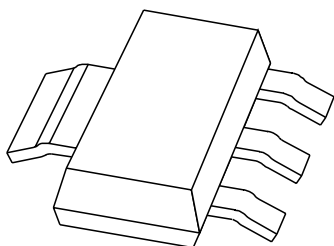


DATA SHEET



PZTA44; PZTA45 NPN high-voltage transistors

Product specification
Supersedes data of September 1994
File under Discrete Semiconductors, SC04

1997 Jul 02

NPN high-voltage transistors

PZTA44; PZTA45

FEATURES

- Low current (max. 300 mA)
- High voltage (max. 400 V).

APPLICATIONS

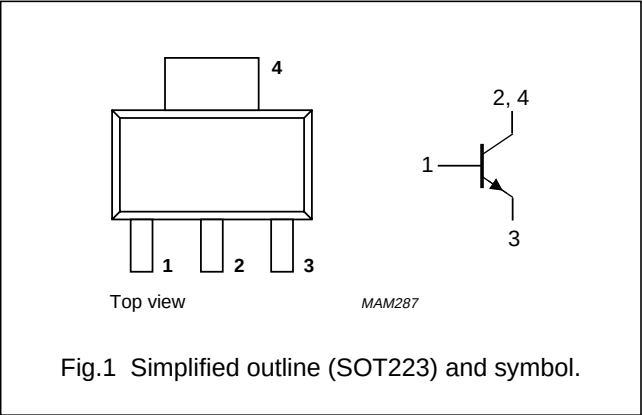
- Telecommunication.

DESCRIPTION

NPN high-voltage transistor in a SOT223 plastic package.

PINNING

PIN	DESCRIPTION
1	base
2, 4	collector
3	emitter



QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V _{CBO}	collector-base voltage	open emitter	—	500	V
	PZTA44			400	V
V _{CEO}	collector-emitter voltage	open base	—	400	V
	PZTA45			350	V
I _{CM}	peak collector current		—	300	mA
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C	—	1.35	W
h _{FE}	DC current gain	I _C = 100 mA; V _{CE} = 10 V	40	—	
f _T	transition frequency	I _C = 10 mA; V _{CE} = 10 V; f = 100 MHz	20	—	MHz

NPN high-voltage transistors

PZTA44; PZTA45

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			
	PZTA44		–	500	V
	PZTA45		–	400	V
V _{CEO}	collector-emitter voltage	open base			
	PZTA44		–	400	V
	PZTA45		–	350	V
V _{EBO}	emitter-base voltage	open collector	–	6	V
I _C	collector current (DC)		–	300	mA
I _{CM}	peak collector current		–	300	mA
I _{BM}	peak base current		–	100	mA
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C; note 1	–	1.35	W
T _{stg}	storage temperature		–65	+150	°C
T _j	junction temperature		–	150	°C
T _{amb}	operating ambient temperature		–65	+150	°C

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 handbook SC04*”.

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R _{th j-a}	thermal resistance from junction to ambient	note 1	91	K/W
R _{th j-s}	thermal resistance from junction to soldering point		10	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 handbook SC04*”.

NPN high-voltage transistors

PZTA44; PZTA45

CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_{CBO}	collector cut-off current PZTA44	$I_E = 0; V_{CB} = 400\text{ V}$	–	100	nA
		$I_E = 0; V_{CB} = 400\text{ V}; T_J = 150\text{ °C}$	–	10	μA
I_{CBO}	collector cut-off current PZTA45	$I_E = 0; V_{CB} = 320\text{ V}$	–	100	nA
		$I_E = 0; V_{CB} = 320\text{ V}; T_J = 150\text{ °C}$	–	10	μA
I_{EBO}	emitter cut-off current	$I_C = 0; V_{EB} = 4\text{ V}$	–	100	nA
h_{FE}	DC current gain	$V_{CE} = 10\text{ V}$			
		$I_C = 1\text{ mA}$	40	–	
		$I_C = 10\text{ mA}$	50	200	
		$I_C = 50\text{ mA}; \text{note 1}$	45	–	
V_{CEsat}	collector-emitter saturation voltage	$I_C = 1\text{ mA}; I_B = 0.1\text{ mA}$	–	400	mV
		$I_C = 10\text{ mA}; I_B = 1\text{ mA}$	–	500	mV
		$I_C = 50\text{ mA}; I_B = 5\text{ mA}; \text{note 1}$	–	750	mV
C_c	collector capacitance	$I_E = i_e = 0; V_{CB} = 20\text{ V}; f = 1\text{ MHz}$	–	7	pF
C_e	emitter capacitance	$I_C = i_c = 0; V_{EB} = 500\text{ mV}; f = 1\text{ MHz}$	–	180	pF
f_T	transition frequency	$I_C = 10\text{ mA}; V_{CE} = 10\text{ V}; f = 100\text{ MHz}$	20	–	MHz

Note

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

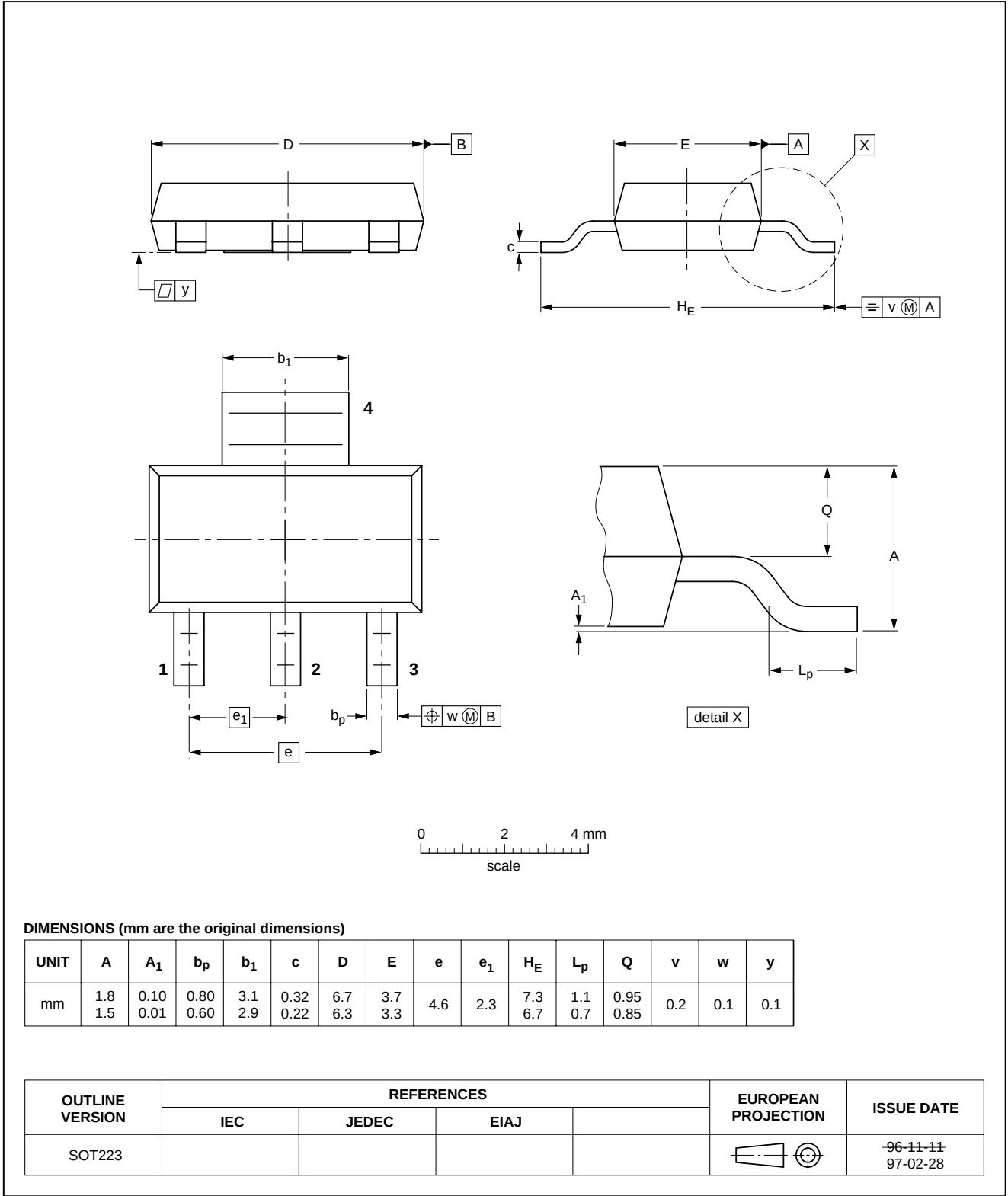
NPN high-voltage transistors

PZTA44; PZTA45

PACKAGE OUTLINE

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

SOT223



NPN high-voltage transistorsPZTA44; PZTA45

DEFINITIONS

Data sheet status	
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.
Limiting values	
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.	
Application information	
Where application information is given, it is advisory and does not form part of the specification.	

LIFE SUPPORT APPLICATIONS

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NPN high-voltage transistors

PZTA44; PZTA45

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