   | pF            |
| $f_T$       | transition frequency<br>2PB1219AQ<br>2PB1219AR<br>2PB1219AS | $I_C = 50\text{ mA}$ ; $V_{CE} = -10\text{ V}$ ;<br>$f = 100\text{ MHz}$ ; note 1 | 100  | –    | MHz           |
|             |                                                             |                                                                                   | 120  | –    | MHz           |
|             |                                                             |                                                                                   | 140  | –    | MHz           |

## Note

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

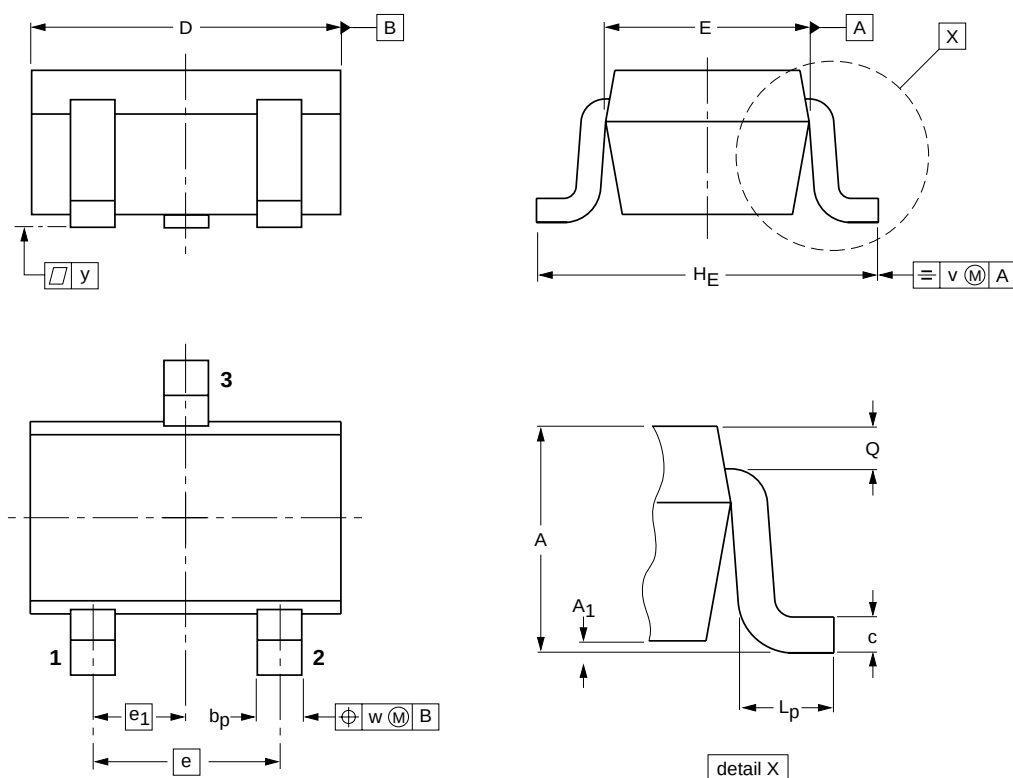
## PNP general purpose transistor

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## PACKAGE OUTLINE

**Plastic surface mounted package; 3 leads**

**SOT323**



0 1 2 mm

scale

**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 general purpose transistor

2PB1219A

## DATA SHEET STATUS

| DOCUMENT STATUS <sup>(1)</sup> | PRODUCT STATUS <sup>(2)</sup> | 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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