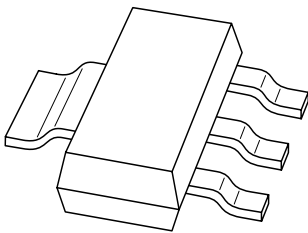


# DATA SHEET



## **PZTA14** NPN Darlington transistor

Product specification  
Supersedes data of 1997 Sep 04

1999 Apr 14

# NPN Darlington transistor

# PZTA14

### FEATURES

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

### APPLICATIONS

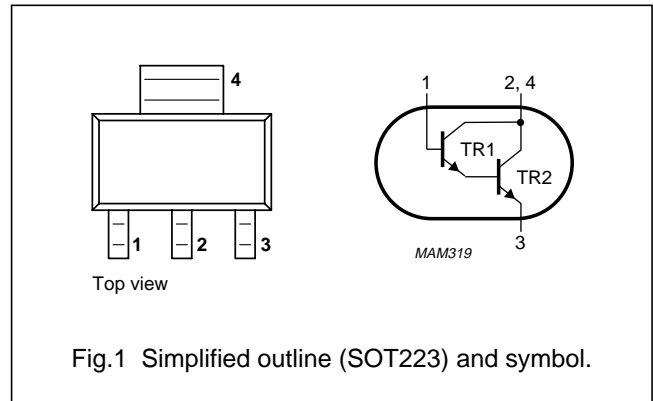
- Pre-amplifiers requiring high input impedance.

### DESCRIPTION

NPN Darlington transistor in a SOT223 plastic package.  
PNP complement: PZTA64.

### PINNING

PIN	DESCRIPTION
1	base/input
2, 4	collector/output
3	emitter/ground



### 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	–	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	–	1.25	W
$T_{stg}$	storage temperature		–65	+150	°C
$T_j$	junction temperature		–	150	°C
$T_{amb}$	operating ambient temperature		–65	+150	°C

### Note

1. Device mounted on a printed-circuit board, single-sided copper, tinplated, mounting pad for collector 1 cm<sup>2</sup>. For other mounting conditions, see “*Thermal considerations for SOT223 in the General Part of associated Handbook*”.

## NPN Darlington transistor

PZTA14

## THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	100	K/W
$R_{th\ j-s}$	thermal resistance from junction to soldering point		19	K/W

## Note

1. Device mounted on a printed-circuit board, single-sided copper, tinplated, mounting pad for collector 1 cm<sup>2</sup>. For other mounting conditions, see "Thermal considerations for SOT223 in the General Part of associated Handbook".

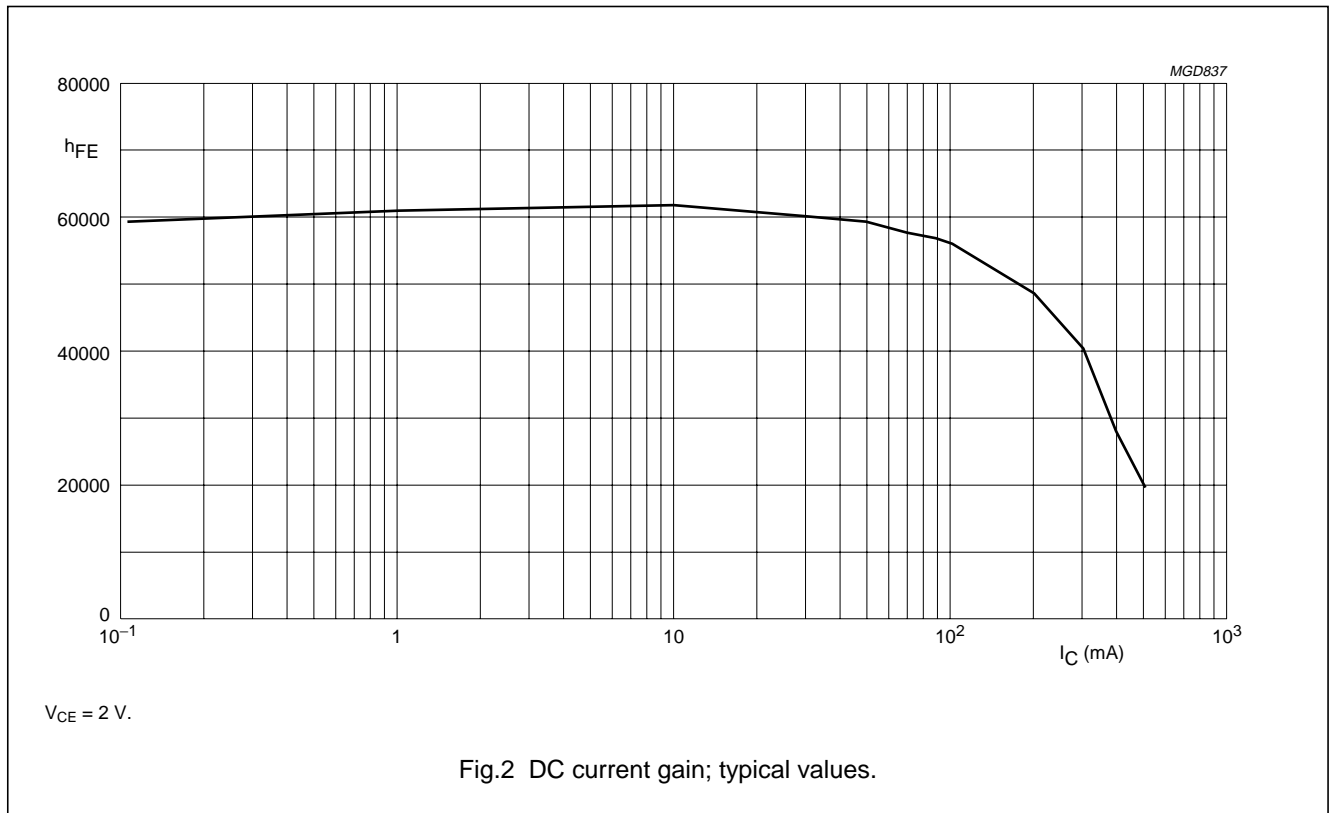
## CHARACTERISTICS

$T_j = 25\text{ °C}$  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
$I_{CES}$	collector cut-off current	$V_{BE} = 0; V_{CE} = 30\text{ V}$	–	100	nA
$I_{EBO}$	emitter cut-off current	$I_C = 0; V_{EB} = 10\text{ V}$	–	100	nA
$h_{FE}$	DC current gain	$V_{CE} = 5\text{ V}$ ; (see Fig.2) $I_C = 10\text{ mA}$ $I_C = 100\text{ mA}$	10000 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	$I_C = 10\text{ mA}; V_{CE} = 5\text{ V}; f = 100\text{ MHz}$	125	–	MHz

NPN Darlington transistor

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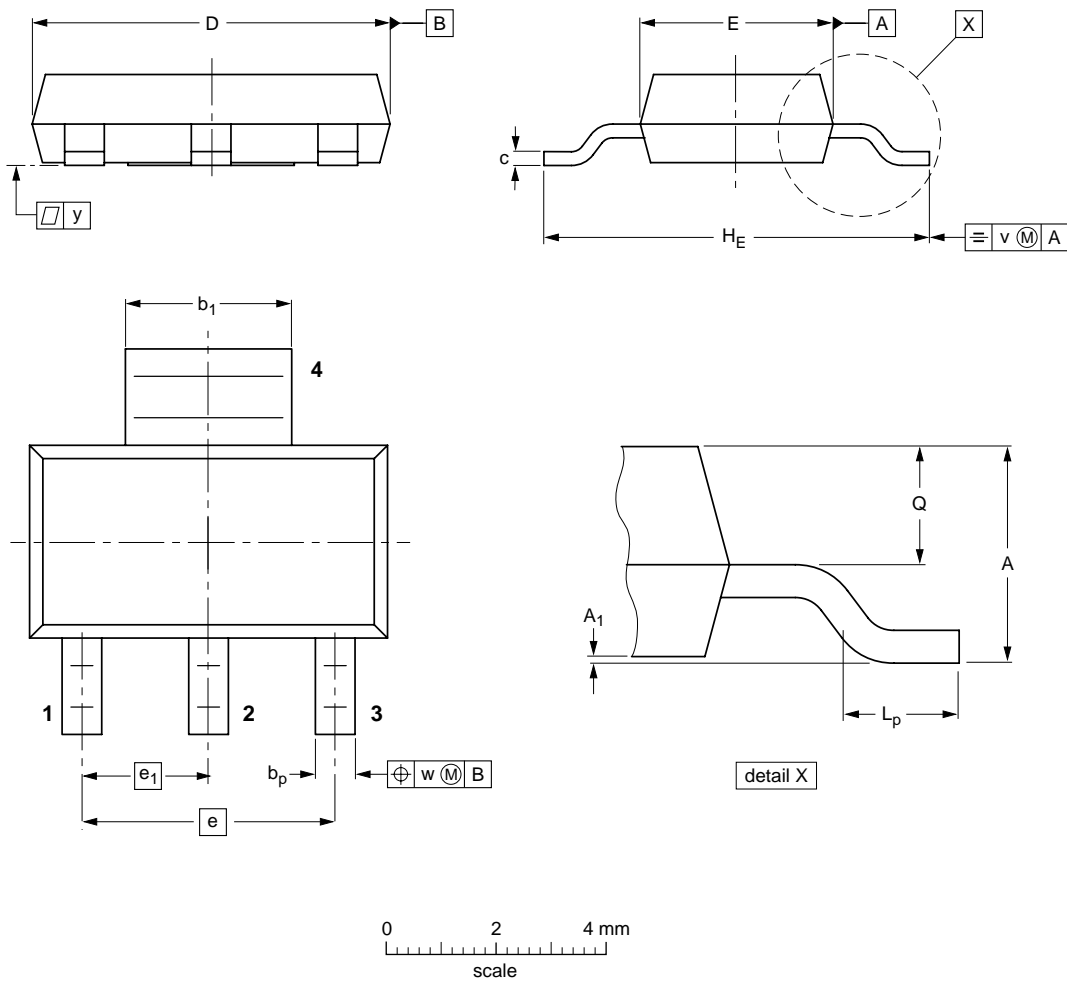
NPN Darlington transistor

PZTA14

PACKAGE OUTLINE

Plastic surface mounted package; collector pad for good heat transfer; 4 leads

SOT223



DIMENSIONS (mm are the original dimensions)

UNIT	A	A <sub>1</sub>	b <sub>p</sub>	b <sub>1</sub>	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L <sub>p</sub>	Q	v	w	y
mm	1.8 1.5	0.10 0.01	0.80 0.60	3.1 2.9	0.32 0.22	6.7 6.3	3.7 3.3	4.6	2.3	7.3 6.7	1.1 0.7	0.95 0.85	0.2	0.1	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT223						96-11-11 97-02-28

## NPN Darlington transistor

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**DEFINITIONS**

<b>Data Sheet Status</b>	
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.
<b>Limiting values</b>	
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.	
<b>Application information</b>	
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NPN Darlington transistor

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Printed in The Netherlands

115002/00/04/pp8

Date of release: 1999 Apr 14

Document order number: 9397 750 05641

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