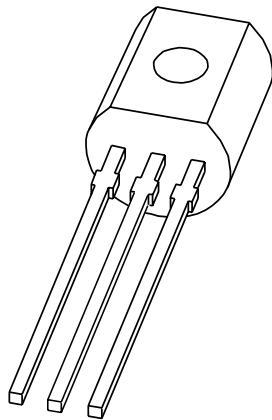


DATA SHEET



PBSS8110AS

100 V, 1 A

NPN low V_{CEsat} (BISS) transistor

Product specification
Supersedes data of 2003 Nov 11

2003 Dec 03

**100 V, 1 A
NPN low V_{CEsat} (BISS) transistor**

PBSS8110AS

FEATURES

- SOT54 package
- Low collector-emitter saturation voltage V_{CEsat}
- High collector current capability: I_C and I_{CM}
- Higher efficiency leading to less heat generation.

APPLICATIONS

- Automotive 42 V power
- Telecom infrastructure
- General industrial applications
- Power management
 - DC/DC converters
 - Supply line switching
 - Battery charger
 - LCD backlighting.
- Peripheral drivers
 - Generic driver (e.g. lamps and LEDs)
 - Inductive load driver (e.g. relays, buzzers and motors).

DESCRIPTION

NPN low V_{CEsat} BISS transistor in a SOT54 plastic package.

QUICK REFERENCE DATA

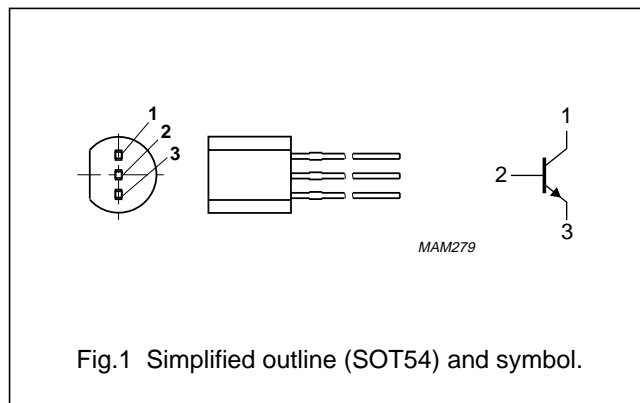
SYMBOL	PARAMETER	MAX.	UNIT
V_{CEO}	collector-emitter voltage	100	V
I_C	collector current (DC)	1	A
I_{CM}	peak collector current	3	A
R_{CEsat}	equivalent on-resistance	200	m Ω

MARKING

TYPE NUMBER	MARKING CODE
PBSS8110AS	S8110AS

PINNING

PIN	DESCRIPTION
1	collector
2	base
3	emitter



ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
PBSS8110AS	–	plastic single-ended leaded (through hole) package; 3 leads	SOT54

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PBSS8110AS

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	–	120	V
V_{CEO}	collector-emitter voltage	open base	–	100	V
V_{EBO}	emitter-base voltage	open collector	–	5	V
I_C	collector current (DC)		–	1	A
I_{CM}	peak collector current	$T_{j\ max}$	–	3	A
I_B	base current (DC)		–	300	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25\ ^\circ\text{C}$; note 1	–	830	mW
T_j	junction temperature		–	150	$^\circ\text{C}$
T_{amb}	operating ambient temperature		–65	+150	$^\circ\text{C}$
T_{stg}	storage temperature		–65	+150	$^\circ\text{C}$

Note

1. Device mounted on a FR4 printed-circuit board; single-sided copper; tinplated; standard footprint.

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th(j-a)}$	thermal resistance from junction to ambient	in free air; note 1	150	K/W

Note

1. Device mounted on a FR4 printed-circuit board; single-sided copper; tinplated; standard footprint.

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CHARACTERISTICS $T_j = 25\text{ °C}$ unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CBO}	collector cut-off current	$V_{CB} = 80\text{ V}; I_E = 0$	–	–	100	nA
		$V_{CB} = 80\text{ V}; I_E = 0; T_j = 150\text{ °C}$	–	–	50	μA
I_{CES}	collector cut-off current	$V_{CE} = 80\text{ V}; V_{BE} = 0$	–	–	100	nA
I_{EBO}	emitter cut-off current	$V_{EB} = 4\text{ V}; I_C = 0$	–	–	100	nA
h_{FE}	DC current gain	$V_{CE} = 10\text{ V}; I_C = 1\text{ mA}$	150	–	–	
		$V_{CE} = 10\text{ V}; I_C = 250\text{ mA}$	150	–	500	
		$V_{CE} = 10\text{ V}; I_C = 0.5\text{ A}; \text{note 1}$	100	–	–	
		$V_{CE} = 10\text{ V}; I_C = 1\text{ A}; \text{note 1}$	80	–	–	
V_{CEsat}	collector-emitter saturation voltage	$I_C = 100\text{ mA}; I_B = 10\text{ mA}$	–	–	40	mV
		$I_C = 500\text{ mA}; I_B = 50\text{ mA}$	–	–	120	mV
		$I_C = 1\text{ A}; I_B = 100\text{ mA}$	–	–	200	mV
R_{CEsat}	equivalent on-resistance	$I_C = 1\text{ A}; I_B = 100\text{ mA}; \text{note 1}$	–	165	200	$\text{m}\Omega$
V_{BEsat}	base-emitter saturation voltage	$I_C = 1\text{ A}; I_B = 100\text{ mA}; \text{note 1}$	–	–	1.05	V
V_{BEon}	base-emitter turn-on voltage	$V_{CE} = 10\text{ V}; I_C = 1\text{ A}$	–	–	0.9	V
f_T	transition frequency	$V_{CE} = 10\text{ V}; I_C = 50\text{ mA}; f = 100\text{ MHz}$	100	–	–	MHz
C_c	collector capacitance	$V_{CB} = 10\text{ V}; I_E = I_e = 0; f = 1\text{ MHz}$	–	–	7.5	pF

Note1. Pulse test: $t_p \leq 300\text{ }\mu\text{s}$; $\delta \leq 0.02$.

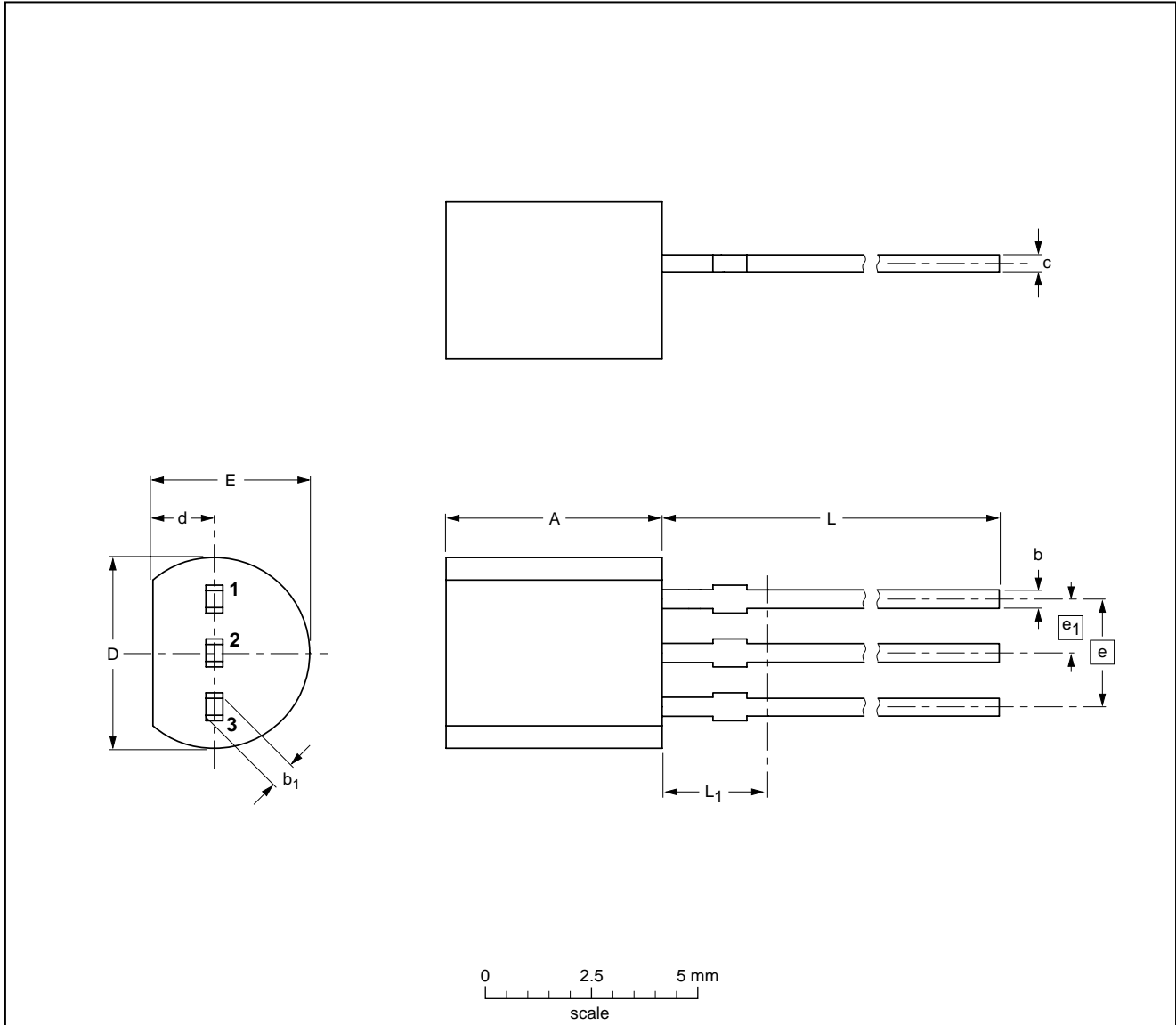
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PACKAGE OUTLINE

Plastic single-ended leaded (through hole) package; 3 leads

SOT54



DIMENSIONS (mm are the original dimensions)

UNIT	A	b	b_1	c	D	d	E	e	e_1	L	$L_1^{(1)}$
mm	5.2 5.0	0.48 0.40	0.66 0.56	0.45 0.40	4.8 4.4	1.7 1.4	4.2 3.6	2.54	1.27	14.5 12.7	2.5

Note

1. Terminal dimensions within this zone are uncontrolled to allow for flow of plastic and terminal irregularities.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT54		TO-92	SC-43			97-02-28

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PBSS8110AS

DATA SHEET STATUS

LEVEL	DATA SHEET STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾⁽³⁾	DEFINITION
I	Objective data	Development	This data sheet contains data from the objective specification for product development. Philips Semiconductors reserves the right to change the specification in any manner without notice.
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3. For data sheets describing multiple type numbers, the highest-level product status determines the data sheet status.

DEFINITIONS

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Limiting values definition — Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 60134). 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.

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