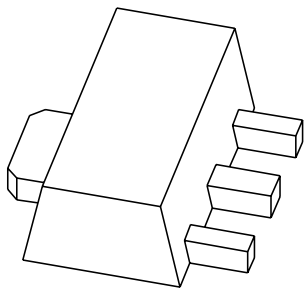


# DATA SHEET



## **BST15; BST16** **PNP high-voltage transistors**

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

1997 May 22

# PNP high-voltage transistors

# BST15; BST16

### FEATURES

- Low current (max. 200 mA)
- High voltage (max. 300 V).

### APPLICATIONS

- General purpose switching and amplification.

### DESCRIPTION

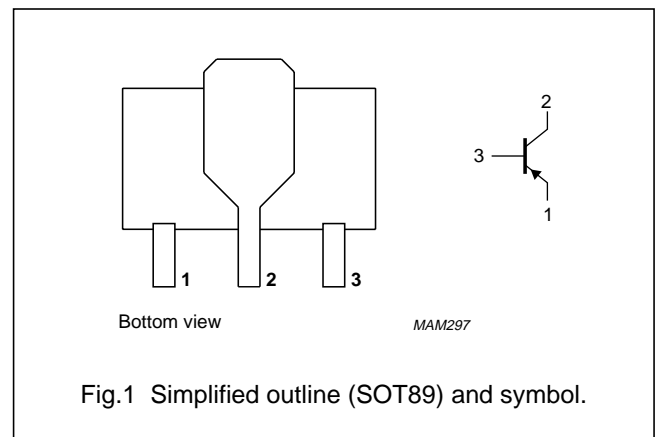
PNP high-voltage transistor in a SOT89 plastic package.  
NPN complements: BST39 and BST40.

### MARKING

TYPE NUMBER	MARKING CODE
BST15	BT1
BST16	BT2

### PINNING

PIN	DESCRIPTION
1	emitter
2	collector
3	base



### QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$V_{CBO}$	collector-base voltage	open emitter			
	BST15		–	–200	V
	BST16		–	–350	V
$V_{CEO}$	collector-emitter voltage	open base			
	BST15		–	–200	V
	BST16		–	–300	V
$I_{CM}$	collector current (DC)		–	–400	mA
$P_{tot}$	total power dissipation	$T_{amb} \leq 25\text{ °C}$	–	1.35	W
$h_{FE}$	DC current gain	$I_C = -50\text{ mA}; V_{CE} = -10\text{ V}$			
	BST15		30	150	
	BST16		30	120	
$f_T$	transition frequency	$I_C = -10\text{ mA}; V_{CE} = -10\text{ V}; f = 100\text{ MHz}$	15	–	MHz

## PNP high-voltage transistors

## BST15; BST16

**LIMITING VALUES**

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V <sub>CBO</sub>	collector-base voltage	open emitter			
	BST15		–	–200	V
	BST16		–	–350	V
V <sub>CEO</sub>	collector-emitter voltage	open base			
	BST15		–	–200	V
	BST16		–	–300	V
V <sub>EBO</sub>	emitter-base voltage	open collector			
	BST15		–	–4	V
	BST16		–	–6	V
I <sub>C</sub>	collector current (DC)		–	–200	mA
I <sub>CM</sub>	peak collector current		–	–400	mA
I <sub>BM</sub>	peak base current		–	–200	mA
P <sub>tot</sub>	total power dissipation	T <sub>amb</sub> ≤ 25 °C; note 1	–	1.35	W
T <sub>stg</sub>	storage temperature		–65	+150	°C
T <sub>j</sub>	junction temperature		–	150	°C
T <sub>amb</sub>	operating ambient temperature		–65	+150	°C

**Note**

- 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 SOT89 in the General part of handbook SC04*”.

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R <sub>th j-a</sub>	thermal resistance from junction to ambient	note 1	91	K/W
R <sub>th j-s</sub>	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 cm<sup>2</sup>.  
For other mounting conditions, see “*Thermal considerations for SOT89 in the General part of handbook SC04*”.

## PNP high-voltage transistors

## BST15; BST16

**CHARACTERISTICS**

$T_j = 25\text{ }^\circ\text{C}$  unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
$I_{CBO}$	collector cut-off current BST15	$I_E = 0; V_{CB} = -175\text{ V}$	–	–100	nA
	BST16	$I_E = 0; V_{CB} = -280\text{ V}$	–	–100	nA
$I_{EBO}$	emitter cut-off current BST15	$I_C = 0; V_{EB} = -4\text{ V}$	–	–100	nA
	BST16	$I_C = 0; V_{EB} = -6\text{ V}$	–	–100	nA
$h_{FE}$	DC current gain BST15	$I_C = -50\text{ mA}; V_{CE} = -10\text{ V}$	30	150	
	BST16		30	120	
$V_{CEsat}$	collector-emitter saturation voltage BST15	$I_C = -50\text{ mA}; I_B = -5\text{ mA}$	–	–2.5	V
	BST16		–	–2	V
$C_c$	collector capacitance	$I_E = I_e = 0; V_{CB} = -10\text{ V}; f = 1\text{ MHz}$	–	15	pF
$f_T$	transition frequency	$I_C = -10\text{ mA}; V_{CE} = -10\text{ V}; f = 100\text{ MHz}$	15	–	MHz

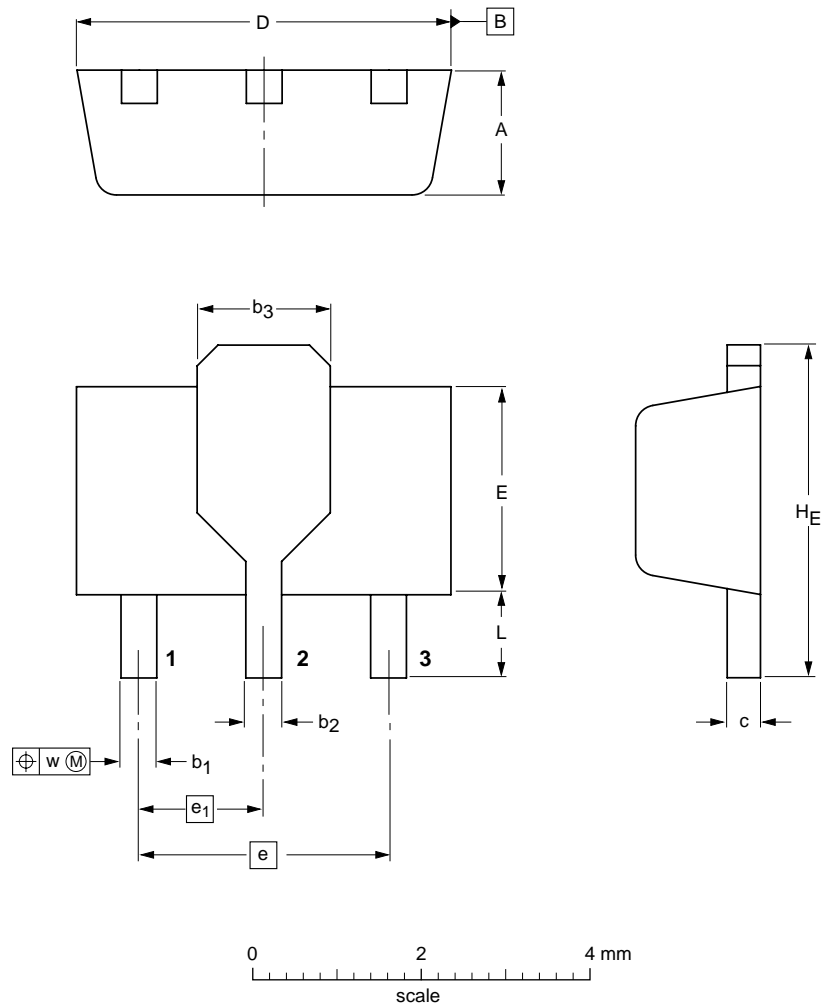
PNP high-voltage transistors

BST15; BST16

PACKAGE OUTLINE

Plastic surface mounted package; collector pad for good heat transfer; 3 leads

SOT89



DIMENSIONS (mm are the original dimensions)

UNIT	A	b <sub>1</sub>	b <sub>2</sub>	b <sub>3</sub>	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L min.	w
mm	1.6 1.4	0.48 0.35	0.53 0.40	1.8 1.4	0.44 0.37	4.6 4.4	2.6 2.4	3.0	1.5	4.25 3.75	0.8	0.13

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT89						97-02-28

## PNP high-voltage transistors

## BST15; BST16

**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>	
Where application information is given, it is advisory and does not form part of the specification.	

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PNP high-voltage transistors

BST15; BST16

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