

PZT4403

PNP switching transistor

Rev. 02 — 17 January 2008

Product data sheet

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NXP Semiconductors

PNP switching transistor

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FEATURES

- High current (max. 600 mA)
- Low voltage (max. 40 V).

APPLICATIONS

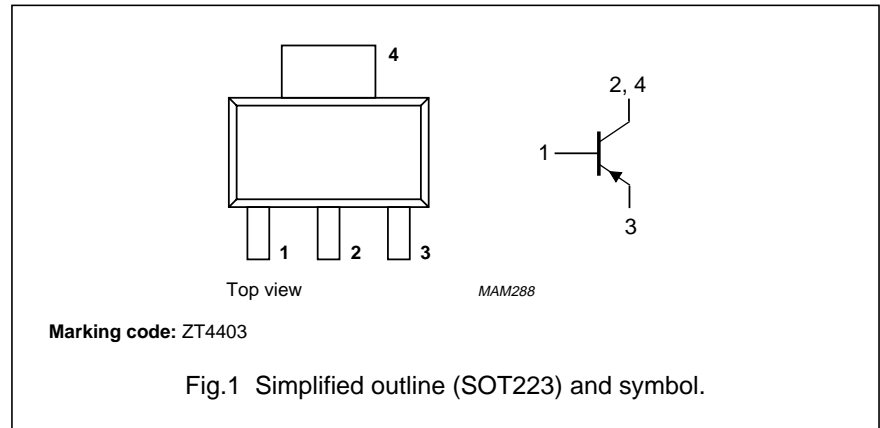
- Switching and linear amplification.

DESCRIPTION

PNP switching transistor in a SOT223 plastic package. NPN complement: PZT4401.

PINNING

PIN	DESCRIPTION
1	base
2, 4	collector
3	emitter



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	–	–40	V
V_{CEO}	collector-emitter voltage	open base	–	–40	V
V_{EBO}	emitter-base voltage	open collector	–	–6	V
I_C	collector current (DC)		–	–600	mA
I_{CM}	peak collector current		–	–800	mA
I_{BM}	peak base current		–	–200	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ °C}$; note 1	–	1 150	mW
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 cm². For other mounting conditions, see “*Thermal considerations for SOT223 in the General Part of associated Handbook*”.

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THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	note 1	106	K/W
$R_{th\ j-s}$	thermal resistance from junction to soldering point		25	K/W

Note

- Device mounted on a printed-circuit board, single-sided copper, tinplated, mounting pad for collector 1 cm². 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	$I_E = 0; V_{CB} = -40\text{ V}$	–	–50	nA
I_{EBO}	emitter cut-off current	$I_C = 0; V_{EB} = -5\text{ V}$	–	–50	nA
h_{FE}	DC current gain	$V_{CE} = -1\text{ V}$; see Fig.2 $I_C = -0.1\text{ mA}$ $I_C = -1\text{ mA}$ $I_C = -10\text{ mA}$ $I_C = -150\text{ mA}$; note 1	30 60 100 100	– – – 300	
		$V_{CE} = -2\text{ V}; I_C = -500\text{ mA}$; note 1	20	–	
V_{CEsat}	collector-emitter saturation voltage	$I_C = -150\text{ mA}; I_B = -15\text{ mA}$; note 1 $I_C = -500\text{ mA}; I_B = -50\text{ mA}$; note 1	– –	–400 –750	mV mV
V_{BEsat}	base-emitter saturation voltage	$I_C = -150\text{ mA}; I_B = -15\text{ mA}$; note 1 $I_C = -500\text{ mA}; I_B = -50\text{ mA}$; note 1	– –	–950 –1300	mV mV
C_c	collector capacitance	$I_E = I_E = 0; V_{CB} = -5\text{ V}; f = 1\text{ MHz}$	–	8.5	pF
C_e	emitter capacitance	$I_C = I_C = 0; V_{EB} = -500\text{ mV}; f = 1\text{ MHz}$	–	35	pF
f_T	transition frequency	$I_C = -20\text{ mA}; V_{CE} = -10\text{ V}; f = 100\text{ MHz}$	200	–	MHz

Switching times (between 10% and 90% levels); see Fig.3

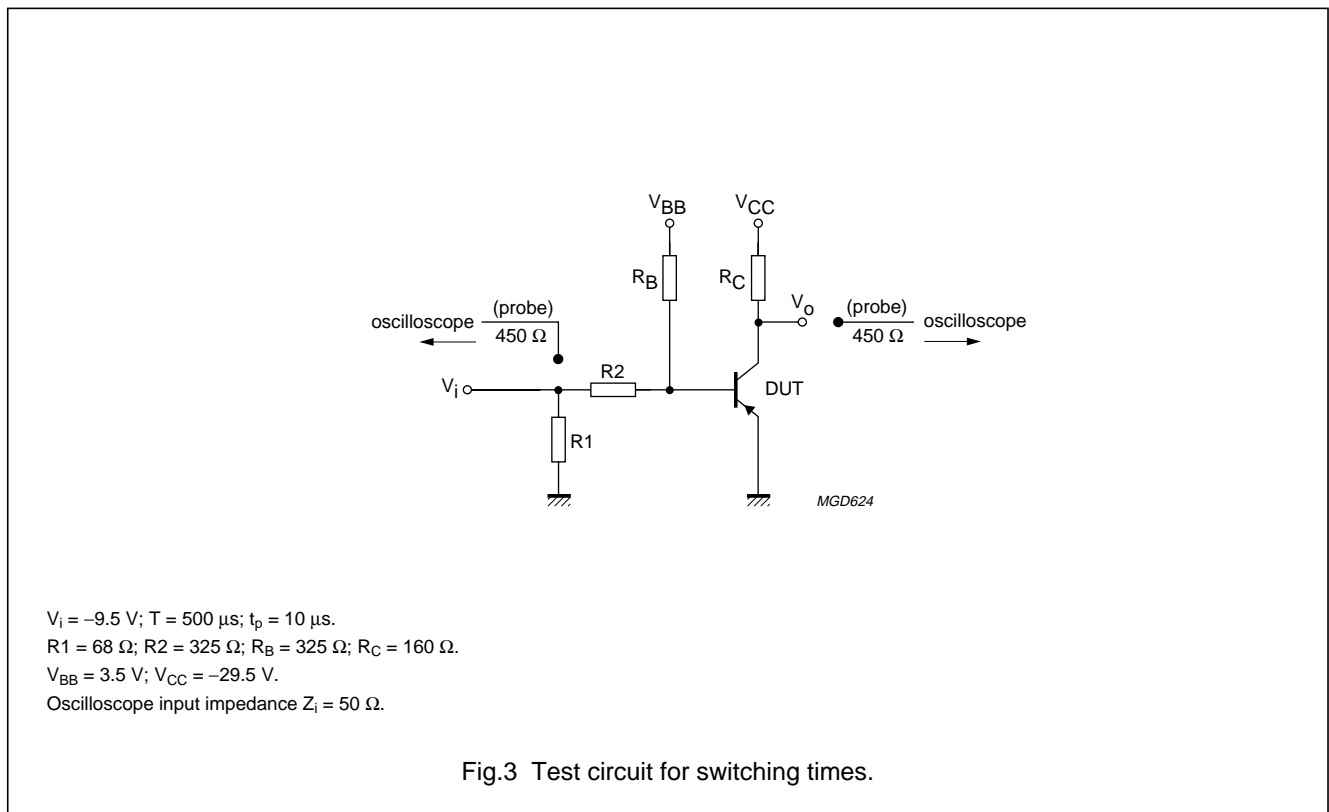
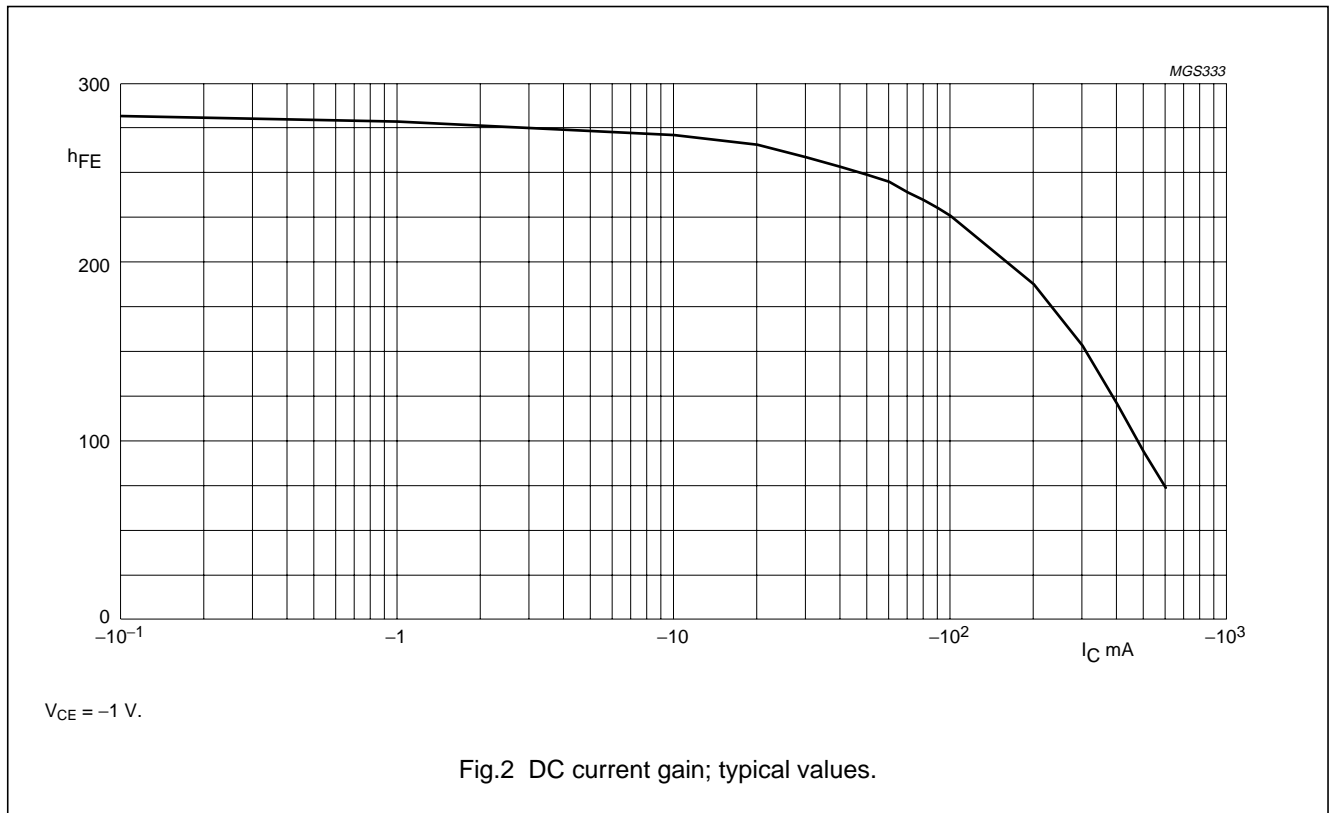
t_{on}	turn-on time	$I_{Con} = -150\text{ mA}; I_{Bon} = -15\text{ mA}; I_{Boff} = 15\text{ mA}; V_{BB} = 3.5\text{ V}; V_{CC} = -29.5\text{ V}$	–	40	ns
t_d	delay time		–	15	ns
t_r	rise time		–	30	ns
t_{off}	turn-off time		–	350	ns
t_s	storage time		–	300	ns
t_f	fall time		–	50	ns

Note

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

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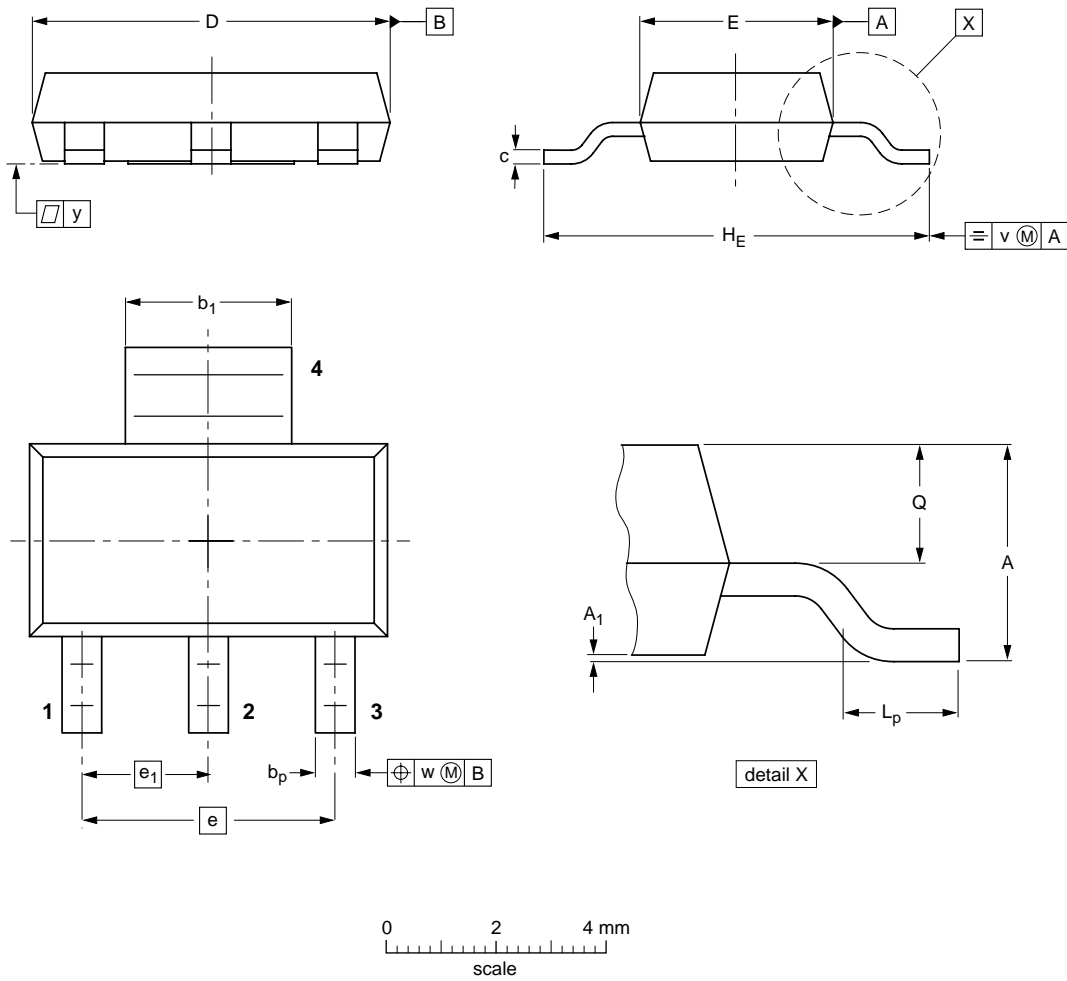
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PACKAGE OUTLINE

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

SOT223



DIMENSIONS (mm are the original dimensions)

UNIT	A	A ₁	b _p	b ₁	c	D	E	e	e ₁	H _E	L _p	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

Legal information

Data sheet status

Document status ^{[1][2]}	Product status ^[3]	Definition
Objective [short] data sheet	Development	This document contains data from the objective specification for product development.
Preliminary [short] data sheet	Qualification	This document contains data from the preliminary specification.
Product [short] data sheet	Production	This document contains the product specification.

[1] Please consult the most recently issued document before initiating or completing a design.

[2] The term 'short data sheet' is explained in section "Definitions".

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Revision history

Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
PZT4403_N_2	20080117	Product data sheet	-	PZT4403_1
Modifications:	• Page 3 Characteristics table, Switching time conditions; value for I_{BOn} and I_{BOff} changed			
PZT4403_1 (9397 750 05901)	19990510	Product specification	-	-

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