PNP high-voltage transistors BSP15; BSP16

FEATURES

- High voltage (max. 350 V).

APPLICATIONS

- Switching and amplification
- Especially used in telephony and automotive applications.

DESCRIPTION

PNP high-voltage transistor in a SOT223 plastic package. NPN complements: BSP19 and BSP20.

PINNING

PIN	DESCRIPTION
1	base
2, 4	collector
3	emitter

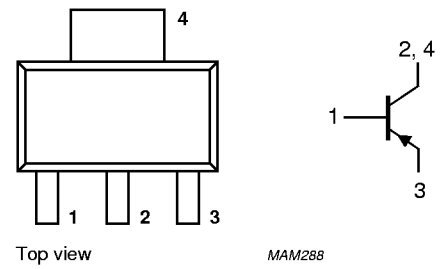


Fig.1 Simplified outline (SOT223) and symbol.

QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter			
	BSP15		–	–200	V
	BSP16		–	–350	V
V_{CEO}	collector-emitter voltage	open base			
	BSP15		–	–200	V
	BSP16		–	–300	V
I_C	collector current (DC)		–	–200	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C	–	1.28	W
h_{FE}	DC current gain	$V_{CE} = -10$ V; $I_C = -50$ mA			
	BSP15		30	150	
	BSP16		30	120	
f_T	transition frequency	$V_{CE} = -10$ V; $I_C = -10$ mA; f = 100 MHz	15	–	MHz

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			
	BSP15		–	–200	V
	BSP16		–	–350	V
V_{CEO}	collector-emitter voltage	open base			
	BSP15		–	–200	V
	BSP16		–	–300	V
V_{EBO}	emitter-base voltage	open collector			
	BSP15		–	–4	V
	BSP16		–	–6	V
I_C	collector current (DC)		–	–200	mA
I_{CM}	peak collector current (DC)		–	–400	mA
I_B	base current (DC)		–	–500	mA
I_{BM}	peak base current (DC)		–	–200	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C; note 1	–	1.28	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 printed-circuit board, single sided copper, tinplated, mounting pad for collector 1 cm^2.
   For other mounting conditions, see *"Thermal considerations for SOT223 in the General part of handbook SC04"*.

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j\text{-}a}$	thermal resistance from junction to ambient	note 1	97	K/W
$R_{th\ j\text{-}s}$	thermal resistance from junction to soldering point		16	K/W

Note

1. Device mounted on printed-circuit board, single sided copper, tinplated, mounting pad for collector 1 cm^2.
   For other mounting conditions, see *"Thermal considerations for SOT223 in the General part of handbook SC04"*.

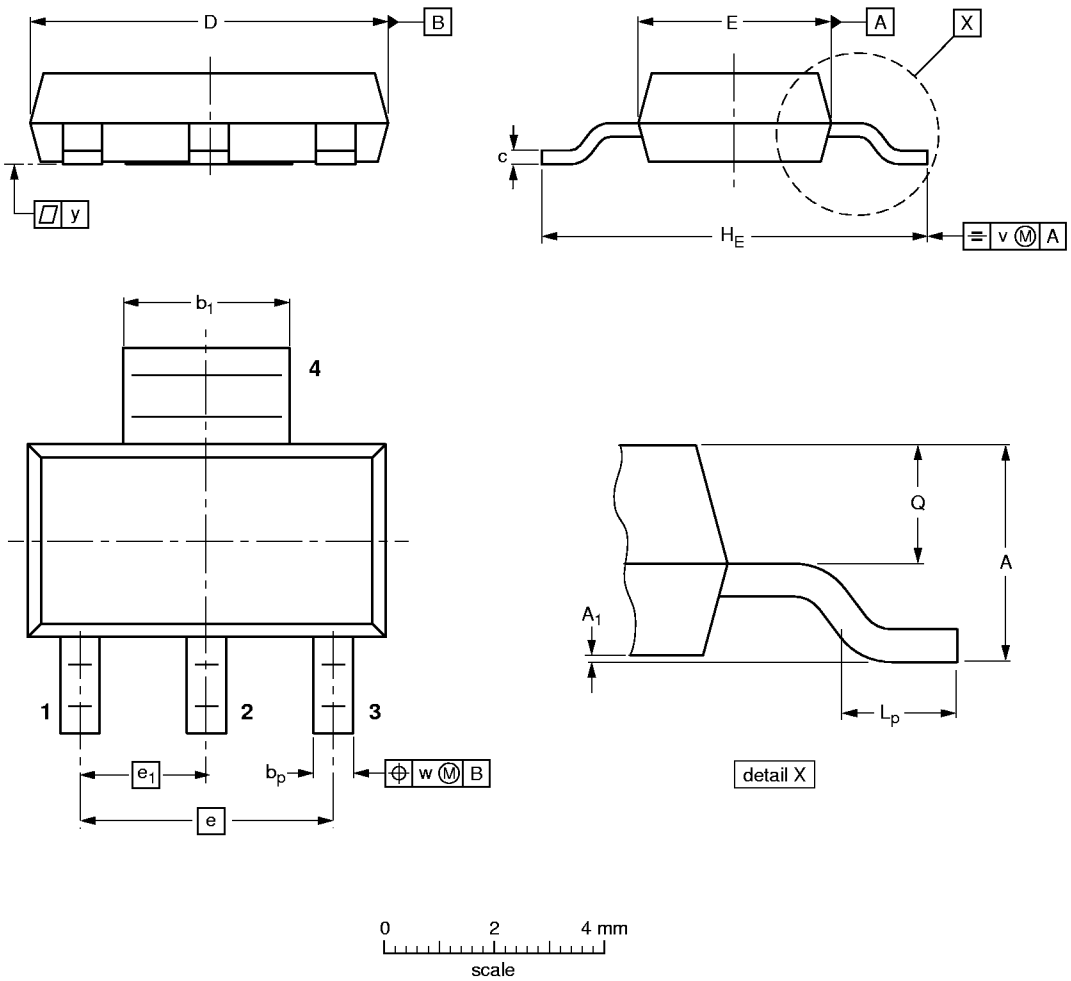
CHARACTERISTICS

T_j = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_{CBO}	collector cut-off current				
	BSP15	I_E = 0; V_{CB} = −175 V	−	−100	nA
	BSP16	I_E = 0; V_{CB} = −280 V	−	−100	nA
I_{EBO}	emitter cut-off current				
	BSP15	I_C = 0; V_{EB} = −4 V	−	−100	nA
	BSP16	I_C = 0; V_{EB} = −6 V	−	−100	nA
h_{FE}	DC current gain	I_C = −50 mA; V_{CE} = −10 V			
	BSP15		30	150	
	BSP16		30	120	
V_{CEsat}	collector-emitter saturation voltage	I_C = −50 mA; I_B = −5 mA			
	BSP15		−	−2.5	V
	BSP16		−	−2	V
C_c	collector capacitance	I_E = i_e = 0; V_{CB} = −10 V; f = 1 MHz	−	15	pF
f_T	transition frequency	I_C = −10 mA; V_{CE} = −10 V; f = 100 MHz	15	−	MHz

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