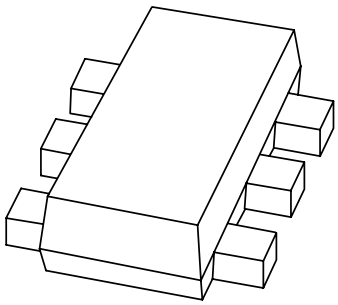
DATA SHEET



PBSS5140V

40 V low V_{CEsat} PNP transistor

Product specification
Supersedes data of 2001 Oct 19

2002 Mar 20

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40 V low V_{CEsat} PNP transistor PBSS5140V

FEATURES

- 300 mW total power dissipation
- Very small 1.6 mm × 1.2 mm × 0.55 mm ultra thin package
- Improved thermal behaviour due to flat leads
- Self alignment during soldering due to straight leads
- Low collector-emitter saturation voltage
- High current capability

APPLICATIONS

- General purpose switching and muting
- LCD back lighting
- Supply line switching circuits
- Battery driven equipment (mobile phones, video cameras and hand-held devices).

DESCRIPTION

PNP low $V_{CE\ sat}$ transistor in a SOT666 plastic package.
NPN complement: PBSS4140V.

MARKING

TYPE NUMBER	MARKING CODE
PBSS5140V	25

QUICK REFERENCE DATA

SYMBOL	PARAMETER	MAX.	UNIT
V_{CEO}	collector-emitter voltage	–40	V
I_C	collector current (DC)	–1	A
I_{CM}	peak collector current	–2	A
R_{CEsat}	equivalent on-resistance	<340	mΩ

PINNING

PIN	DESCRIPTION
1	collector
2	collector
3	base
4	emitter
5	collector
6	collector

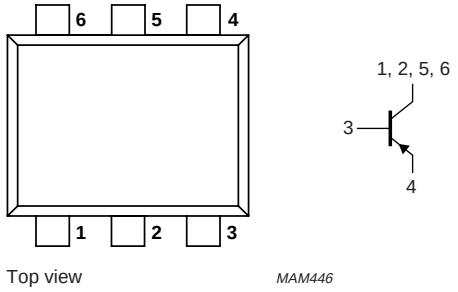


Fig.1 Simplified outline (SOT666) and symbol.

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	–	–40	V
V_{CEO}	collector-emitter voltage	open base	–	–40	V
V_{EBO}	emitter-base voltage	open collector	–	–5	V
I_C	collector current (DC)		–	–1	A
I_{CM}	peak collector current		–	–2	A
I_B	base current (DC)		–	–300	mA
I_{BM}	peak base current		–	–1	A
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C; note 1	–	300	mW
		$T_{amb} \leq 25$ °C; note 2	–	500	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	operating ambient temperature		–65	+150	°C

Notes

1. Device mounted on a printed-circuit board, single side copper, tinplated and standard footprint.
2. Device mounted on a printed-circuit board, single side copper, tinplated and mounting pad for collector 1 cm^2.

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j\text{-}a}$	thermal resistance from junction to ambient	note 1	410	K/W
		note 2	215	K/W

Notes

1. Device mounted on a printed-circuit board, single side copper, tinplated and standard footprint.
2. Device mounted on a printed-circuit board, single side copper, tinplated and mounting pad for collector 1 cm^2.

Soldering

The only recommended soldering is reflow soldering.

CHARACTERISTICS

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

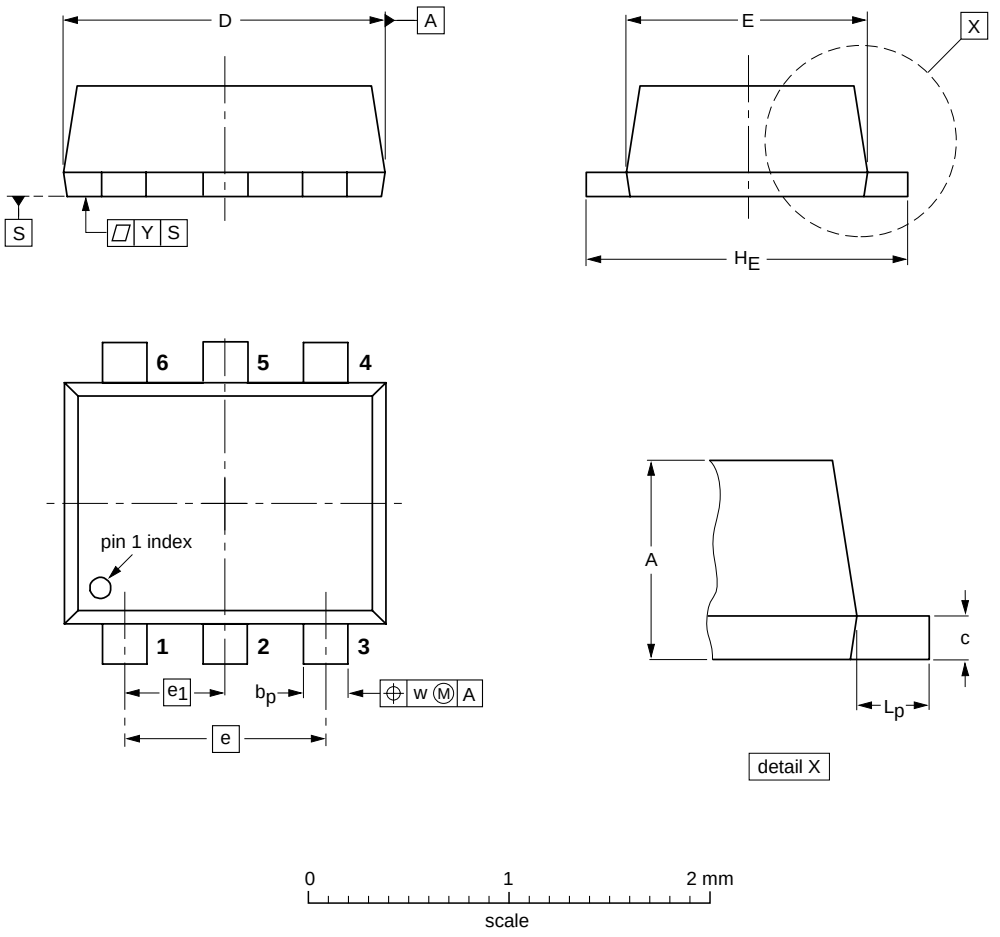
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CBO}	collector-base cut-off current	V_{CB} = –40 V; I_E = 0	–	–	–100	nA
		V_{CB} = –40 V; I_E = 0; T_{amb} = 150 °C	–	–	–50	µA
I_{CEO}	collector-emitter cut-off current	V_{CE} = –30 V; I_B = 0	–	–	–100	nA
I_{EBO}	emitter-base cut-off current	V_{EB} = –5 V; I_C = 0	–	–	–100	nA
h_{FE}	DC current gain	V_{CE} = –5 V; I_C = –1 mA	300	–	–	
		V_{CE} = –5 V; I_C = –100 mA	300	–	800	
		V_{CE} = –5 V; I_C = –500 mA	250	–	–	
		V_{CE} = –5 V; I_C = –1 A	160	–	–	
V_{CEsat}	collector-emitter saturation voltage	I_C = –100 mA; I_B = –1 mA	–	–80	–140	mV
		I_C = –500 mA; I_B = –50 mA	–	–120	–170	mV
		I_C = –1 A; I_B = –100 mA	–	–200	–310	mV
R_{CEsat}	equivalent on-resistance	I_C = –500 mA; I_B = –50 mA; note 1	–	240	<340	mΩ
V_{BEsat}	base-emitter saturation voltage	I_C = –1 A; I_B = –50 mA	–	–	–1.1	V
V_{BEon}	base-emitter turn-on voltage	V_{CE} = –5 V; I_C = –1 A	–	–	–1	V
f_T	transition frequency	I_C = –50 mA; V_{CE} = –10 V; f = 100 MHz	150	–	–	MHz
C_c	collector capacitance	V_{CB} = –10 V; I_E = I_e = 0; f = 1 MHz	–	–	12	pF

Note

1. Pulse test: $t_p \leq 300$ µs; $\delta \leq 0.02$.

PACKAGE OUTLINE

Plastic surface mounted package; 6 leads **SOT666**



DIMENSIONS (mm are the original dimensions)

UNIT	A	b_p	c	D	E	e	e_1	H_E	L_p	w	y
mm	0.6 0.5	0.27 0.17	0.18 0.08	1.7 1.5	1.3 1.1	1.0	0.5	1.7 1.5	0.3 0.1	0.1	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT666						~~01-01-04~~ 01-08-27

DATA SHEET STATUS

DATA SHEET STATUS[1]	PRODUCT STATUS[2]	DEFINITIONS
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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Printed in The Netherlands 613514/02/pp8 Date of release: 2002 Mar 20 Document order number: 9397 750 09427

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