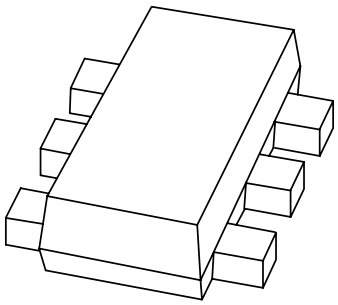
DATA SHEET



PBSS5140V

40 V low V_{CEsat} PNP transistor

Product data sheet
Supersedes data of 2001 Oct 19

2002 Mar 20

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

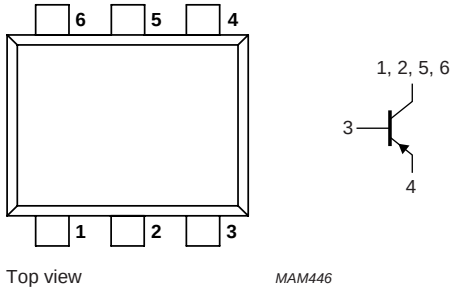


Fig.1 Simplified outline (SOT666) and symbol.

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.

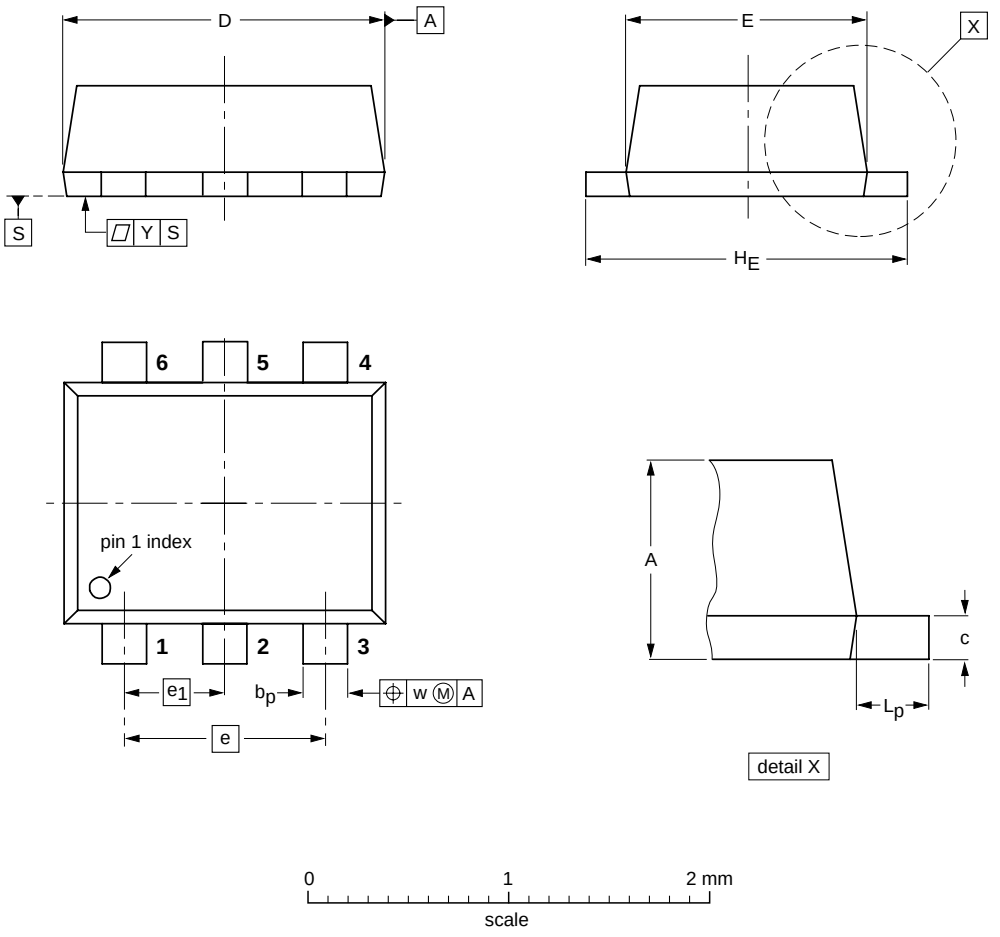
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CBO}	collector-base cut-off current	V_{CB} = –40 V; I_E = 0	–	–	–100	nA
		V_{CB} = –40 V; I_E = 0; T_{amb} = 150 °C	–	–	–50	μA
I_{CEO}	collector-emitter cut-off current	V_{CE} = –30 V; I_B = 0	–	–	–100	nA
I_{EBO}	emitter-base cut-off current	V_{EB} = –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

DOCUMENT STATUS[1]	PRODUCT STATUS[2]	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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Customer notification

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For additional information please visit: **http://www.nxp.com**
For sales offices addresses send e-mail to: **salesaddresses@nxp.com**

Printed in The Netherlands 613514/02/pp7 Date of release: 2002 Mar 20 Document order number: 9397 750 09427