

# DATA SHEET



**PSS9014C**

**NPN general purpose transistor**

Product specification  
Supersedes data of 2002 Sep 20

2004 Aug 10

# NPN general purpose transistor

# PSS9014C

### FEATURES

- High power dissipation: 500 mW
- Low collector capacitance
- Low collector-emitter saturation voltage
- High current capability.

### APPLICATIONS

- General purpose switching and amplification.

### DESCRIPTION

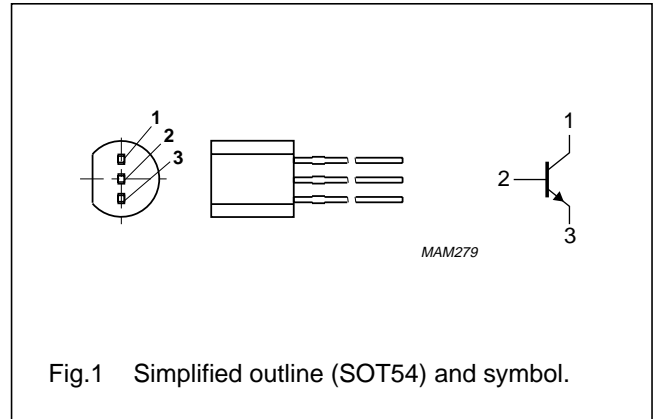
NPN low  $V_{CEsat}$  transistor in a SOT54 (TO-92) plastic package.

### MARKING

TYPE NUMBER	MARKING CODE
PSS9014C	S9014C

### PINNING

PIN	DESCRIPTION
1	collector
2	base
3	emitter



### 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	–	50	V
$V_{CEO}$	collector-emitter voltage	open base	–	45	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		–	200	mA
$P_{tot}$	total power dissipation	$T_{amb} \leq 25\text{ }^\circ\text{C}$ ; note 1	–	500	mW
$T_{stg}$	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; standard footprint.

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## THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	in free air; note 1	250	K/W

## Note

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

## CHARACTERISTICS

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

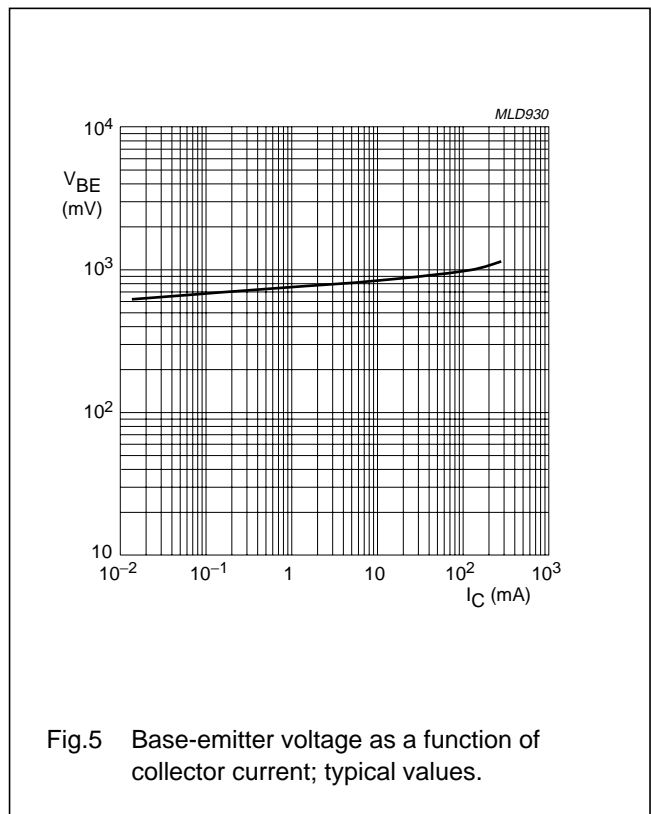
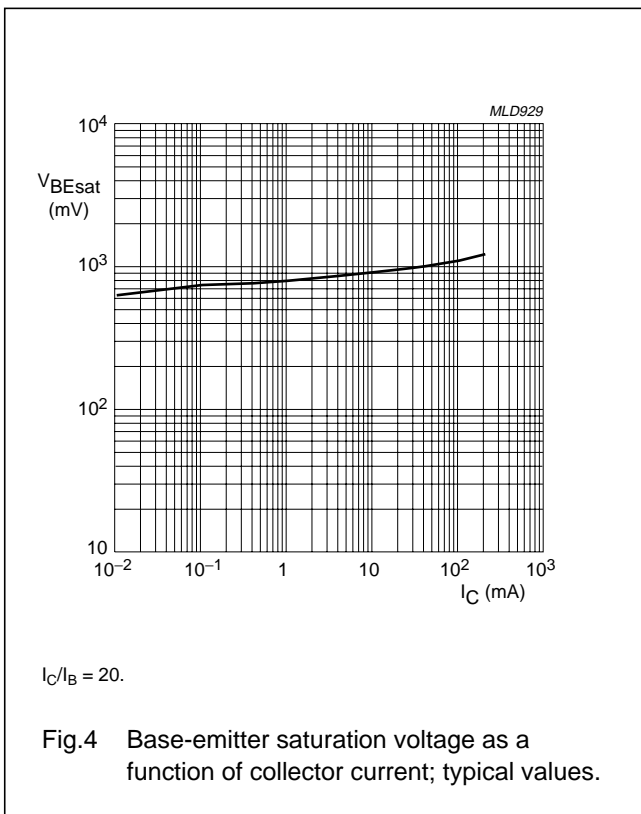
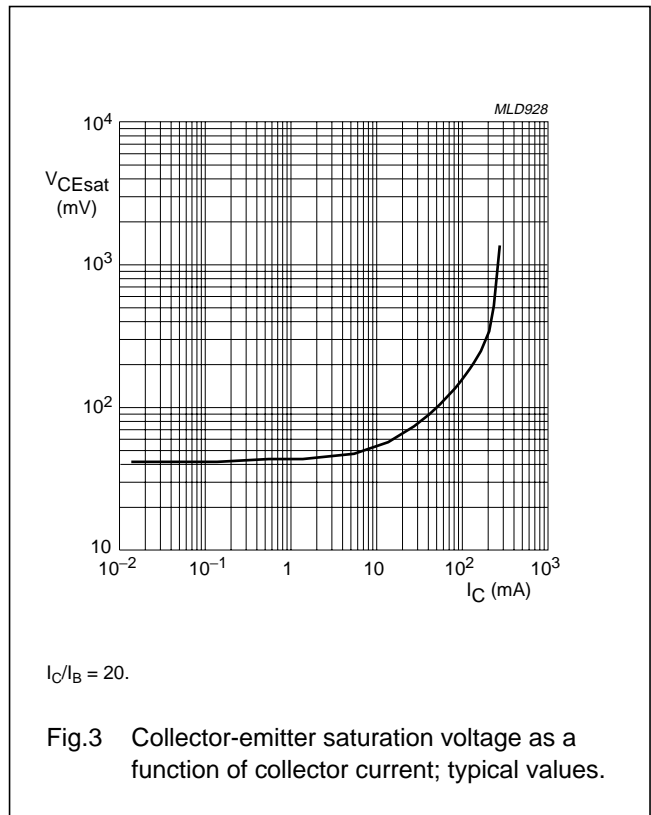
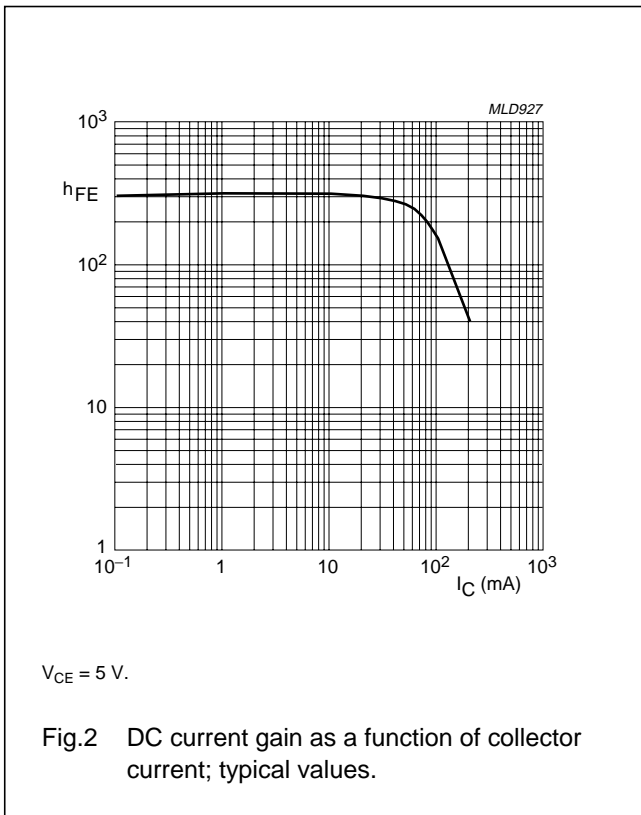
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$I_{CBO}$	collector-base cut-off current	$V_{CB} = 30\text{ V}; I_E = 0$	–	–	15	nA
		$V_{CB} = 30\text{ V}; I_E = 0; T_{amb} = 150\text{ °C}$	–	–	5	$\mu\text{A}$
$I_{CEO}$	collector-emitter cut-off current	$V_{CE} = 30\text{ V}; I_B = 0$	–	–	100	nA
$I_{EBO}$	emitter-base cut-off current	$V_{EB} = 5\text{ V}; I_C = 0$	–	–	100	nA
$h_{FE}$	DC current gain	$I_C = 1\text{ mA}; V_{CE} = 5\text{ V}$	200	300	600	
		$I_C = 2\text{ mA}; V_{CE} = 5\text{ V}$	200	300	450	
$V_{CEsat}$	collector-emitter saturation voltage	$I_C = 100\text{ mA}; I_B = 5\text{ mA}; \text{note 1}$	–	200	300	mV
$V_{BEsat}$	base-emitter saturation voltage	$I_C = 100\text{ mA}; I_B = 0.5\text{ mA}; \text{note 1}$	–	815	850	mV
$V_{BEon}$	base-emitter turn-on voltage	$I_C = 2\text{ mA}; V_{CE} = 5\text{ V}$	580	650	700	mV
$f_T$	transition frequency	$I_C = 50\text{ mA}; V_{CE} = 10\text{ V}; f = 100\text{ MHz}$	100	220	–	MHz
$C_c$	collector capacitance	$V_{CB} = 10\text{ V}; I_E = I_E = 0; f = 1\text{ MHz}$	–	1.6	1.75	pF
F	noise figure	$V_{CE} = 5\text{ V}; I_C = 0.2\text{ mA}; R_S = 2\text{ k}\Omega; f = 1\text{ kHz}; B = 200\text{ Hz}$	–	–	10	dB

## Note

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

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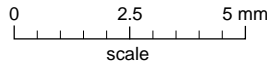
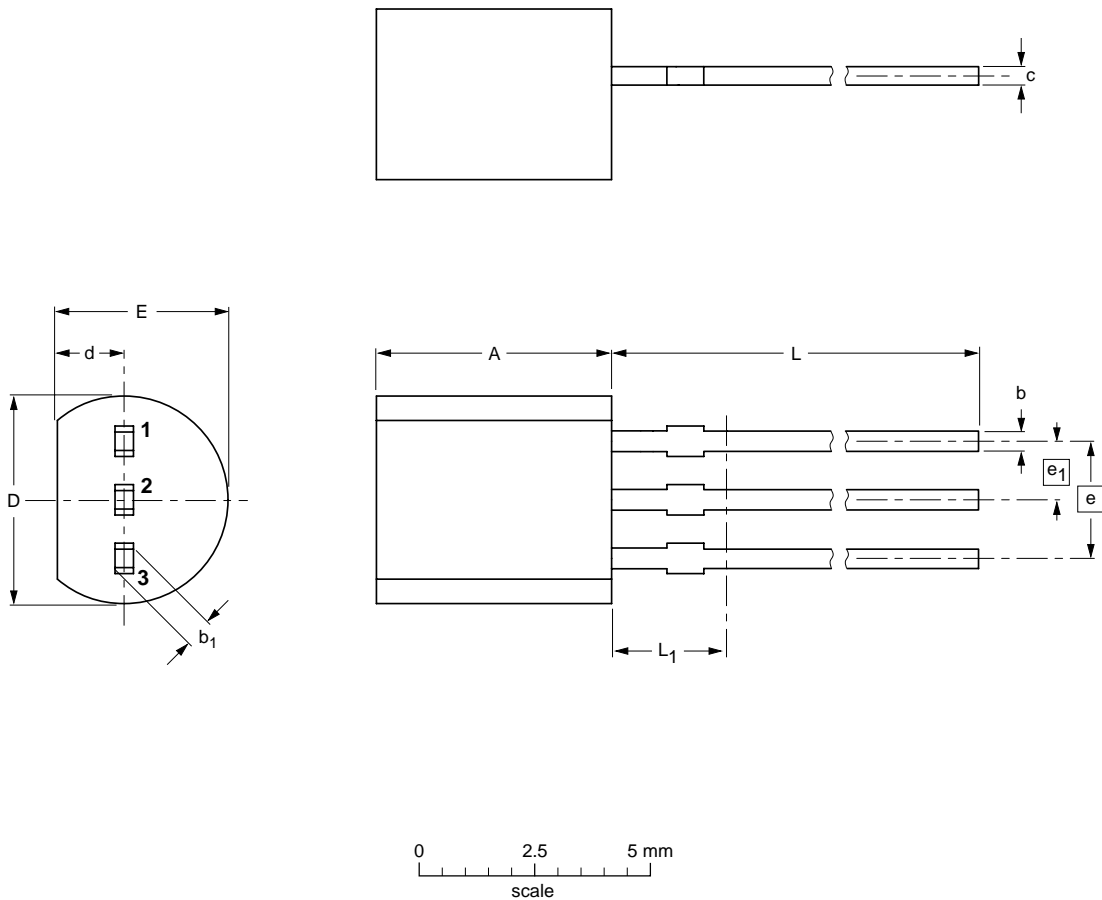
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PACKAGE OUTLINE

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

SOT54



**DIMENSIONS (mm are the original dimensions)**

UNIT	A	b	b <sub>1</sub>	c	D	d	E	e	e <sub>1</sub>	L	L <sub>1</sub> <sup>(1)</sup> max.
mm	5.2 5.0	0.48 0.40	0.66 0.55	0.45 0.38	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	JEITA		
SOT54		TO-92	SC-43A		-97-02-28 04-06-28

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## DATA SHEET STATUS

LEVEL	DATA SHEET STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)(3)</sup>	DEFINITION
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