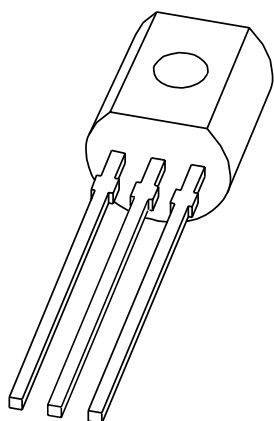


DATA SHEET



PSS9014C

NPN general purpose transistor

Product specification
Supersedes data of 2002 Mar 15

2002 Sep 20

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

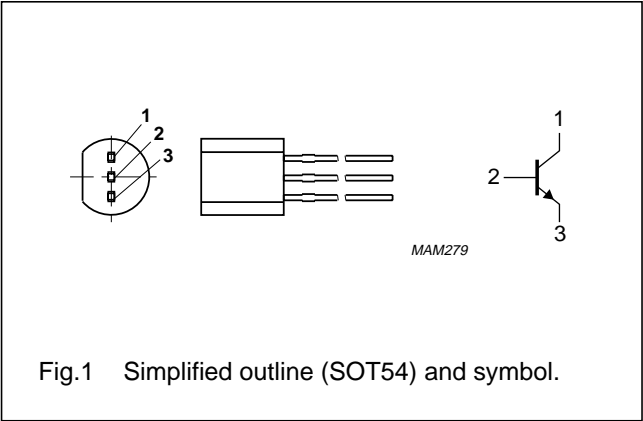
NPN low V_{CEsat} transistor in a SOT54 (TO-92) plastic package.

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.

NPN general purpose transistor

PSS9014C

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.

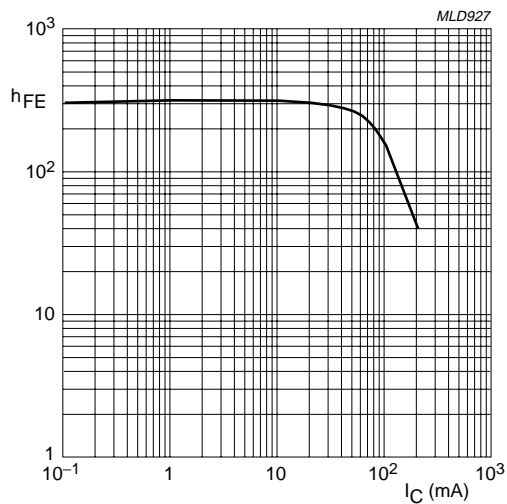
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CBO}	collector-base cut-off current	$V_{CB} = 30\text{ V}; I_E = 0$	–	–	15	nA
		$V_{CB} = 30\text{ V}; I_E = 0; T_{amb} = 150\text{ °C}$	–	–	5	μA
I_{CEO}	collector-emitter cut-off current	$V_{CE} = 30\text{ V}; I_B = 0$	–	–	100	nA
I_{EBO}	emitter-base 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: $t_p \leq 300\text{ }\mu\text{s}$; $\delta \leq 0.02$.

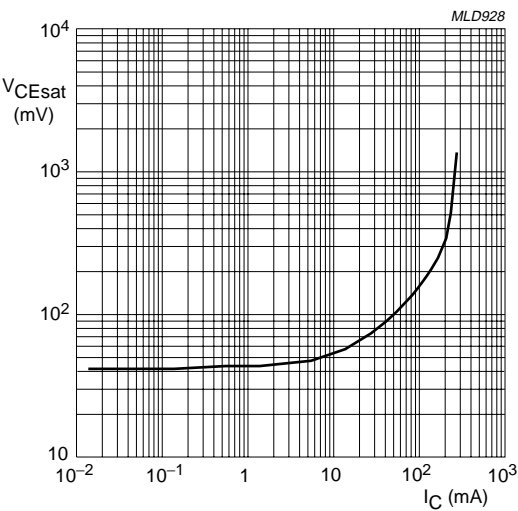
NPN general purpose transistor

PSS9014C



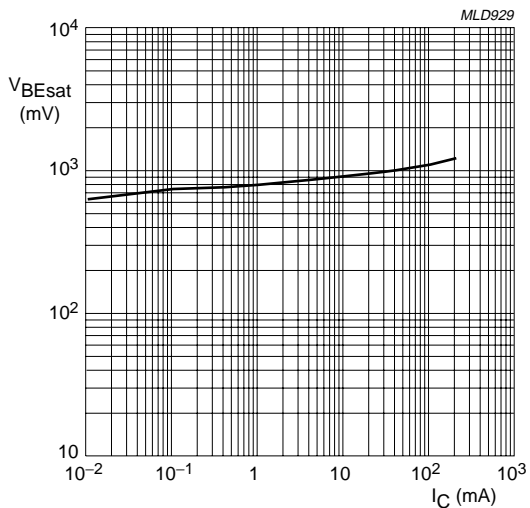
$V_{CE} = 5\text{ V}$.

Fig.2 DC current gain as a function of collector current; typical values.



$I_C/I_B = 20$.

Fig.3 Collector-emitter saturation voltage as a function of collector current; typical values.



$I_C/I_B = 20$.

Fig.4 Base-emitter saturation voltage as a function of collector current; typical values.

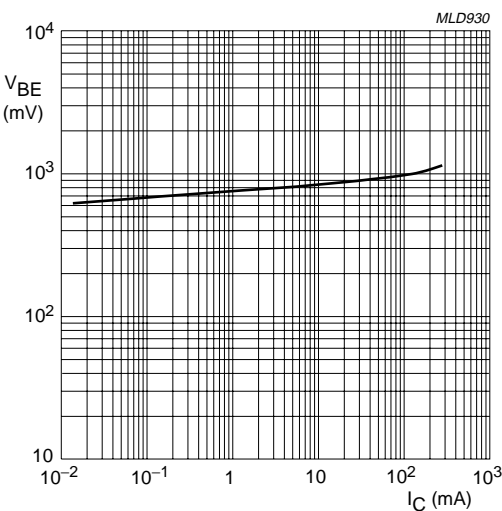


Fig.5 Base-emitter voltage as a function of collector current; typical values.

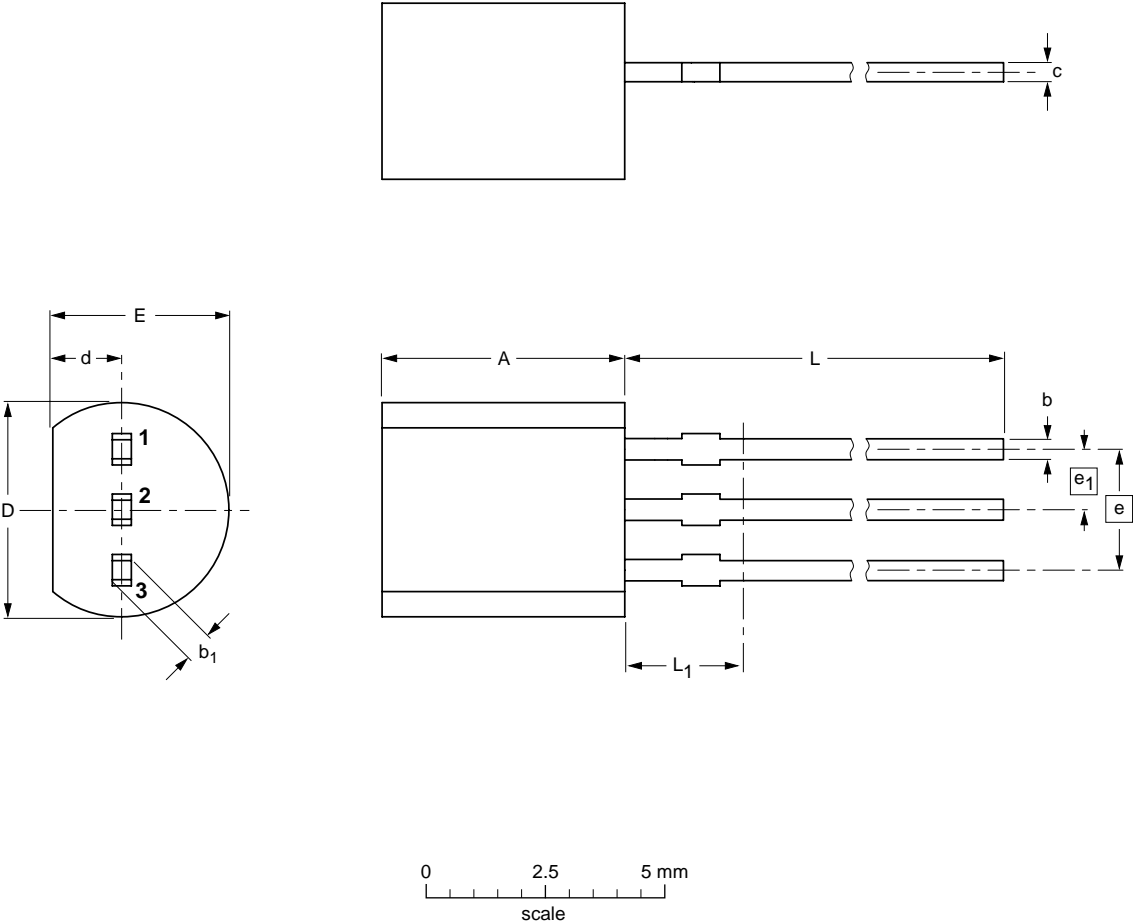
NPN general purpose transistor

PSS9014C

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

NPN general purpose transistor

PSS9014C

DATA SHEET STATUS

DATA SHEET STATUS ⁽¹⁾	PRODUCT STATUS ⁽²⁾	DEFINITIONS
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PSS9014C

NOTES

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