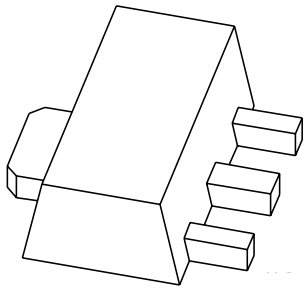


# DATA SHEET



## **PXTA14** NPN Darlington transistor

Product data sheet  
Supersedes data of 1999 Apr 14

2004 Dec 09

# NPN Darlington transistor

# PXTA14

### FEATURES

- High current (max. 500 mA)
- Low voltage (max. 30 V).

### APPLICATIONS

- High input impedance preamplifiers.

### DESCRIPTION

NPN Darlington transistor in a SOT89 plastic package.  
PNP complement: PXTA64.

### MARKING

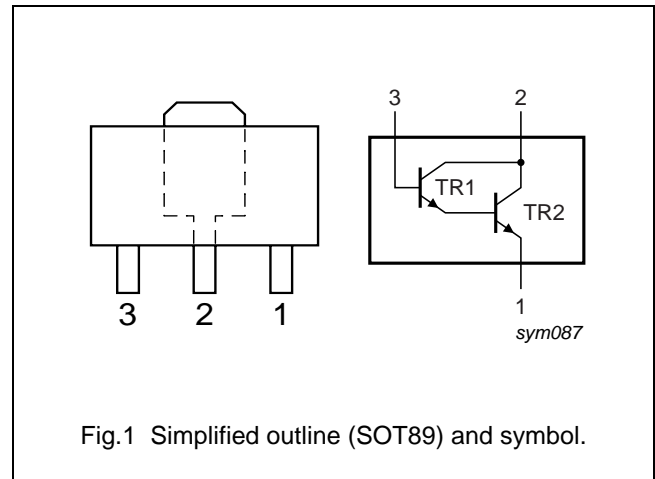
| TYPE NUMBER | MARKING CODE <sup>(1)</sup> |
|-------------|-----------------------------|
| PXTA14      | *1N                         |

### Note

- \* = p: Made in Hong Kong.  
\* = t: Made in Malaysia.  
\* = W: Made in China.

### PINNING

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



### ORDERING INFORMATION

| TYPE NUMBER | PACKAGE |  |         |
|-------------|---------|--|---------|
|             | NAME    | DESCRIPTION  | VERSION |
| PXTA14      | SC-62   | plastic surface mounted package; collector pad for good heat transfer; 3 leads | SOT89   |

## NPN Darlington transistor

PXTA14

## 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                 | –    | 30   | V    |
| $V_{CES}$ | collector-emitter voltage | $V_{BE} = 0$ V               | –    | 30   | V    |
| $V_{EBO}$ | emitter-base voltage      | open collector               | –    | 10   | V    |
| $I_C$     | collector current (DC)    |                              | –    | 500  | mA   |
| $I_{CM}$  | peak collector current    |                              | –    | 1    | A    |
| $I_B$     | base current (DC)         |                              | –    | 200  | mA   |
| $P_{tot}$ | total power dissipation   | $T_{amb} \leq 25$ °C; note 1 | –    | 1.3  | W    |
| $T_{stg}$ | storage temperature       |                              | –65  | +150 | °C   |
| $T_j$     | junction temperature      |                              | –    | 150  | °C   |
| $T_{amb}$ | ambient temperature       |                              | –65  | +150 | °C   |

## Note

- Device mounted on a printed-circuit board, single-sided copper, tin-plated, mounting pad for collector 6 cm<sup>2</sup>. For other mounting conditions, see “*Thermal considerations for the SOT89 in the General Part of associated Handbook*”.

## THERMAL CHARACTERISTICS

| SYMBOL        | PARAMETER  | CONDITIONS | VALUE | UNIT |
|---------------|--|------------|-------|------|
| $R_{th(j-a)}$ | thermal resistance from junction to ambient      | note 1     | 96    | K/W  |
| $R_{th(j-s)}$ | thermal resistance from junction to solder point |            | 16    | K/W  |

## Note

- Device mounted on a printed-circuit board, single-sided copper, tin-plated, mounting pad for collector 6 cm<sup>2</sup>. For other mounting conditions, see “*Thermal considerations for the SOT89 in the General Part of associated Handbook*”.

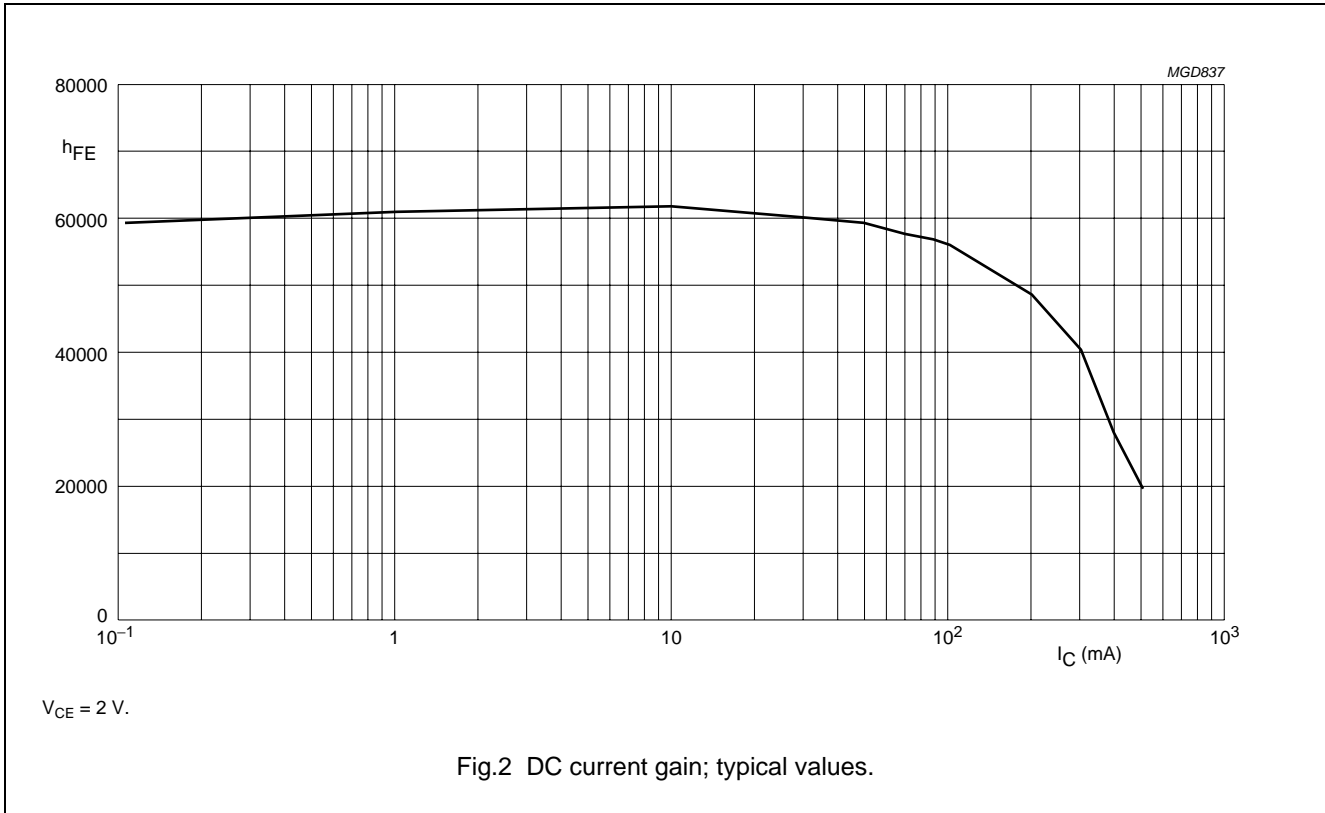
## CHARACTERISTICS

 $T_{amb} = 25$  °C unless otherwise specified.

| SYMBOL      | PARAMETER                            | CONDITIONS                                   | MIN.  | MAX. | UNIT |
|-------------|--------------------------------------|--|-------|------|------|
| $I_{CBO}$   | collector-base cut-off current       | $I_E = 0$ A; $V_{CB} = 30$ V                 | –     | 100  | nA   |
| $I_{CES}$   | collector-emitter cut-off current    | $V_{BE} = 0$ V; $V_{CE} = 30$ V              | –     | 100  | nA   |
| $I_{EBO}$   | emitter cut-off current              | $I_C = 0$ A; $V_{EB} = 10$ V                 | –     | 100  | nA   |
| $h_{FE}$    | DC current gain                      | $I_C = 10$ mA; $V_{CE} = 5$ V; (see Fig.2)   | 10000 | –    |      |
|             |                                      | $I_C = 100$ mA; $V_{CE} = 5$ V; (see Fig.2)  | 20000 | –    |      |
| $V_{CEsat}$ | collector-emitter saturation voltage | $I_C = 100$ mA; $I_B = 0.1$ mA               | –     | 1.5  | V    |
| $V_{BEsat}$ | base-emitter saturation voltage      | $I_C = 100$ mA; $I_B = 0.1$ mA               | –     | 1.5  | V    |
| $V_{BEon}$  | base-emitter on-state voltage        | $I_C = 100$ mA; $V_{CE} = 5$ V               | –     | 2    | V    |
| $f_T$       | transition frequency                 | $I_C = 30$ mA; $V_{CE} = 5$ V; $f = 100$ MHz | 125   | –    | MHz  |

NPN Darlington transistor

PXTA14



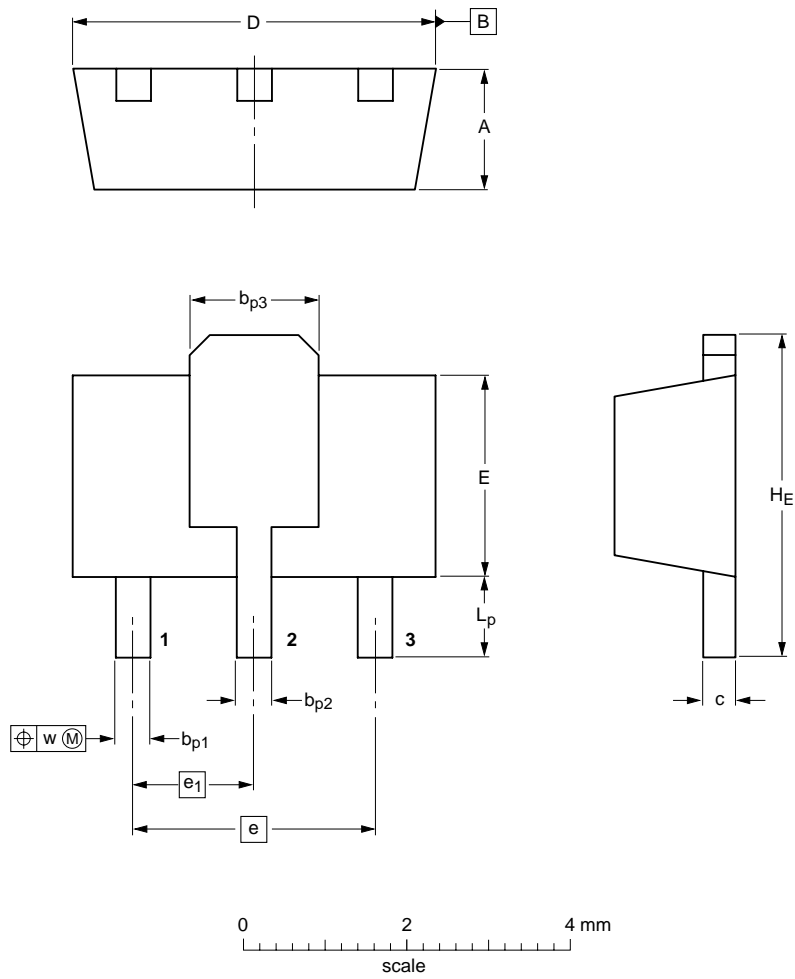
NPN Darlington transistor

PXTA14

PACKAGE OUTLINE


Plastic surface-mounted package; collector pad for good heat transfer; 3 leads

SOT89



DIMENSIONS (mm are the original dimensions)

| UNIT | A          | b <sub>p1</sub> | b <sub>p2</sub> | b <sub>p3</sub> | c            | D          | E          | e   | e <sub>1</sub> | H <sub>E</sub> | L <sub>p</sub> | w    |
|------|------------|-----------------|-----------------|-----------------|--------------|------------|------------|-----|----------------|----------------|----------------|------|
| mm   | 1.6<br>1.4 | 0.48<br>0.35    | 0.53<br>0.40    | 1.8<br>1.4      | 0.44<br>0.23 | 4.6<br>4.4 | 2.6<br>2.4 | 3.0 | 1.5            | 4.25<br>3.75   | 1.2<br>0.8     | 0.13 |

| OUTLINE VERSION | REFERENCES |        |       |  | EUROPEAN PROJECTION   | ISSUE DATE           |
|-----------------|------------|--------|-------|--|---|----------------------|
|                 | IEC        | JEDEC  | JEITA |  |   |                      |
| SOT89           |            | TO-243 | SC-62 |  |  | 04-08-03<br>06-03-16 |

# NPN Darlington transistor

PXTA14

## 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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## **Contact information**

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