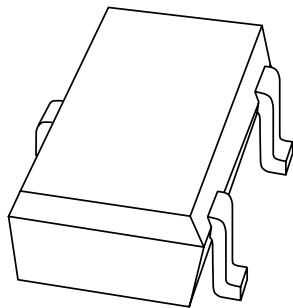


DATA SHEET



2PD1820A

NPN general purpose transistor

Product specification
Supersedes data of 1997 May 22

1999 Apr 12

NPN general purpose transistor

2PD1820A

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, especially for portable equipment.

DESCRIPTION

NPN transistor in an SC-70; SOT323 plastic package.
PNP complement: 2PB1219A.

MARKING

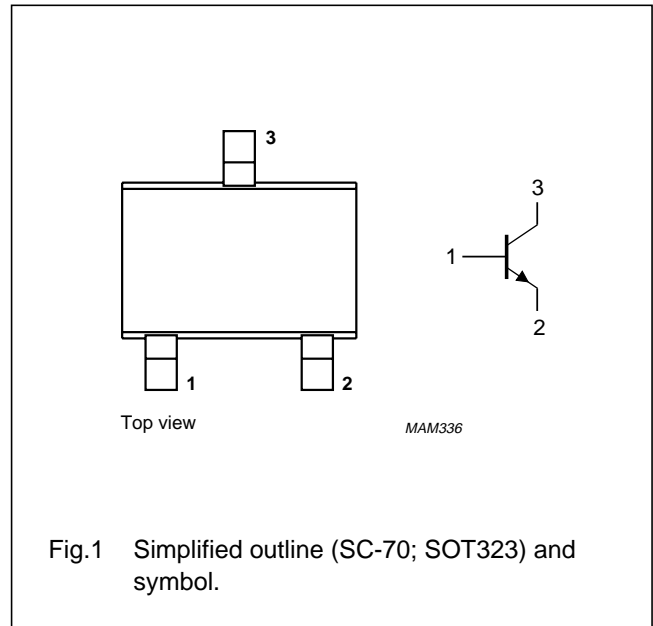
| TYPE NUMBER | MARKING CODE ⁽¹⁾ |
|-------------|-----------------------------|
| 2PD1820AQ | A*Q |
| 2PD1820AR | A*R |
| 2PD1820AS | A*S |

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} ≤ 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 general purpose transistor

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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 | $I_E = 0; V_{CB} = 20\text{ V}$ | – | 10 | nA |
| | | $I_E = 0; V_{CB} = 20\text{ V}; T_j = 150\text{ °C}$ | – | 5 | μA |
| I_{EBO} | emitter cut-off current | $I_C = 0; V_{EB} = 4\text{ V}$ | – | 10 | nA |
| h_{FE} | DC current gain 2PD1820AQ 2PD1820AR 2PD1820AS | $I_C = 150\text{ mA}; V_{CE} = 10\text{ V};$ 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 |
| C_c | collector capacitance | $I_E = i_e = 0; V_{CB} = 10\text{ V}; f = 1\text{ MHz}$ | – | 15 | pF |
| f_T | transition frequency | $I_C = 50\text{ mA}; V_{CE} = 10\text{ V}; f = 100\text{ MHz};$ note 1 | 150 | – | MHz |

Note

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

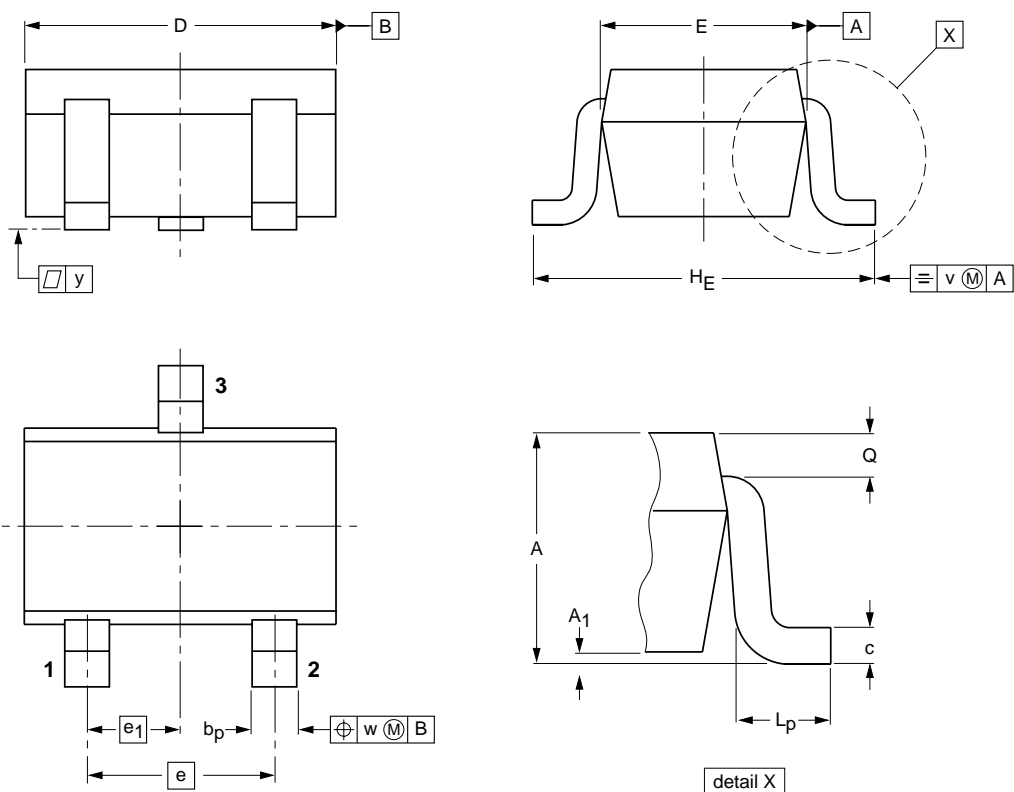
NPN general purpose transistor

2PD1820A

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 general purpose transistor

2PD1820A

DEFINITIONS

| Data Sheet Status | |
|---|---|
| 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. |
| Limiting values | |
| 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. | |
| Application information | |
| Where application information is given, it is advisory and does not form part of the specification. | |

LIFE SUPPORT APPLICATIONS

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NPN general purpose transistor

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NOTES

NPN general purpose transistor

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