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Should be replaced with:

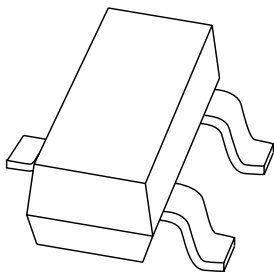
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If you have any questions related to the data sheet, please contact our nearest sales office via e-mail or telephone (details via **[salesaddresses@nexperia.com](mailto:salesaddresses@nexperia.com)**). Thank you for your cooperation and understanding,

Kind regards,

Team Nexperia

# DATA SHEET



## **PMBTA64** PNP Darlington transistor

Product data sheet  
Supersedes data of 2002 Nov 07

2004 Jan 22

## PNP Darlington transistor

## PMBTA64

## FEATURES

- High current (max. 500 mA)
- Low voltage (max. 30 V)
- High DC current gain (min. 10000).

## APPLICATIONS

- High input impedance preamplifiers.

## DESCRIPTION

PNP Darlington transistor in a SOT23 plastic package.  
NPN complement: PMBTA14.

## MARKING

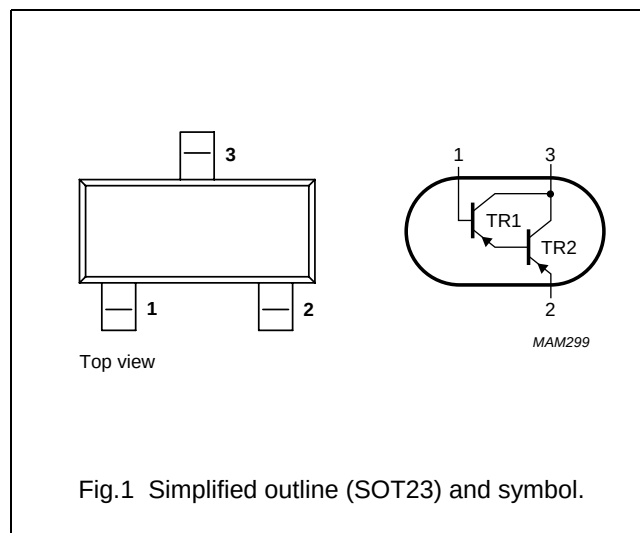
| TYPE NUMBER | MARKING CODE <sup>(1)</sup> |
|-------------|-----------------------------|
| PMBTA64     | *2V                         |

## Note

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

## PINNING

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



## ORDERING INFORMATION

| TYPE NUMBER | PACKAGE |                                          |         |
|-------------|---------|------------------------------------------|---------|
|             | NAME    | DESCRIPTION                              | VERSION |
| PMBTA64     | —       | plastic surface mounted package; 3 leads | SOT23   |

## 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     | $V_{BE} = 0$                         | —    | −30  | V    |
| $V_{EBO}$ | emitter-base voltage          | open collector                       | —    | −10  | V    |
| $I_C$     | collector current (DC)        |                                      | —    | −500 | mA   |
| $I_{CM}$  | peak collector current        |                                      | —    | −800 | mA   |
| $I_B$     | base current (DC)             |                                      | —    | −200 | mA   |
| $P_{tot}$ | total power dissipation       | $T_{amb} \leq 25\text{ °C}$ ; note 1 | —    | 250  | 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.

PNP Darlington transistor

PMBTA64

THERMAL CHARACTERISTICS

| SYMBOL        | PARAMETER                                   | CONDITIONS | VALUE | UNIT |
|---------------|---------------------------------------------|------------|-------|------|
| $R_{th(j-a)}$ | thermal resistance from junction to ambient | note 1     | 500   | K/W  |

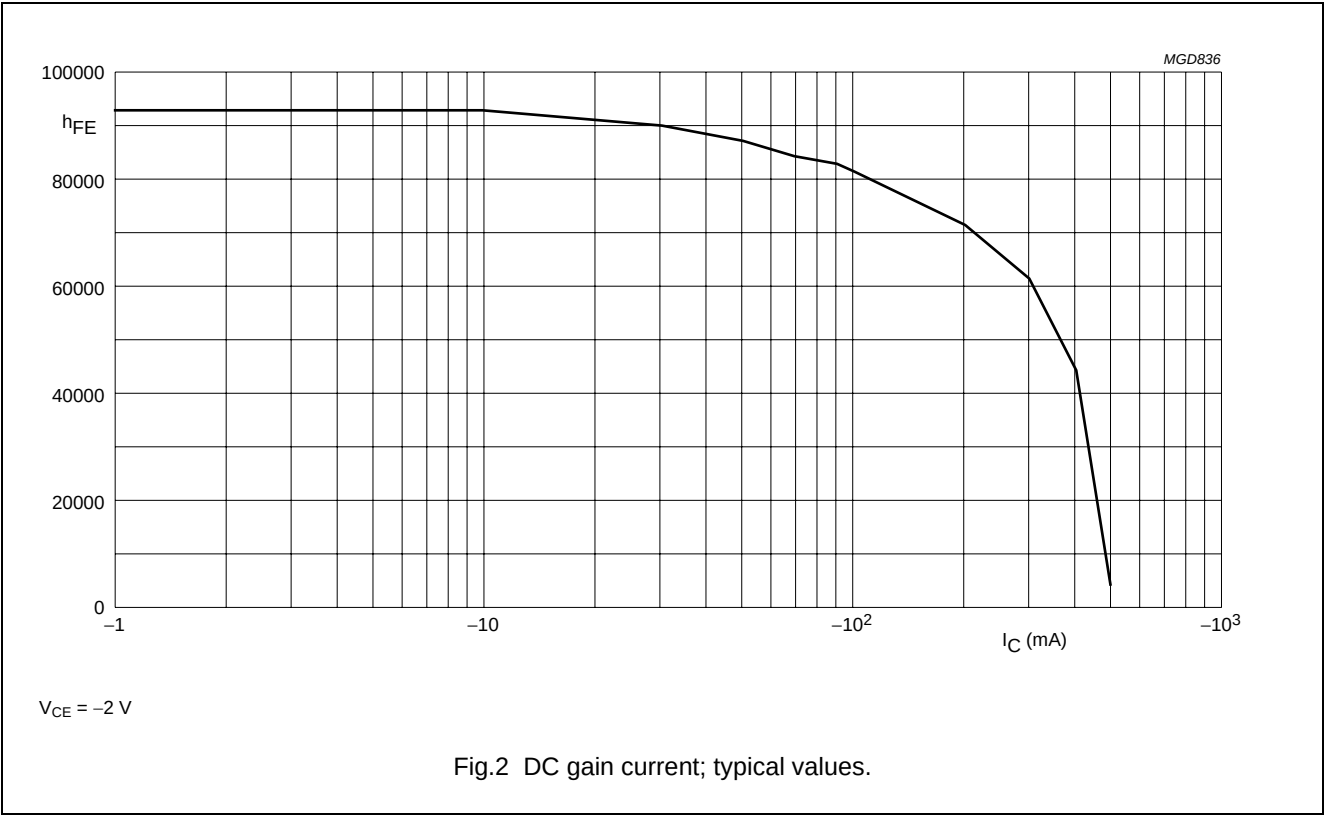
Note

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

CHARACTERISTICS

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

| SYMBOL      | PARAMETER                            | CONDITIONS                                                            | MIN.  | MAX. | UNIT |
|-------------|--------------------------------------|-----------------------------------------------------------------------|-------|------|------|
| $I_{CBO}$   | collector cut-off current            | $I_E = 0$ ; $V_{CB} = -30\text{ V}$                                   | –     | –100 | nA   |
| $I_{EBO}$   | emitter cut-off current              | $I_C = 0$ ; $V_{EB} = -10\text{ V}$ ;                                 | –     | –100 | nA   |
| $h_{FE}$    | DC current gain                      | $I_C = -10\text{ mA}$ ; $V_{CE} = -5\text{ V}$ ; (see Fig.2)          | 10000 | –    |      |
|             |                                      | $I_C = -100\text{ mA}$ ; $V_{CE} = -5\text{ V}$ ; (see Fig.2)         | 20000 | –    |      |
| $V_{CEsat}$ | collector-emitter saturation voltage | $I_C = -100\text{ mA}$ ; $I_B = -0.1\text{ mA}$                       | –     | –1.5 | V    |
| $V_{BEon}$  | base-emitter on-state voltage        | $I_C = -100\text{ mA}$ ; $V_{CE} = -5\text{ V}$                       | –     | –2   | V    |
| $f_T$       | transition frequency                 | $I_C = -50\text{ mA}$ ; $V_{CE} = -5\text{ V}$ ; $f = 100\text{ MHz}$ | 125   | –    | MHz  |



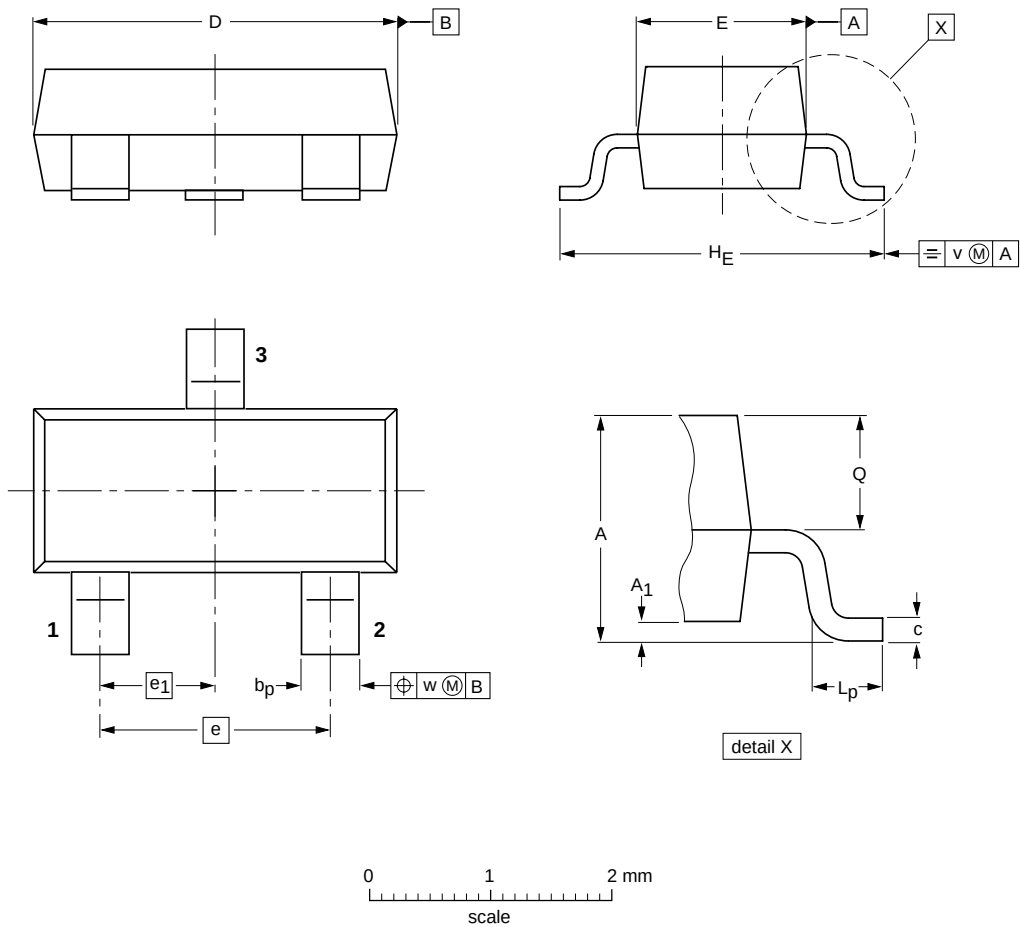
PNP Darlington transistor

PMBTA64

PACKAGE OUTLINE

Plastic surface-mounted package; 3 leads

SOT23



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>0.9 | 0.1                    | 0.48<br>0.38   | 0.15<br>0.09 | 3.0<br>2.8 | 1.4<br>1.2 | 1.9 | 0.95           | 2.5<br>2.1     | 0.45<br>0.15   | 0.55<br>0.45 | 0.2 | 0.1 |

| OUTLINE<br>VERSION | REFERENCES |          |       |  | EUROPEAN<br>PROJECTION | ISSUE DATE           |
|--------------------|------------|----------|-------|--|------------------------|----------------------|
|                    | IEC        | JEDEC    | JEITA |  |                        |                      |
| SOT23              |            | TO-236AB |       |  |                        | 04-11-04<br>06-03-16 |

## PNP Darlington transistor

## PMBTA64

## 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.                                     |

## Notes

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2. The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the Internet at URL <http://www.nxp.com>.

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# ***NXP Semiconductors***

## **Customer notification**

This data sheet was changed to reflect the new company name NXP Semiconductors, including new legal definitions and disclaimers. No changes were made to the technical content, except for package outline drawings which were updated to the latest version.

## **Contact information**

For additional information please visit: <http://www.nxp.com>

For sales offices addresses send e-mail to: [salesaddresses@nxp.com](mailto:salesaddresses@nxp.com)

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