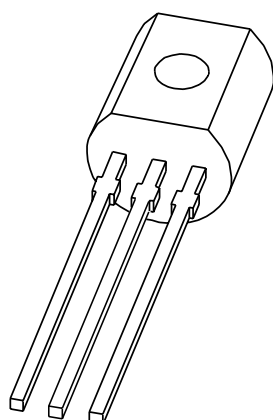


# DATA SHEET



**2PA1015**

**PNP general purpose transistor**

Product specification  
Supersedes data of 1999 Apr 08

2004 Oct 11

## PNP general purpose transistor

2PA1015

## FEATURES

- Low current (max. 150 mA)
- Low voltage (max. 50 V).

## APPLICATIONS

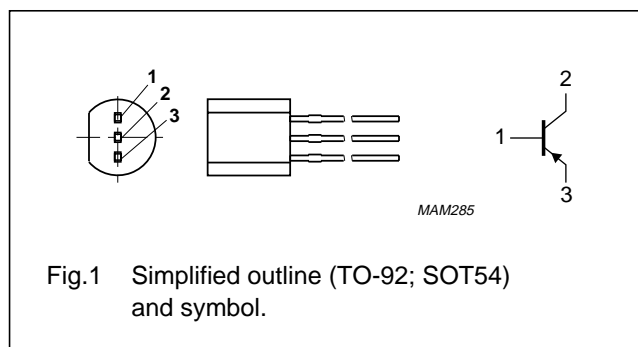
- General purpose switching and amplification.

## DESCRIPTION

PNP transistor in a plastic TO-92; SOT54 package.  
NPN complement: 2PC1815.

## PINNING

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



## ORDERING INFORMATION

| TYPE NUMBER | PACKAGE |   |         |
|-------------|---------|---|---------|
|             | NAME    | DESCRIPTION   | VERSION |
| 2PA1015Y    | SC-43A  | plastic single-ended leaded (through hole) package; 3 leads | SOT54   |
| 2PA1015GR   |         |   |         |

## LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 60134).

| SYMBOL    | PARAMETER                 | CONDITIONS                           | MIN. | MAX. | UNIT |
|-----------|---------------------------|--------------------------------------|------|------|------|
| $V_{CBO}$ | collector-base voltage    | open emitter                         | –    | –50  | V    |
| $V_{CEO}$ | collector-emitter voltage | open base                            | –    | –50  | V    |
| $V_{EBO}$ | emitter-base voltage      | open collector                       | –    | –5   | V    |
| $I_C$     | collector current (DC)    |                                      | –    | –150 | mA   |
| $I_{CM}$  | peak collector current    |                                      | –    | –200 | mA   |
| $I_{BM}$  | peak base current         |                                      | –    | –200 | mA   |
| $P_{tot}$ | total power dissipation   | $T_{amb} \leq 25\text{ °C}$ ; note 1 | –    | 500  | mW   |
| $T_{stg}$ | storage temperature       |                                      | –65  | +150 | °C   |
| $T_j$     | junction temperature      |                                      | –    | 150  | °C   |
| $T_{amb}$ | ambient temperature       |                                      | –65  | +150 | °C   |

## Note

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

## PNP 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     | 250   | K/W  |

## Note

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

## CHARACTERISTICS

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

| SYMBOL      | PARAMETER                                | CONDITIONS   | MIN.       | TYP.   | MAX.       | UNIT |
|-------------|--|--|------------|--------|------------|------|
| $I_{CBO}$   | collector-base cut-off current           | $V_{CB} = -50\text{ V}$ ; $I_E = 0\text{ A}$   | –          | –      | –100       | nA   |
| $I_{EBO}$   | emitter-base cut-off current             | $V_{EB} = -5\text{ V}$ ; $I_C = 0\text{ A}$  | –          | –      | –100       | nA   |
| $h_{FE}$    | DC current gain<br>2PA1015Y<br>2PA1015GR | $V_{CE} = -6\text{ V}$ ; $I_C = -2\text{ mA}$  | 120<br>200 | –<br>– | 240<br>400 |      |
| $h_{FE}$    | DC current gain                          | $V_{CE} = -6\text{ V}$ ; $I_C = -150\text{ mA}$  | 25         | –      | –          |      |
| $V_{CEsat}$ | collector-emitter saturation voltage     | $I_C = -100\text{ mA}$ ; $I_B = -10\text{ mA}$   | –          | –      | –300       | mV   |
| $V_{BEsat}$ | base-emitter saturation voltage          | $I_C = -100\text{ mA}$ ; $I_B = -10\text{ mA}$   | –          | –      | –1.1       | V    |
| $C_c$       | collector capacitance                    | $V_{CB} = -10\text{ V}$ ; $I_E = i_e = 0\text{ A}$ ; $f = 1\text{ MHz}$  | –          | 4      | 7          | pF   |
| $f_T$       | transition frequency                     | $V_{CB} = -10\text{ V}$ ; $I_C = -1\text{ mA}$ ; $f = 100\text{ MHz}$  | 80         | –      | –          | MHz  |
| F           | noise figure                             | $V_{CE} = -5\text{ V}$ ; $I_C = -200\text{ }\mu\text{A}$ ; $R_S = 2\text{ k}\Omega$ ; $f = 1\text{ kHz}$ ; $B = 200\text{ Hz}$ | –          | –      | 10         | dB   |

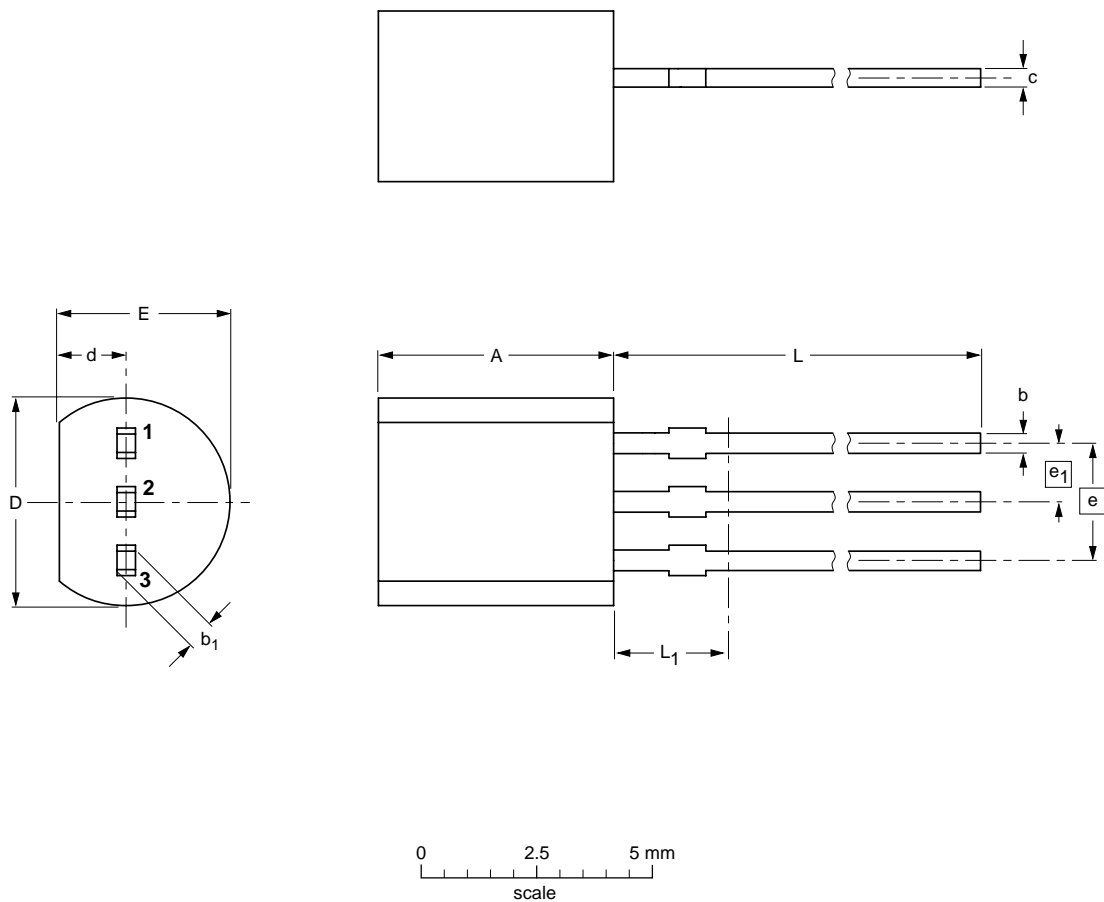
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PACKAGE OUTLINE

Plastic single-ended leaded (through hole) package; 3 leads

SOT54




DIMENSIONS (mm are the original dimensions)

| UNIT | A          | b            | b <sub>1</sub> | c            | D          | d          | E          | e    | e <sub>1</sub> | L            | L <sub>1</sub> <sup>(1)</sup><br>max. |
|------|------------|--------------|----------------|--------------|------------|------------|------------|------|----------------|--------------|---------------------------------------|
| mm   | 5.2<br>5.0 | 0.48<br>0.40 | 0.66<br>0.55   | 0.45<br>0.38 | 4.8<br>4.4 | 1.7<br>1.4 | 4.2<br>3.6 | 2.54 | 1.27           | 14.5<br>12.7 | 2.5                                   |

Note

1. Terminal dimensions within this zone are uncontrolled to allow for flow of plastic and terminal irregularities.

| OUTLINE<br>VERSION | REFERENCES |       |        |  | EUROPEAN<br>PROJECTION  | ISSUE DATE            |
|--------------------|------------|-------|--------|--|---|-----------------------|
|                    | IEC        | JEDEC | JEITA  |  |   |                       |
| SOT54              |            | TO-92 | SC-43A |  |  | -97-02-28<br>04-06-28 |

## PNP general purpose transistor

2PA1015

## DATA SHEET STATUS

| LEVEL | DATA SHEET STATUS <sup>(1)</sup> | PRODUCT STATUS <sup>(2)(3)</sup> | DEFINITION   |
|-------|----------------------------------|----------------------------------|--|
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