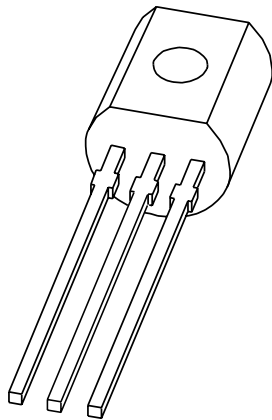


# DATA SHEET



**PBSS8110AS**

100 V, 1 A

NPN low  $V_{CEsat}$  (BISS) transistor

Product data sheet  
Supersedes data of 2003 Dec 03

2004 Aug 10

**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**

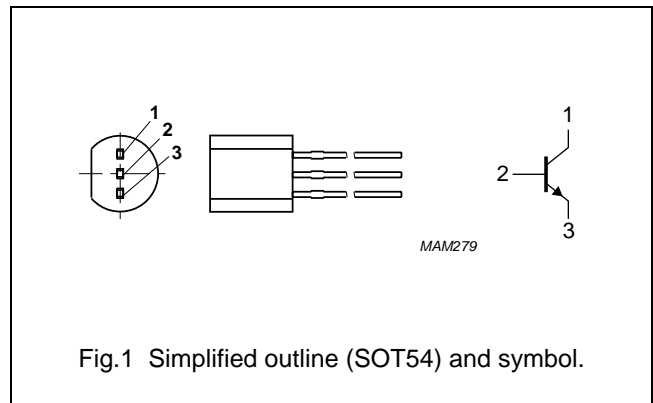
SYMBOL	PARAMETER	MAX.	UNIT
$V_{CEO}$	collector-emitter voltage	100	V
$I_C$	collector current (DC)	1	A
$I_{CM}$	peak collector current	3	A
$R_{CEsat}$	equivalent on-resistance	200	m $\Omega$

**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

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

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	$T_{amb} \leq 25\text{ °C}$ ; note 1	–	830	mW
$T_j$	junction temperature		–	150	°C
$T_{amb}$	operating ambient temperature		–65	+150	°C
$T_{stg}$	storage temperature		–65	+150	°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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PBSS8110AS

**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	$\mu\text{A}$
$I_{CES}$	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

**Note**1. Pulse test:  $t_p \leq 300\text{ }\mu\text{s}$ ;  $\delta \leq 0.02$ .

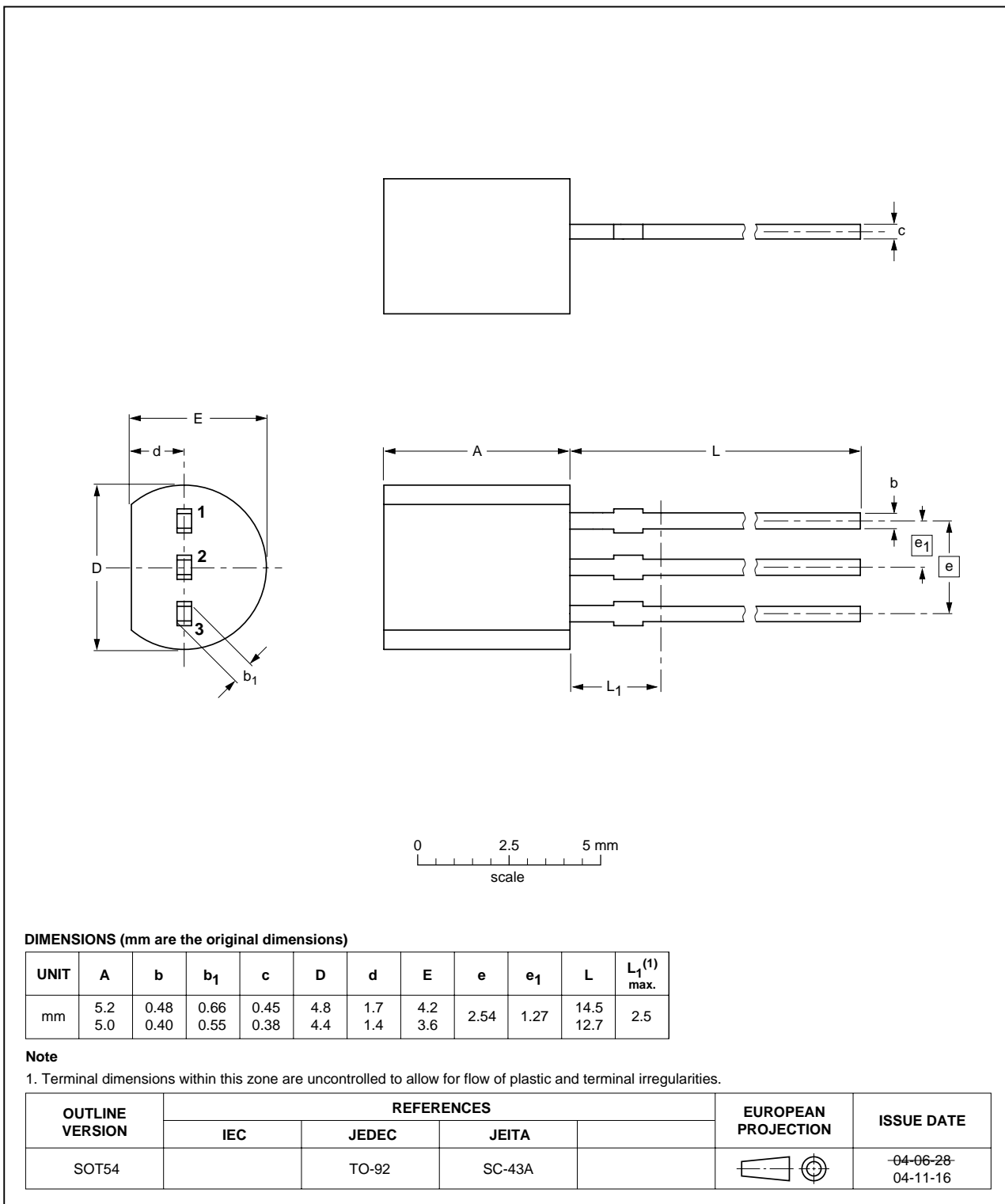
100 V, 1 A  
NPN low  $V_{CEsat}$  (BISS) transistor

PBSS8110AS

PACKAGE OUTLINE

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

SOT54



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

PBSS8110AS

**DATA SHEET STATUS**

DOCUMENT STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)</sup>	DEFINITION
Objective data sheet	Development	This document contains data from the objective specification for product development.
Preliminary data sheet	Qualification	This document contains data from the preliminary specification.
Product data sheet	Production	This document contains the product specification.

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# ***NXP Semiconductors***

## **Customer notification**

This data sheet was changed to reflect the new company name NXP Semiconductors, including new legal definitions and disclaimers. No changes were made to the technical content, except for package outline drawings which were updated to the latest version.

## **Contact information**

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