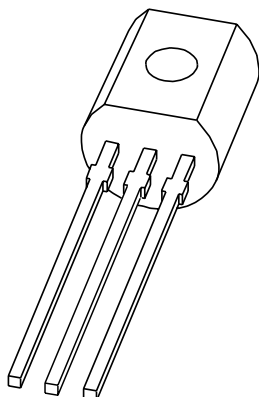


DATA SHEET



PSS9012 series 20 V PNP general purpose transistors

Product specification
Supersedes data of 2003 May 15

2004 Aug 10

20 V PNP general purpose transistors

PSS9012 series

FEATURES

- High power dissipation: 710 mW
- Low collector capacitance
- Low collector-emitter saturation voltage
- High current capability.

APPLICATIONS

- General purpose switching and amplification.

DESCRIPTION

PNP general purpose transistor in a SOT54 (TO-92) leaded plastic package. NPN complement: PSS9013 series.

MARKING

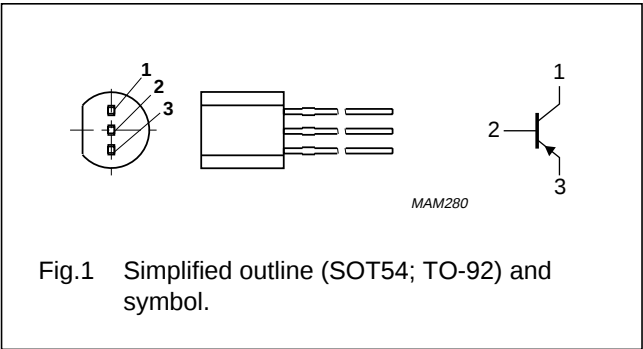
TYPE NUMBER	MARKING CODE
PSS9012G	S9012G
PSS9012H	S9012H

QUICK REFERENCE DATA

SYMBOL	PARAMETER	MAX.	UNIT
V_{CEO}	collector-emitter voltage	−20	V
I_C	collector current (DC)	−500	mA
I_{CM}	peak collector current	−1	A

PINNING

PIN	DESCRIPTION
1	collector
2	base
3	emitter



LIMITING VALUES

In accordance with the Absolute Maximum System (IEC 60134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter	−	−40	V
V_{CEO}	collector-emitter voltage	open base	−	−20	V
V_{EBO}	emitter-base voltage	open collector	−	−5	V
I_C	collector current (DC)		−	−500	mA
I_{CM}	peak collector current		−	−1	A
I_{BM}	peak base current		−	−100	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ °C}$; note 1	−	710	mW
T_{stg}	storage temperature		−65	+150	°C
T_j	junction temperature		−	150	°C
T_{amb}	operating ambient temperature		−65	+150	°C

Note

1. Device mounted on a FR4 printed-circuit board, single-sided copper, tinplated and 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	175	K/W

Note

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

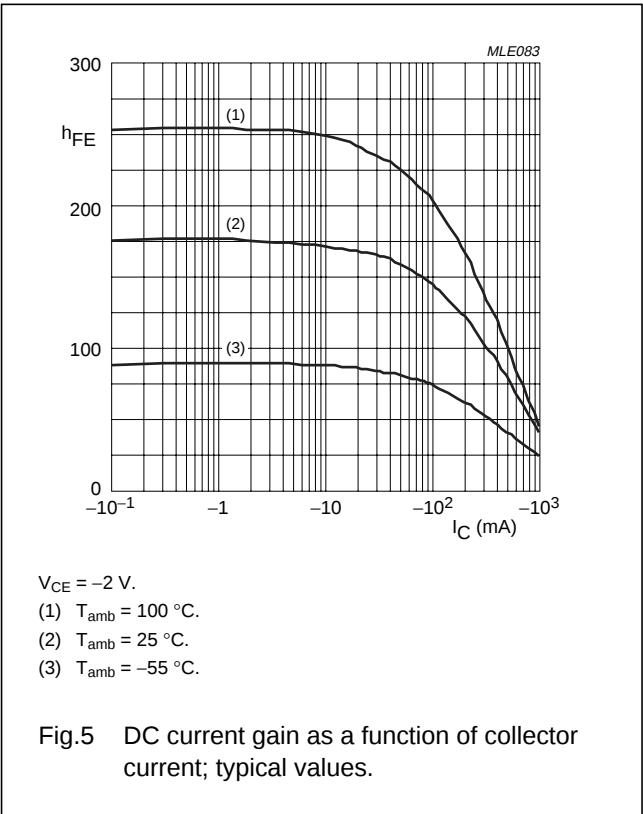
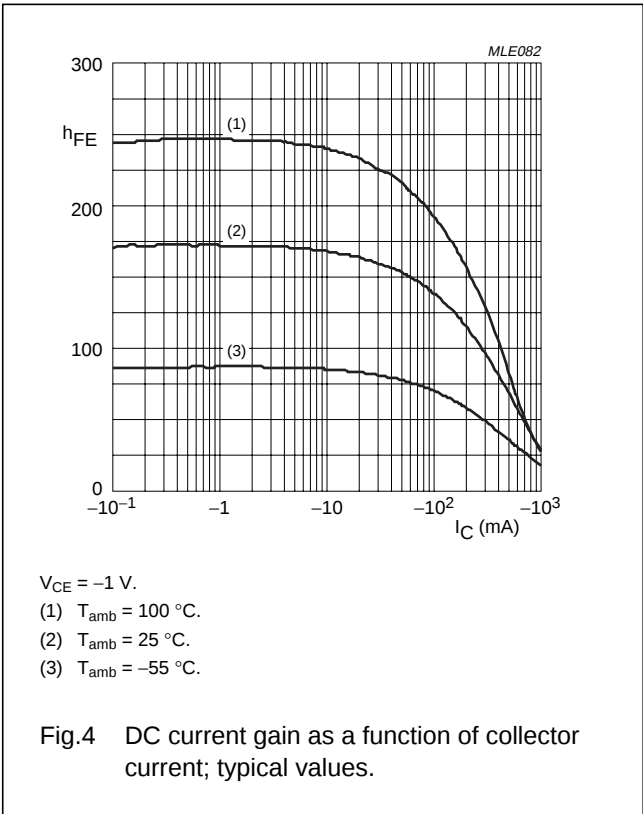
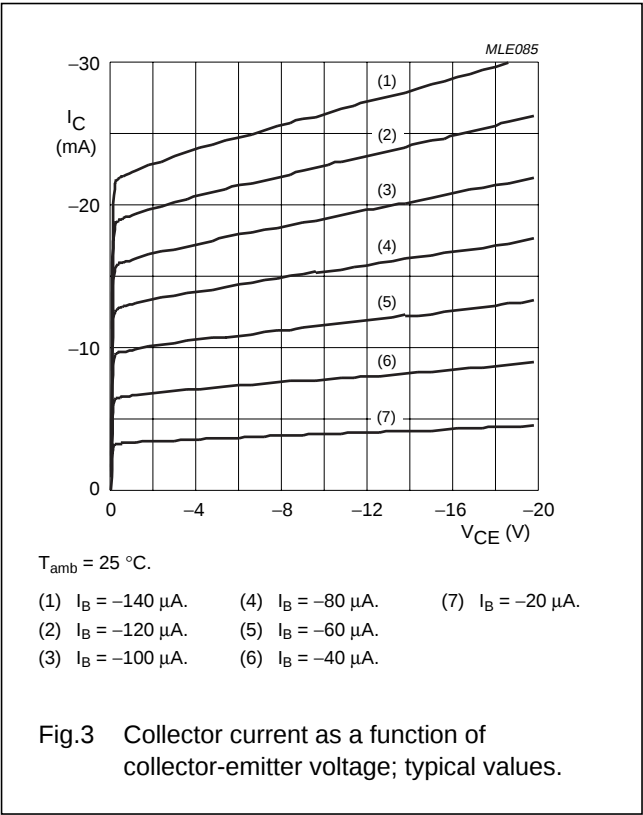
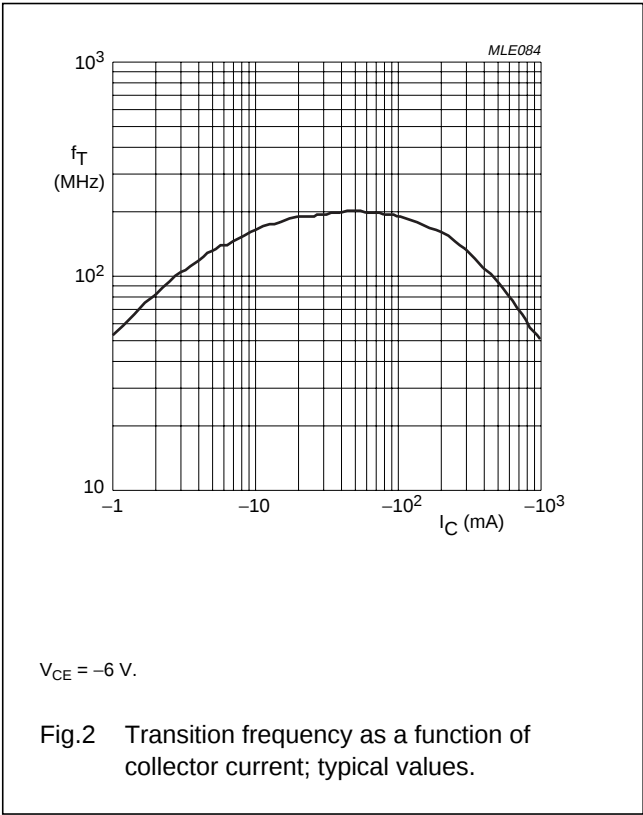
CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CBO}	collector-base cut-off current	$V_{CB} = -35\text{ V}; I_E = 0$	–	–	–100	nA
		$V_{CB} = -35\text{ V}; I_E = 0; T_j = 150\text{ °C}$	–	–	–50	μA
I_{EBO}	emitter-base cut-off current	$V_{EB} = -5\text{ V}; I_C = 0$	–	–	–100	nA
h_{FE}	DC current gain	$V_{CE} = -1\text{ V}; I_C = -500\text{ mA}$	40	–	–	
h_{FE}	DC current gain PSS9012G PSS9012H	$V_{CE} = -1\text{ V}; I_C = -50\text{ mA}$	112	–	166	
			144	–	202	
V_{CEsat}	collector-emitter saturation voltage	$I_C = -100\text{ mA}; I_B = -10\text{ mA}$	–	–60	–250	mV
		$I_C = -500\text{ mA}; I_B = -50\text{ mA}$	–	–230	–600	mV
V_{BEsat}	base-emitter saturation voltage	$I_C = -500\text{ mA}; I_B = -50\text{ mA}$	–	–1	–1.2	V
V_{BEon}	base-emitter turn on voltage	$V_{CE} = -1\text{ V}; I_C = -100\text{ mA}$	–	–760	–1000	mV
C_c	collector capacitance	$V_{CB} = -6\text{ V}; I_E = I_e = 0;$ $f = 1\text{ MHz}$	–	6	–	pF

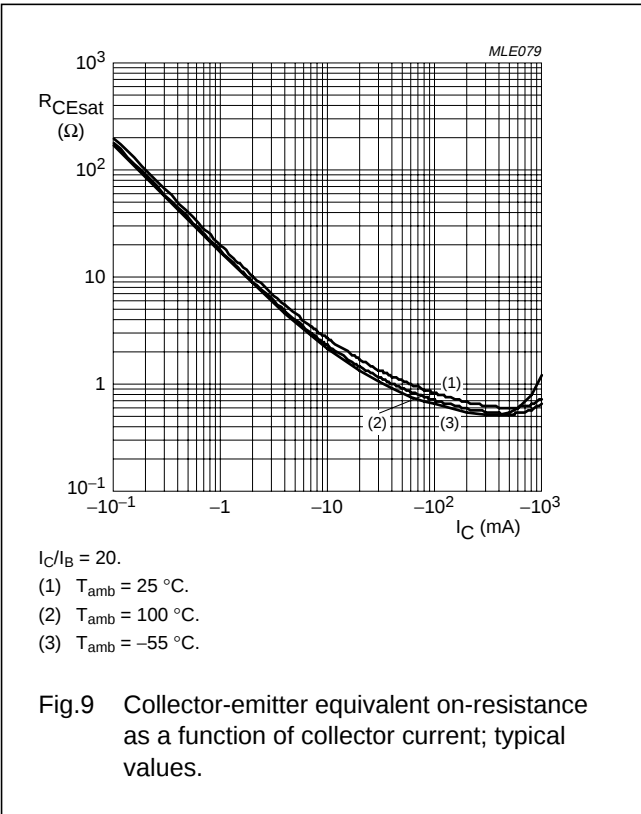
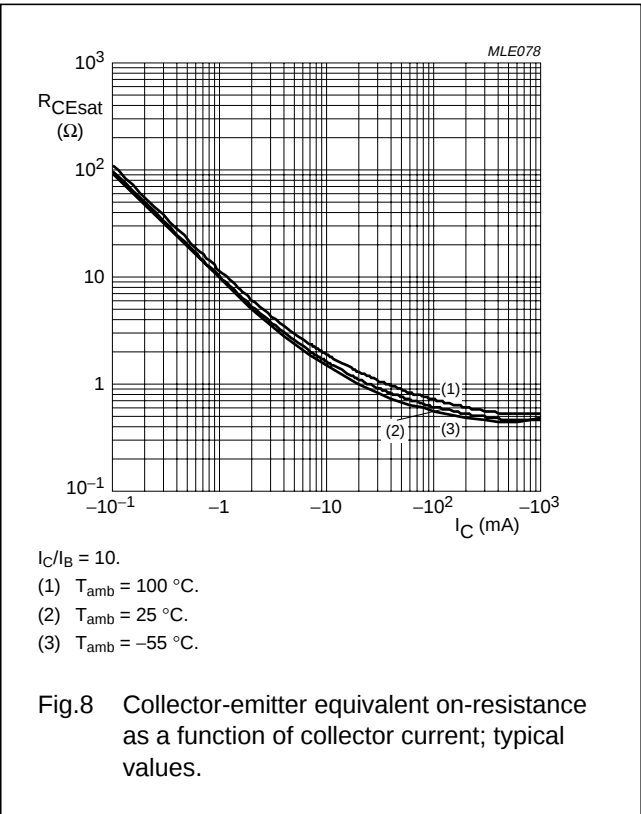
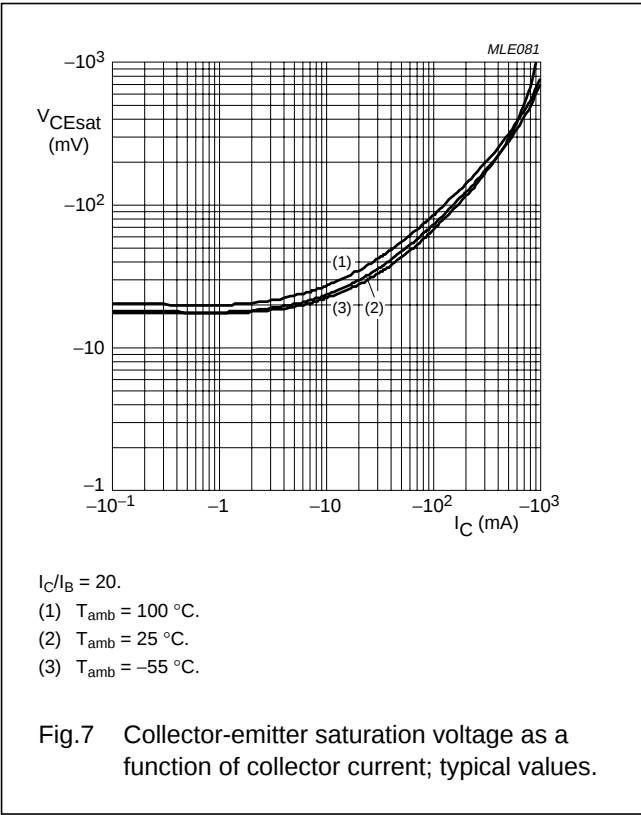
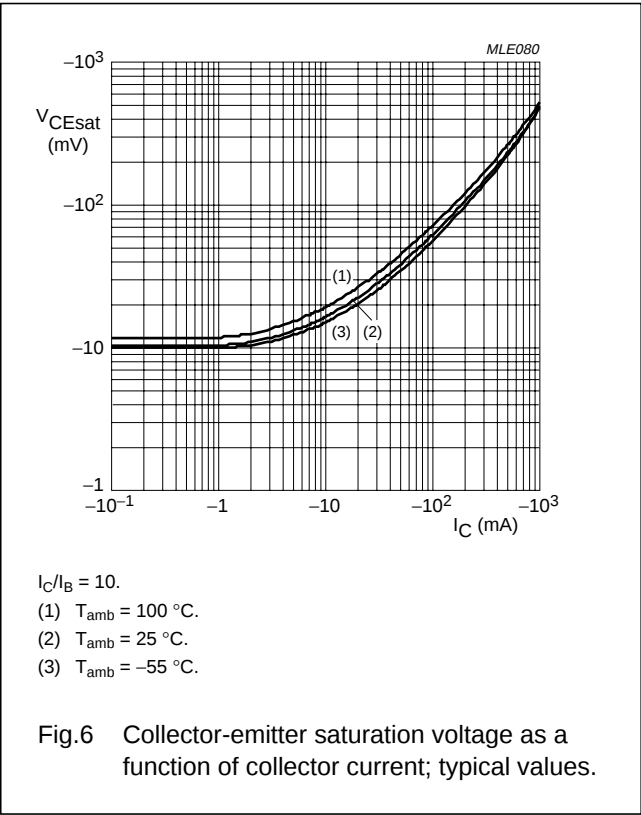
20 V PNP general purpose transistors

PSS9012 series



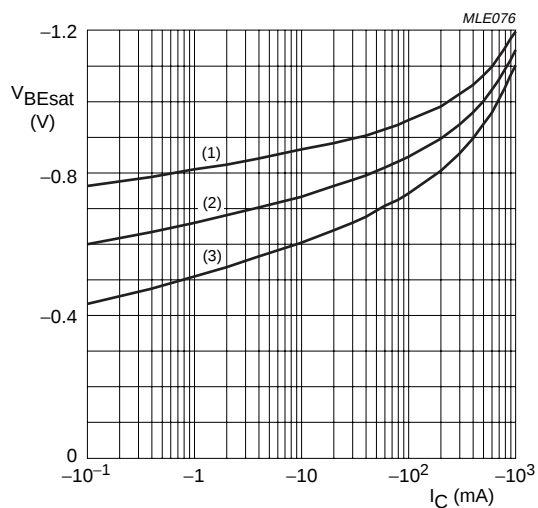
20 V PNP general purpose transistors

PSS9012 series



20 V PNP general purpose transistors

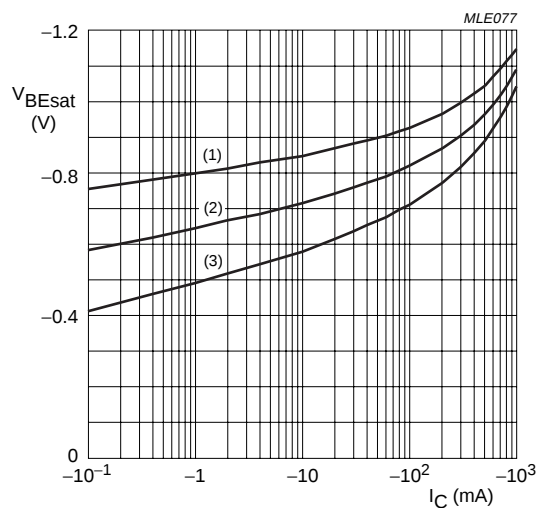
PSS9012 series



$I_C/I_B = 10$.

- (1) $T_{amb} = -55\text{ }^{\circ}\text{C}$.
- (2) $T_{amb} = 25\text{ }^{\circ}\text{C}$.
- (3) $T_{amb} = 100\text{ }^{\circ}\text{C}$.

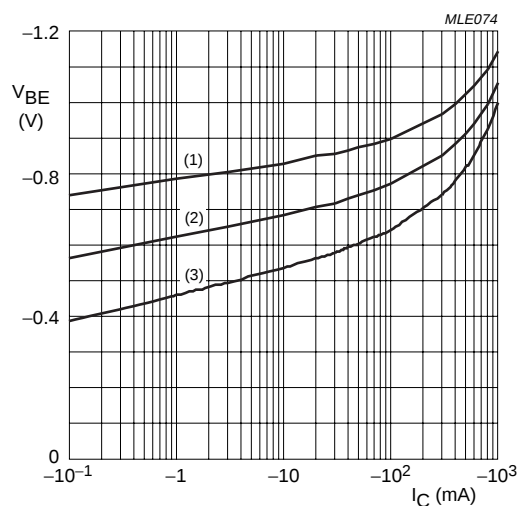
Fig.10 Base-emitter saturation voltage as a function of collector current; typical values.



$I_C/I_B = 20$.

- (1) $T_{amb} = -55\text{ }^{\circ}\text{C}$.
- (2) $T_{amb} = 25\text{ }^{\circ}\text{C}$.
- (3) $T_{amb} = 100\text{ }^{\circ}\text{C}$.

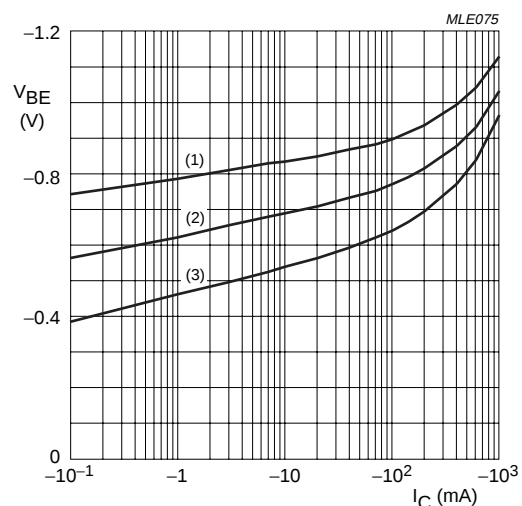
Fig.11 Base-emitter saturation voltage as a function of collector current; typical values.



$V_{CE} = -1\text{ V}$.

- (1) $T_{amb} = -55\text{ }^{\circ}\text{C}$.
- (2) $T_{amb} = 25\text{ }^{\circ}\text{C}$.
- (3) $T_{amb} = 100\text{ }^{\circ}\text{C}$.

Fig.12 Base-emitter voltage as a function of collector current; typical values.



$V_{CE} = -2\text{ V}$.

- (1) $T_{amb} = -55\text{ }^{\circ}\text{C}$.
- (2) $T_{amb} = 25\text{ }^{\circ}\text{C}$.
- (3) $T_{amb} = 100\text{ }^{\circ}\text{C}$.

Fig.13 Base-emitter voltage as a function of collector current; typical values.

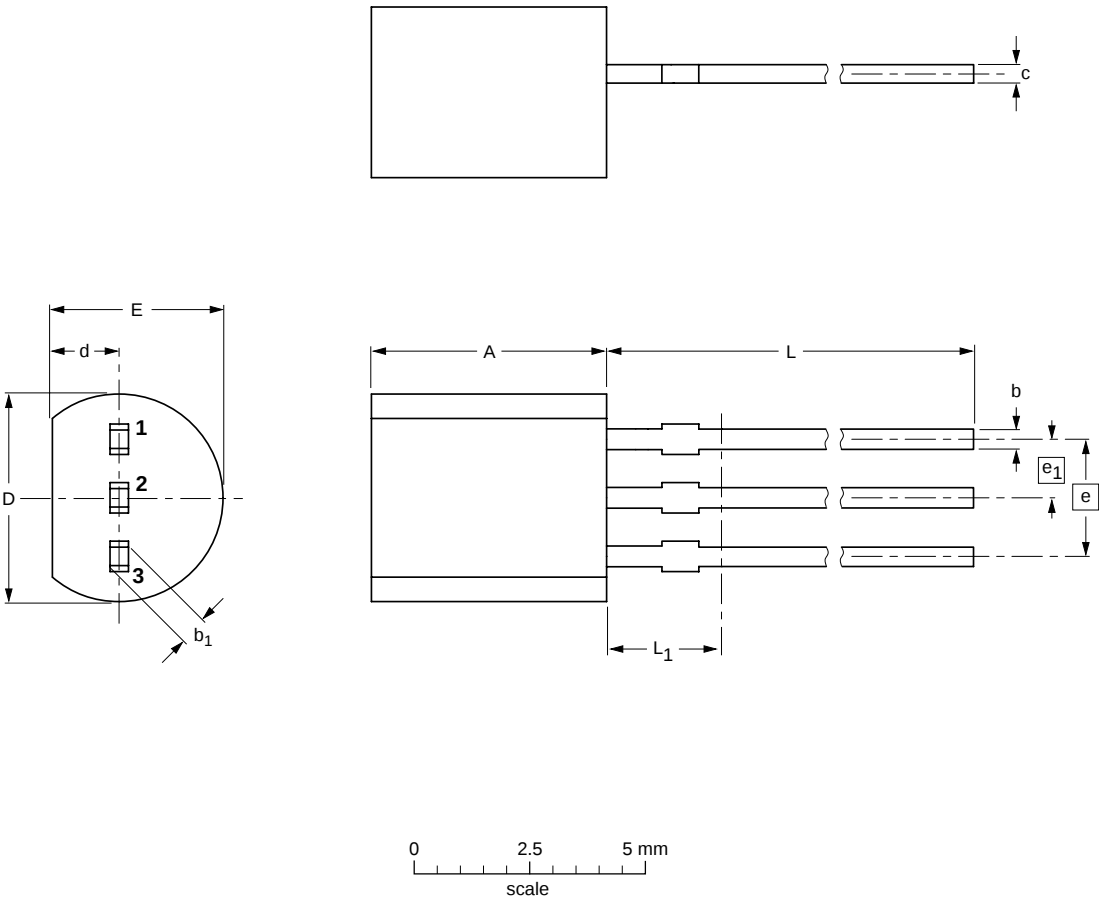
20 V PNP general purpose transistors

PSS9012 series

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⁾ 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

20 V PNP general purpose transistors

PSS9012 series

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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