



# PZT4403

40 V, 600 mA PNP switching transistor

Rev. 03 — 2 March 2010

Product data sheet

## 1. Product profile

### 1.1 General description

PNP switching transistor in a medium power SOT223 (SC-73) small Surface-Mounted Device (SMD) plastic package.

NPN complement: PZT4401.

### 1.2 Features and benefits

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

### 1.3 Applications

- Switching and linear amplification

### 1.4 Quick reference data

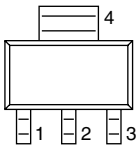
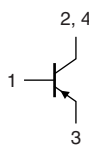
Table 1. Quick reference data

Symbol	Parameter	Conditions	Min	Max	Unit
$V_{CE0}$	collector-emitter voltage	open base	-	-40	V
$I_C$	collector current		-	-600	mA
$h_{FE}$	DC current gain	$V_{CE} = -1$ V; $I_C = -150$ mA	[1] 100	-	300

[1] Pulse test:  $t_p \leq 300$   $\mu$ s;  $\delta \leq 0.02$ .

## 2. Pinning information

Table 2. Pinning

Pin	Description	Simplified outline	Graphic symbol
1	base		
2, 4	collector		
3	emitter		

### 3. Ordering information

Table 3. Ordering information

Type number	Package		Version
	Name	Description	
PZT4403	SC-73	plastic surface-mounted package with increased heatsink; 4 leads	SOT223

### 4. Marking

Table 4. Marking codes

Type number	Marking code
PZT4403	ZT4403

### 5. Limiting values

Table 5. 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	-	-40	V
$V_{CEO}$	collector-emitter voltage	open base	-	-40	V
$V_{EBO}$	emitter-base voltage	open collector	-	-6	V
$I_C$	collector current		-	-600	mA
$I_{CM}$	peak collector current		-	-800	mA
$I_{BM}$	peak base current		-	-200	mA
$P_{tot}$	total power dissipation	$T_{amb} \leq 25\text{ °C}$	[1] -	1150	mW
$T_j$	junction temperature		-	150	°C
$T_{amb}$	ambient temperature		-65	+150	°C
$T_{stg}$	storage temperature		-65	+150	°C

[1] Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated, mounting pad for collector 1 cm<sup>2</sup>.

### 6. Thermal characteristics

Table 6. Thermal characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$R_{th(j-a)}$	thermal resistance from junction to ambient	in free air	[1] -	-	106	K/W
$R_{th(j-sp)}$	thermal resistance from junction to solder point		-	-	25	K/W

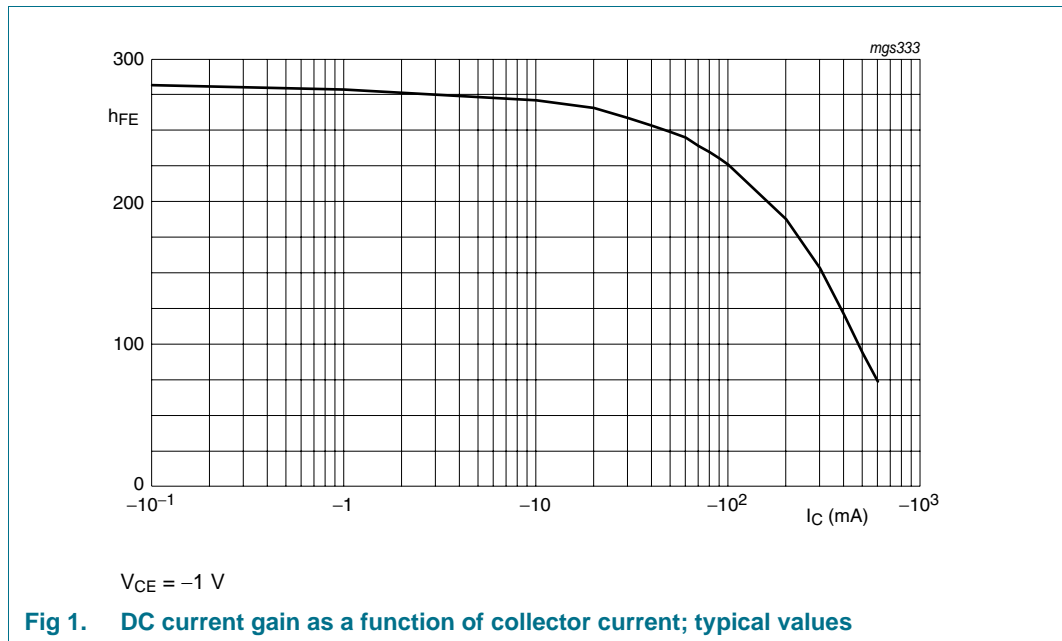
[1] Device mounted on an FR4 PCB, single-sided copper, tin-plated, mounting pad for collector 1 cm<sup>2</sup>.

## 7. Characteristics

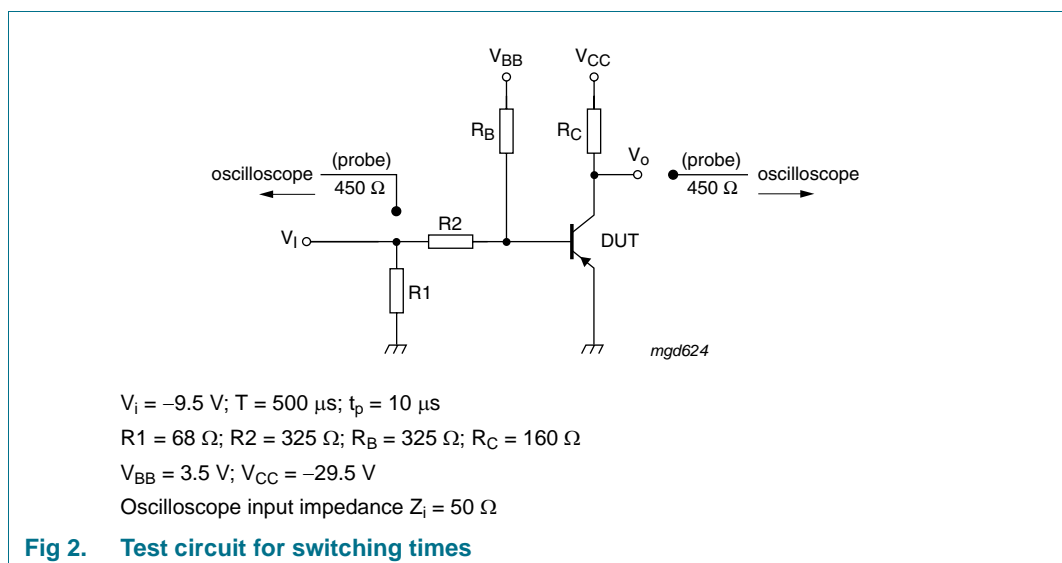
**Table 7. Characteristics**
 $T_{amb} = 25\text{ }^{\circ}\text{C}$  unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$I_{CBO}$	collector-base cut-off current	$V_{CB} = -40\text{ V}; I_E = 0\text{ A}$	-	-	-50	nA
$I_{EBO}$	emitter-base cut-off current	$V_{EB} = -5\text{ V}; I_C = 0\text{ A}$	-	-	-50	nA
$h_{FE}$	DC current gain	$V_{CE} = -1\text{ V}; I_C = -0.1\text{ mA}$	30	-	-	
		$V_{CE} = -1\text{ V}; I_C = -1\text{ mA}$	60	-	-	
		$V_{CE} = -1\text{ V}; I_C = -10\text{ mA}$	100	-	-	
		$V_{CE} = -1\text{ V}; I_C = -150\text{ mA}$	[1] 100	-	300	
		$V_{CE} = -2\text{ V}; I_C = -500\text{ mA}$	[1] 20	-	-	
$V_{CEsat}$	collector-emitter saturation voltage	$I_C = -150\text{ mA}; I_B = -15\text{ mA}$	[1] -	-	-400	mV
		$I_C = -500\text{ mA}; I_B = -50\text{ mA}$	[1] -	-	-750	mV
$V_{BEsat}$	base-emitter saturation voltage	$I_C = -150\text{ mA}; I_B = -15\text{ mA}$	[1] -	-	-950	mV
		$I_C = -500\text{ mA}; I_B = -50\text{ mA}$	[1] -	-	-1300	mV
$t_d$	delay time	$V_{CC} = -29.5\text{ V}; I_C = -150\text{ mA}; I_{Bon} = -15\text{ mA}; I_{Boff} = 15\text{ mA}; V_{BB} = 3.5\text{ V}$	-	-	15	ns
$t_r$	rise time		-	-	30	ns
$t_{on}$	turn-on time		-	-	40	ns
$t_s$	storage time		-	-	300	ns
$t_f$	fall time		-	-	50	ns
$t_{off}$	turn-off time		-	-	350	ns
$f_T$	transition frequency	$V_{CE} = -10\text{ V}; I_C = -20\text{ mA}; f = 100\text{ MHz}$	200	-	-	MHz
$C_c$	collector capacitance	$V_{CB} = -5\text{ V}; I_E = i_e = 0\text{ A}; f = 1\text{ MHz}$	-	-	8.5	pF
$C_e$	emitter capacitance	$V_{EB} = -500\text{ mV}; I_C = i_c = 0\text{ A}; f = 1\text{ MHz}$	-	-	35	pF

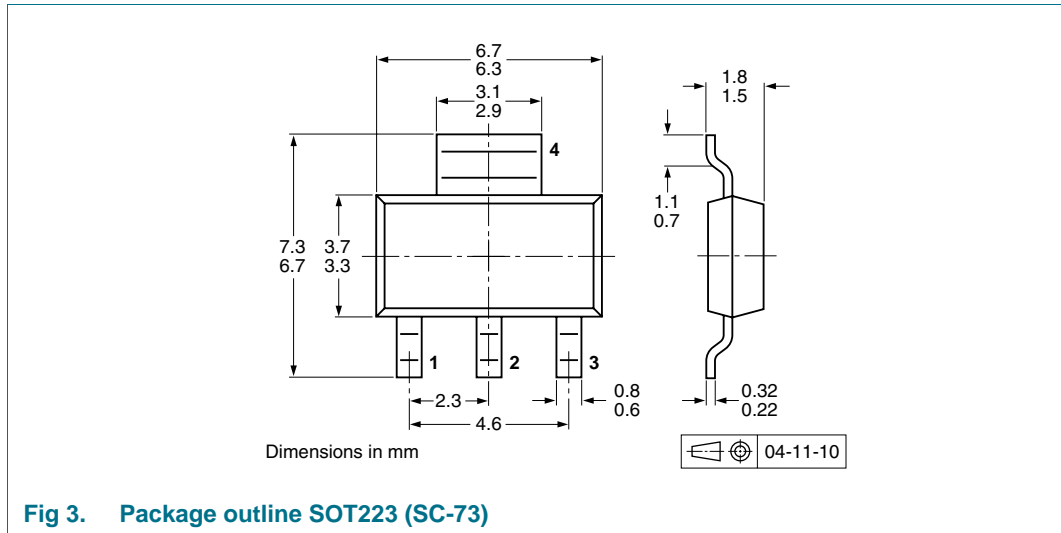
[1] Pulse test:  $t_p \leq 300\text{ }\mu\text{s}$ ;  $\delta \leq 0.02$ .



## 8. Test information



## 9. Package outline



## 10. Packing information

**Table 8. Packing methods**

The indicated -xxx are the last three digits of the 12NC ordering code.<sup>[1]</sup>

Type number	Package	Description	Packing quantity	
			1000	4000
PZT4403	SOT223	8 mm pitch, 12 mm tape and reel	-115	-135

[1] For further information and the availability of packing methods, see [Section 13](#).

## 11. Revision history

Table 9. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
PZT4403_3	20100302	Product data sheet	-	PZT4403_N_2
Modifications:	<ul style="list-style-type: none"> <li>• The format of this data sheet has been redesigned to comply with the new identity guidelines of NXP Semiconductors.</li> <li>• Legal texts have been adapted to the new company name where appropriate.</li> <li>• <a href="#">Section 1.1 “General description”</a>: amended</li> <li>• <a href="#">Section 1.4 “Quick reference data”</a>: added</li> <li>• <a href="#">Section 3 “Ordering information”</a>: added</li> <li>• <a href="#">Section 4 “Marking”</a>: added</li> <li>• <a href="#">Section 7 “Characteristics”</a>: amended</li> <li>• <a href="#">Section 8 “Test information”</a>: added</li> <li>• <a href="#">Figure 3</a>: superseded by minimized package outline drawing</li> <li>• <a href="#">Section 10 “Packing information”</a>: added</li> <li>• <a href="#">Section 12 “Legal information”</a>: updated</li> </ul>			
PZT4403_N_2	20080117	Product data sheet	-	PZT4403_1
PZT4403_1	19990510	Product specification	-	-

## 12. Legal information

### 12.1 Data sheet status

Document status <sup>[1][2]</sup>	Product status <sup>[3]</sup>	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".

[3] 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.nexperia.com>.

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