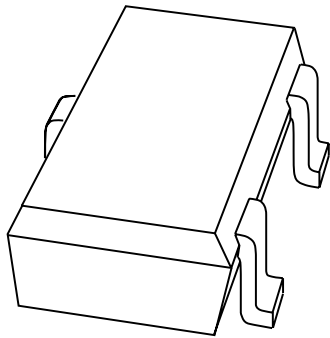


DATA SHEET



PBSS5140U

40 V low V_{CEsat} PNP transistor

Product specification
Supersedes data of 2001 Mar 27

2001 Jul 20

40 V low V_{CEsat} PNP transistor

PBSS5140U

FEATURES

- Low collector-emitter saturation voltage
- High current capability
- Improved device reliability due to reduced heat generation
- Enhanced performance over SOT23 1A standard packaged transistor.

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_{CEsat} transistor in a SOT323 (SC-70) plastic package.

MARKING

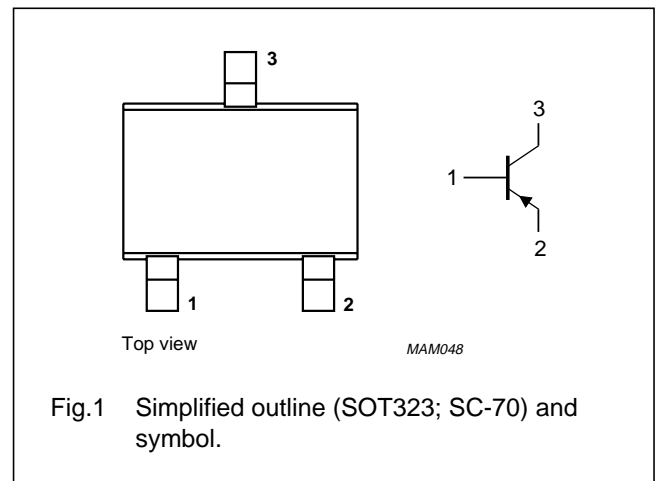
TYPE NUMBER	MARKING CODE
PBSS5140U	51t

QUICK REFERENCE DATA

SYMBOL	PARAMETER	MAX.	UNIT
V_{CEO}	collector-emitter voltage	-40	V
I_{CM}	peak collector current	-2	A
R_{CEsat}	equivalent on-resistance	<500	m Ω

PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector



40 V low V_{CEsat} PNP transistor

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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_{BM}	peak base current		–	–1	A
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ °C}$; note 1	–	250	mW
		$T_{amb} \leq 25\text{ °C}$; note 2	–	350	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 sided copper, tinplated and standard footprint.
2. Device mounted on a printed-circuit board, single sided copper, tinplated and mounting pad for collector 1 cm².

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	in free air; note 1	500	K/W
		in free air; note 2	357	K/W

Notes

1. Device mounted on a printed-circuit board, single sided copper, tinplated and standard footprint.
2. Device mounted on a printed-circuit board, single sided copper, tinplated and mounting pad for collector 1 cm².

40 V low V_{CEsat} PNP transistor

PBSS5140U

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

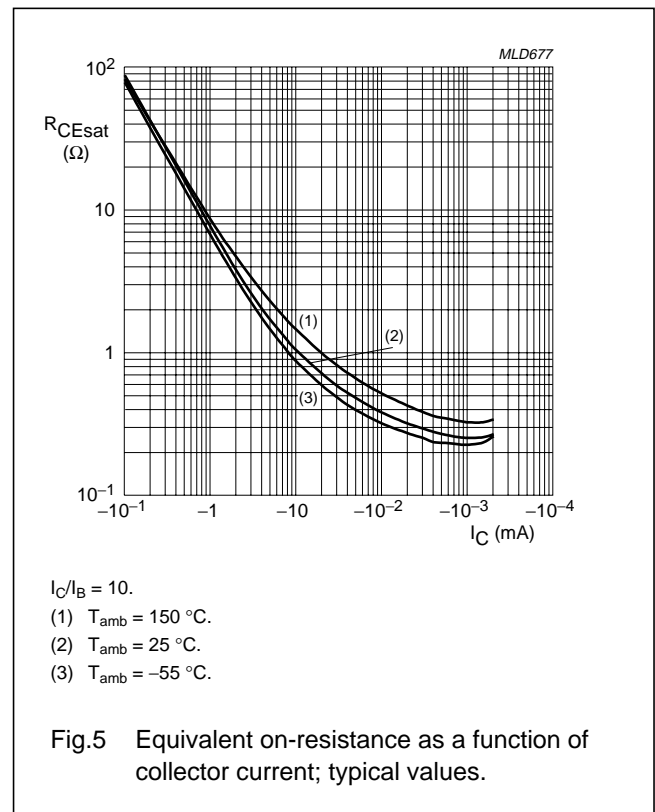
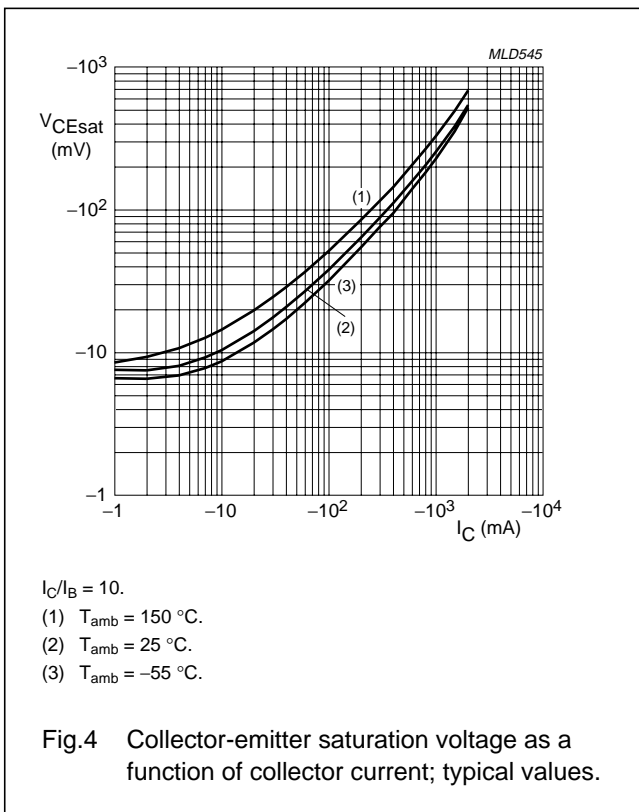
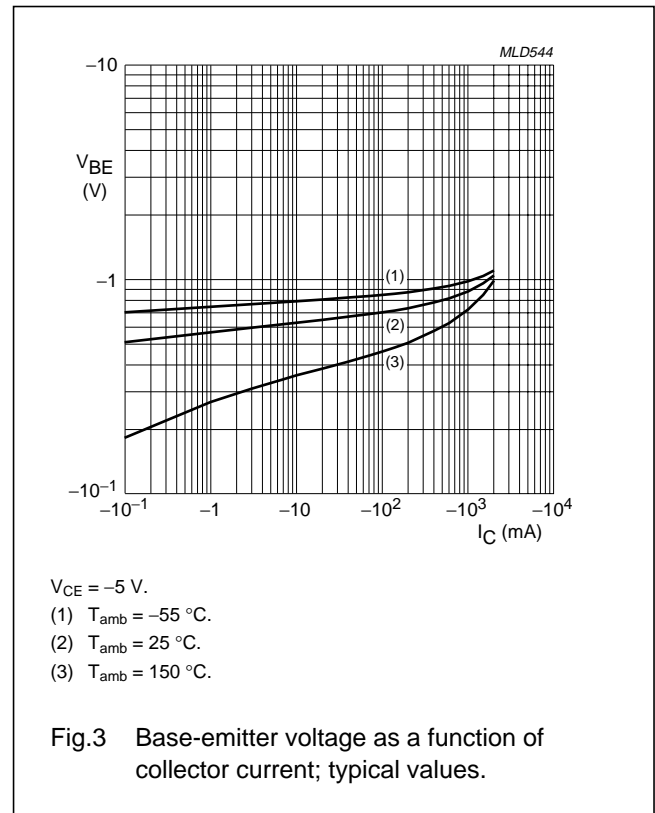
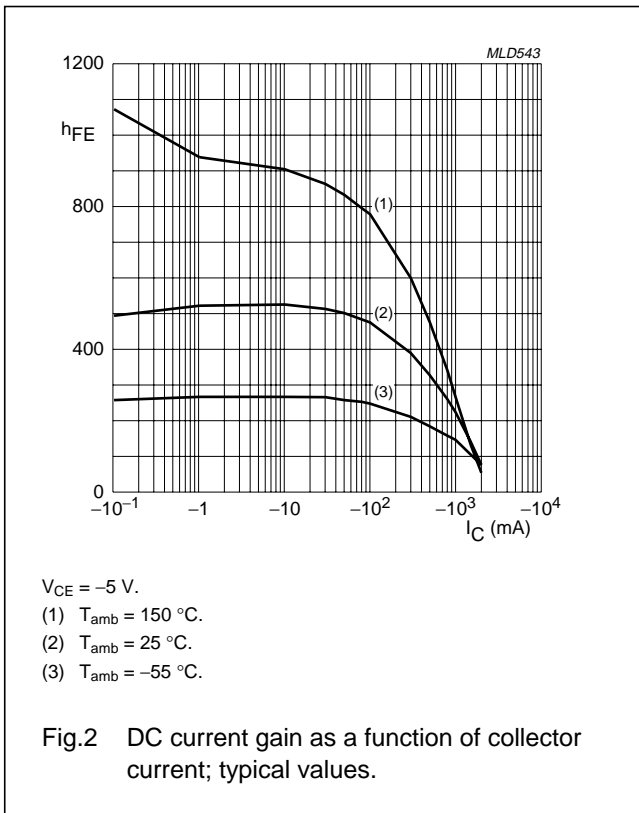
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CBO}	collector-base cut-off current	$V_{CB} = -40\text{ V}; I_C = 0$	–	–	–100	nA
		$V_{CB} = -40\text{ V}; I_C = 0; T_{amb} = 150\text{ °C}$	–	–	–50	μA
I_{CEO}	collector-emitter cut-off current	$V_{CE} = -30\text{ V}; I_B = 0$	–	–	–100	nA
I_{EBO}	emitter-base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

Note

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

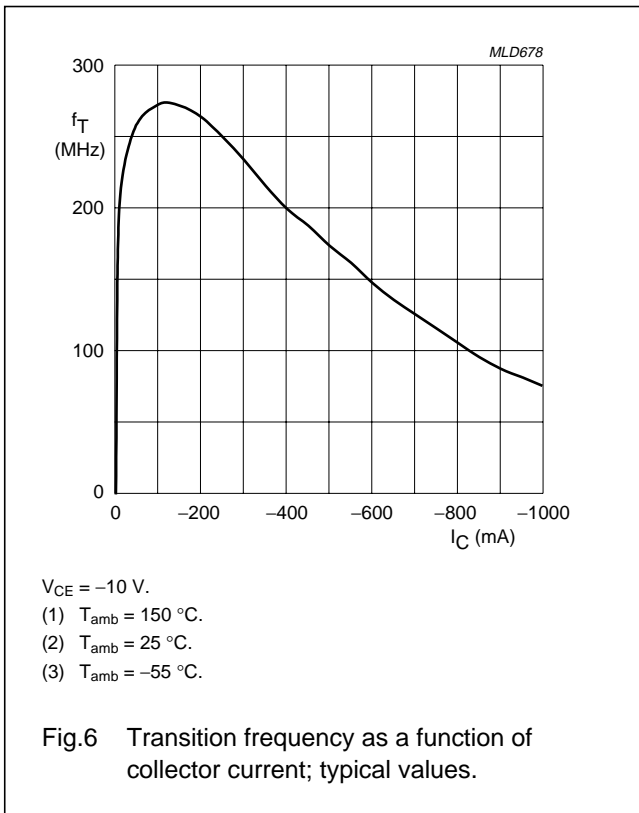
40 V low V_{CEsat} PNP transistor

PBSS5140U



40 V low V_{CEsat} PNP transistor

PBSS5140U



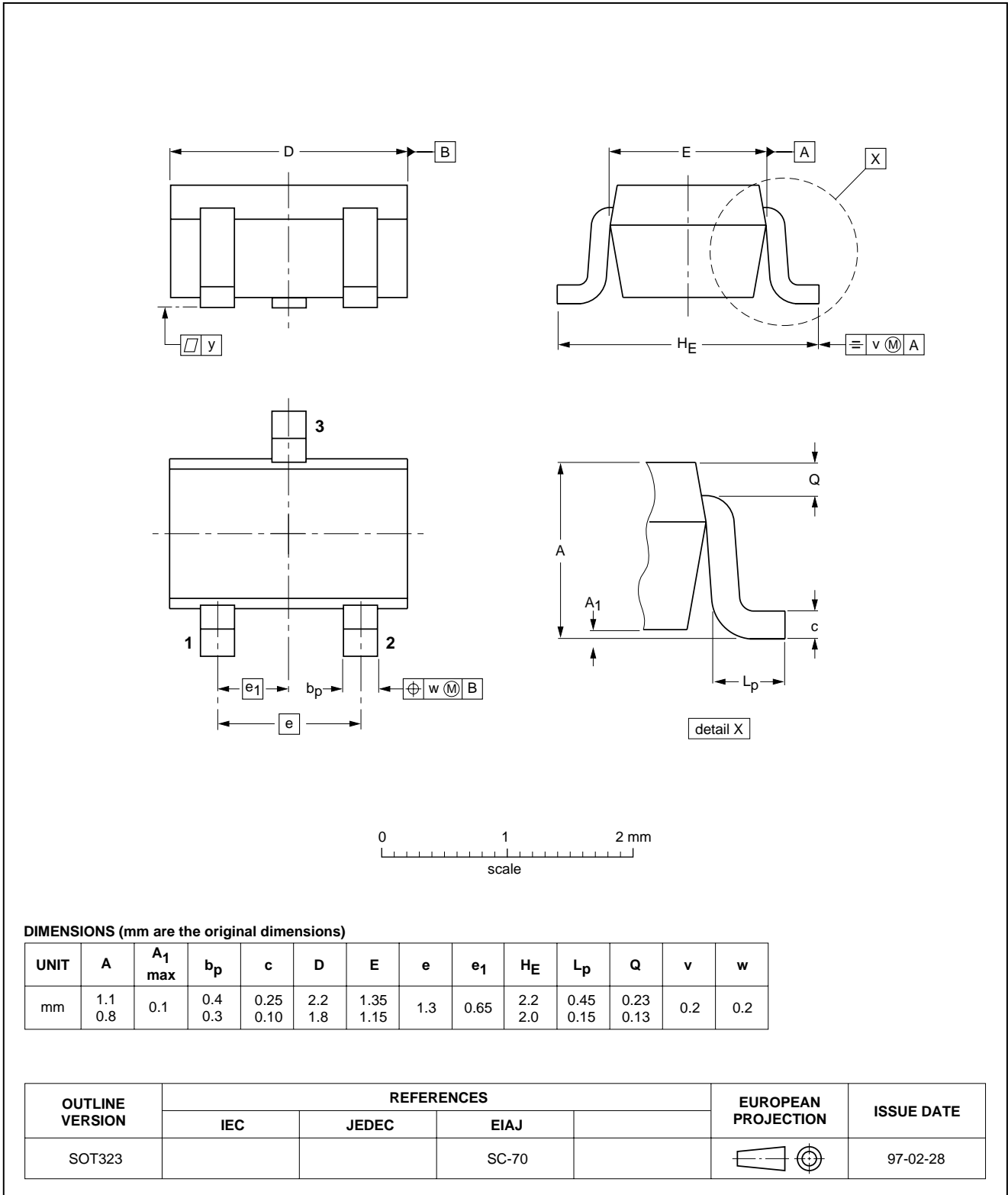
40 V low V_{CEsat} PNP transistor

PBSS5140U

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT323



40 V low V_{CEsat} PNP transistor

PBSS5140U

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.
Preliminary data	Qualification	This data sheet contains data from the preliminary specification. Supplementary data will be published at a later date. Philips Semiconductors reserves the right to change the specification without notice, in order to improve the design and supply the best possible product.
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40 V low V_{CEsat} PNP transistor

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NOTES

40 V low V_{CEsat} PNP transistor

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NOTES

40 V low V_{CEsat} PNP transistor

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NOTES

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