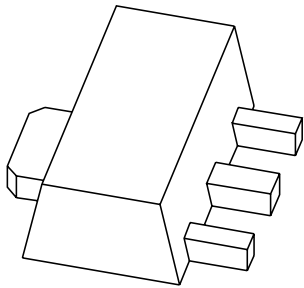


DATA SHEET



BST39; BST40 NPN high-voltage transistors

Product data sheet
Supersedes data of 2000 Jul 03

2004 Dec 14

NPN high-voltage transistors

BST39; BST40

FEATURES

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

APPLICATIONS

- General purpose switching and amplification.

DESCRIPTION

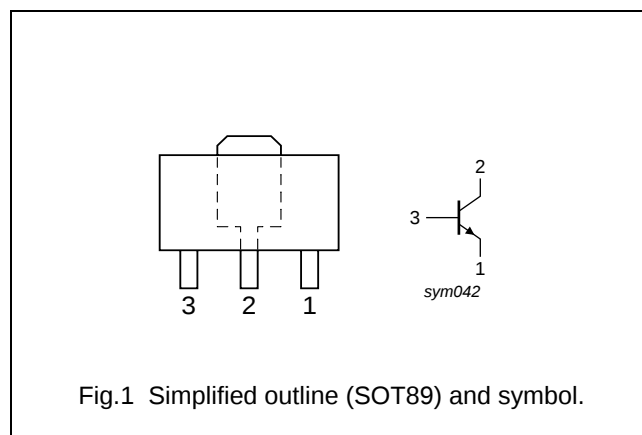
NPN high-voltage transistor in a SOT89 plastic package.
PNP complements: BST15 and BST16.

MARKING

TYPE NUMBER	MARKING CODE
BST39	AT1
BST40	AT2

PINNING

PIN	DESCRIPTION
1	emitter
2	collector
3	base



ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
BST39	SC-62	plastic surface mounted package; collector pad for good heat transfer; 3 leads	SOT89
BST40			

NPN high-voltage transistors

BST39; BST40

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	–	400	V
	BST39			300	V
V _{CEO}	collector-emitter voltage	open base	–	350	V
	BST39			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} ≤ 25 °C; note 1	–	1.3	W
T _{stg}	storage temperature		–65	+150	°C
T _j	junction temperature		–	150	°C
T _{amb}	ambient temperature		–65	+150	°C

Note

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

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

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

CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I _{CBO}	collector-base cut-off current	I _E = 0 A; V _{CB} = 300 V	–	20	nA
I _{EBO}	emitter-base cut-off current	I _C = 0 A; V _{EB} = 5 V	–	100	nA
h _{FE}	DC current gain	I _C = 20 mA; V _{CE} = 10 V	40	–	
V _{CEsat}	collector-emitter saturation voltage	I _C = 50 mA; I _B = 4 mA	–	500	mV
C _c	collector capacitance	I _E = i _e = 0 A; V _{CB} = 10 V; f = 1 MHz	–	2	pF
f _T	transition frequency	I _C = 10 mA; V _{CE} = 10 V; f = 100 MHz	70	–	MHz

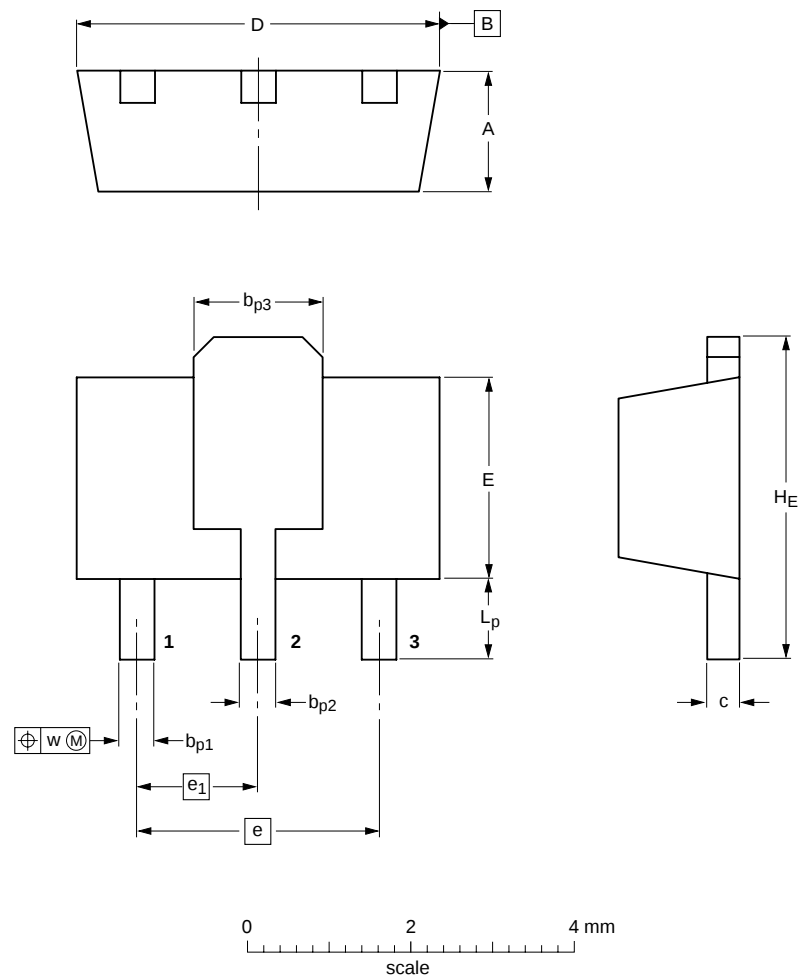
NPN high-voltage transistors

BST39; BST40

PACKAGE OUTLINE

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

SOT89



DIMENSIONS (mm are the original dimensions)

UNIT	A	b _{p1}	b _{p2}	b _{p3}	c	D	E	e	e ₁	H _E	L _p	w
mm	1.6 1.4	0.48 0.35	0.53 0.40	1.8 1.4	0.44 0.23	4.6 4.4	2.6 2.4	3.0	1.5	4.25 3.75	1.2 0.8	0.13

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOT89		TO-243	SC-62			04-08-03 06-03-16