

NPN high-voltage transistors

BST39; BST40

FEATURES

- Low current (max. 100 mA)
- High voltage (max. 350 V).

APPLICATIONS

- General purpose switching and amplification.

DESCRIPTION

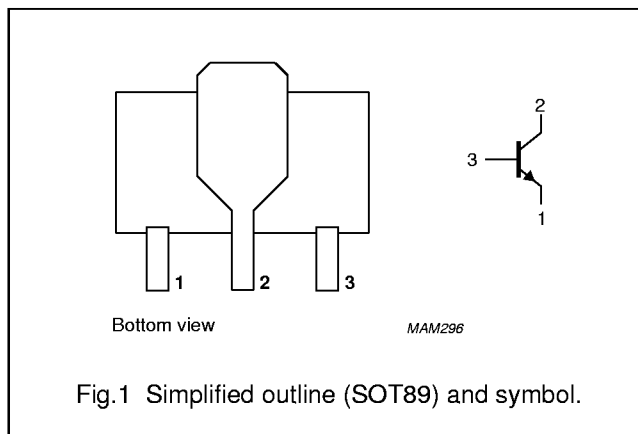
NPN high-voltage transistor in a SOT89 plastic package.
PNP complements: BST15 and BST16.

MARKING

TYPE NUMBER	MARKING CODE
BST39	AT1
BST40	AT2

PINNING

PIN	DESCRIPTION
1	emitter
2	collector
3	base



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			
	BST39		—	400	V
	BST40		—	300	V
V_{CEO}	collector-emitter voltage	open base			
	BST39		—	350	V
	BST40		—	250	V
V_{EBO}	emitter-base voltage	open collector	—	5	V
I_C	collector current (DC)		—	100	mA
I_{CM}	peak collector current		—	200	mA
I_{BM}	peak base current		—	100	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ }^{\circ}\text{C}$; note 1	—	1.3	W
T_{stg}	storage temperature		−65	+150	$^{\circ}\text{C}$
T_j	junction temperature		—	150	$^{\circ}\text{C}$
T_{amb}	operating ambient temperature		−65	+150	$^{\circ}\text{C}$

Note

1. Device mounted on a printed-circuit board, single-sided copper, tinplated, mounting pad for collector 6 cm².
For other mounting conditions, see “Thermal considerations for SOT89 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	96	K/W
$R_{th\ j-s}$	thermal resistance from junction to soldering point		16	K/W

Note

1. Device mounted on a printed-circuit board, single-sided copper, tinplated, mounting pad for collector 6 cm².
For other mounting conditions, see *"Thermal considerations for SOT89 in the General Part of associated Handbook"*.

CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I_{CBO}	collector cut-off current	$I_E = 0$; $V_{CB} = 300\text{ V}$	–	20	nA
I_{EBO}	emitter cut-off current	$I_C = 0$; $V_{EB} = 5\text{ V}$	–	100	nA
h_{FE}	DC current gain	$I_C = 20\text{ mA}$; $V_{CE} = 10\text{ V}$	–	40	
V_{CEsat}	collector-emitter saturation voltage	$I_C = 50\text{ mA}$; $I_B = 4\text{ mA}$	–	500	mV
C_c	collector capacitance	$I_E = I_e = 0$; $V_{CB} = 10\text{ V}$; $f = 1\text{ MHz}$	–	2	pF
f_T	transition frequency	$I_C = 10\text{ mA}$; $V_{CE} = 10\text{ V}$; $f = 100\text{ MHz}$	70	–	MHz

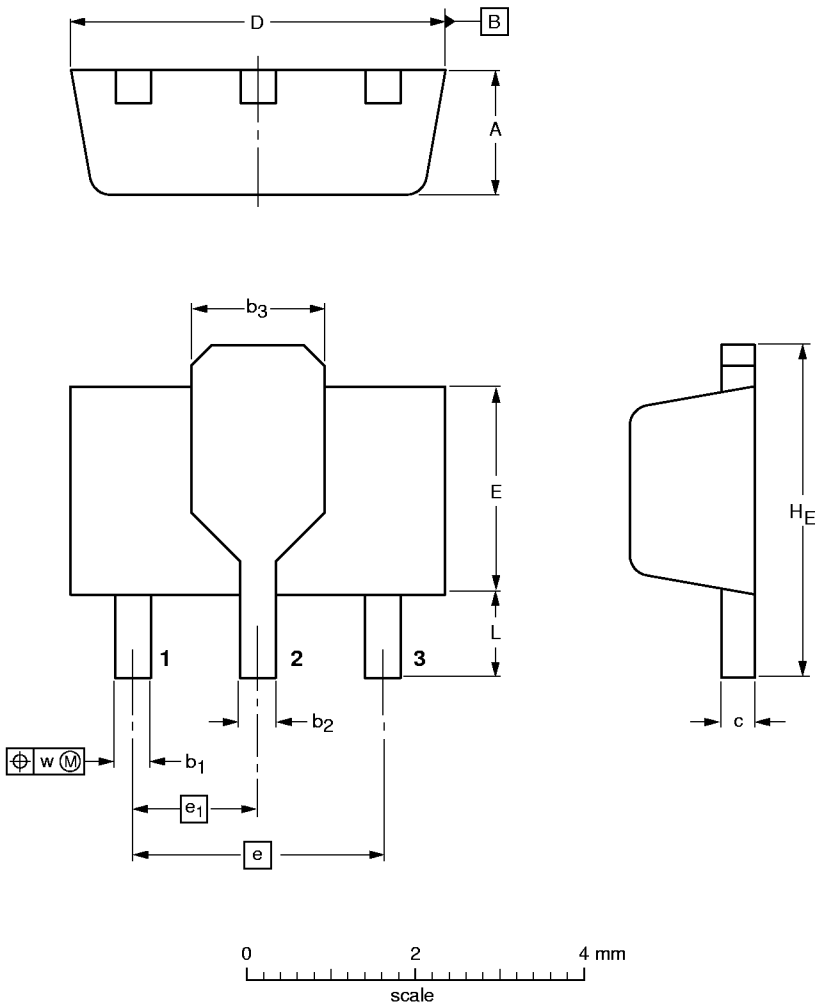
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PACKAGE OUTLINE

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

SOT89



DIMENSIONS (mm are the original dimensions)

UNIT	A	b ₁	b ₂	b ₃	c	D	E	e	e ₁	H _E	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