nexperia

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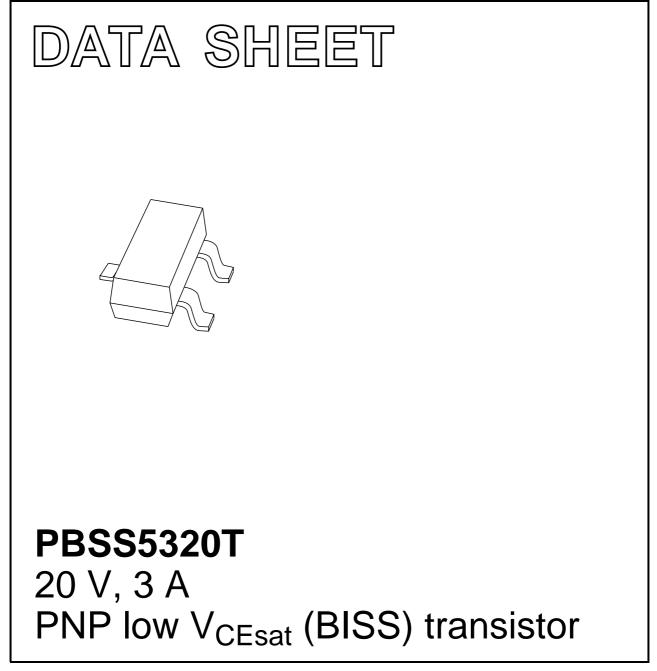
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Kind regards,

Team Nexperia

DISCRETE SEMICONDUCTORS



Product data sheet Supersedes data of 2002 Aug 08 2004 Jan 15



20 V, 3 A PNP low V_{CEsat} (BISS) transistor

FEATURES

- Low collector-emitter saturation voltage $V_{\mbox{CEsat}}$ and corresponding low $R_{\mbox{CEsat}}$
- High collector current capability
- High collector current gain
- Improved efficiency due to reduced heat generation.

APPLICATIONS

- Power management applications
- Low and medium power DC/DC convertors
- Supply line switching
- Battery chargers
- Linear voltage regulation with low voltage drop-out (LDO).

DESCRIPTION

PNP low V_{CEsat} transistor in a SOT23 plastic package. NPN complement: PBSS4320T.

MARKING

TYPE NUMBER	MARKING CODE ⁽¹⁾
PBSS5320T	ZH*

Note

- 1. * = p: Made in Hong Kong.
 - * = t: Made in Malaysia.
 - * = W: Made in China.

ORDERING INFORMATION

QUICK REFERENCE DATA

SYMBOL	PARAMETER	MAX.	UNIT
V _{CEO}	collector-emitter voltage -20 V		V
I _C	collector current (DC)	-2	А
I _{CRP}	repetitive peak collector current	-3	A
R _{CEsat}	equivalent on-resistance 105		mΩ

PINNING

PIN	DESCRIPTION	
1	base	
2	emitter	
3	collector	

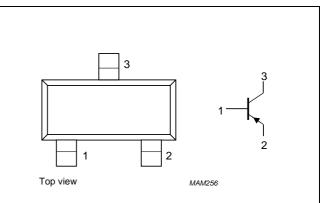


Fig.1 Simplified outline (SOT23) and symbol.

TYPE NUMBER		PACKAGE			
ITFE NOWBER	NAME	AME DESCRIPTION VERSION			
PBSS5320T	_	plastic surface mounted package; 3 leads	SOT23		

PBSS5320T

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	-	-20	V
V _{CEO}	collector-emitter voltage	open base	-	-20	V
V _{EBO}	emitter-base voltage	open collector	-	-5	V
I _C	collector current (DC)		-	-2	А
I _{CRP}	repetitive peak collector current	note 1	-	-3	А
I _{CM}	peak collector current	single peak	-	-5	А
I _B	base current (DC)		-	-0.5	А
P _{tot}	total power dissipation	$T_{amb} \le 25 \ ^{\circ}C$; note 2	-	300	mW
		$T_{amb} \le 25 \ ^{\circ}C$; note 3	-	480	mW
		$T_{amb} \le 25 \ ^{\circ}C$; note 4	-	540	mW
		$T_{amb} \le 25 \ ^{\circ}C$; notes 1 and 2	-	1.2	W
T _{stg}	storage temperature		-65	+150	°C
Tj	junction temperature		-	150	°C
T _{amb}	operating ambient temperature		-65	+150	°C

Notes

- 1. Operated under pulsed conditions: pulse width $t_p \leq$ 100 ms; duty cycle $\delta \leq$ 0.25.
- 2. Device mounted on a printed-circuit board; single sided copper; tin plated; standard footprint.
- 3. Device mounted on a printed-circuit board; single sided copper; tin plated; mounting pad for collector 1 cm².
- 4. Device mounted on a printed-circuit board; single sided copper; tin plated; mounting pad for collector 6 cm².

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R _{th(j-a)}	thermal resistance from junction to	in free air; note 1	417	K/W
	ambient	in free air; note 2	260	K/W
		in free air; note 3	230	K/W
		in free air; notes 1 and 4	104	K/W

Notes

- 1. Device mounted on a printed-circuit board; single sided copper; tin plated; standard footprint.
- 2. Device mounted on a printed-circuit board; single sided copper; tin plated; mounting pad for collector 1 cm².
- 3. Device mounted on a printed-circuit board; single sided copper; tin plated; mounting pad for collector 6 cm².
- 4. Operated under pulsed conditions: pulse width $t_p \le 100$ ms; duty cycle $\delta \le 0.25$.

20 V, 3 A PNP low V_{CEsat} (BISS) transistor

PBSS5320T

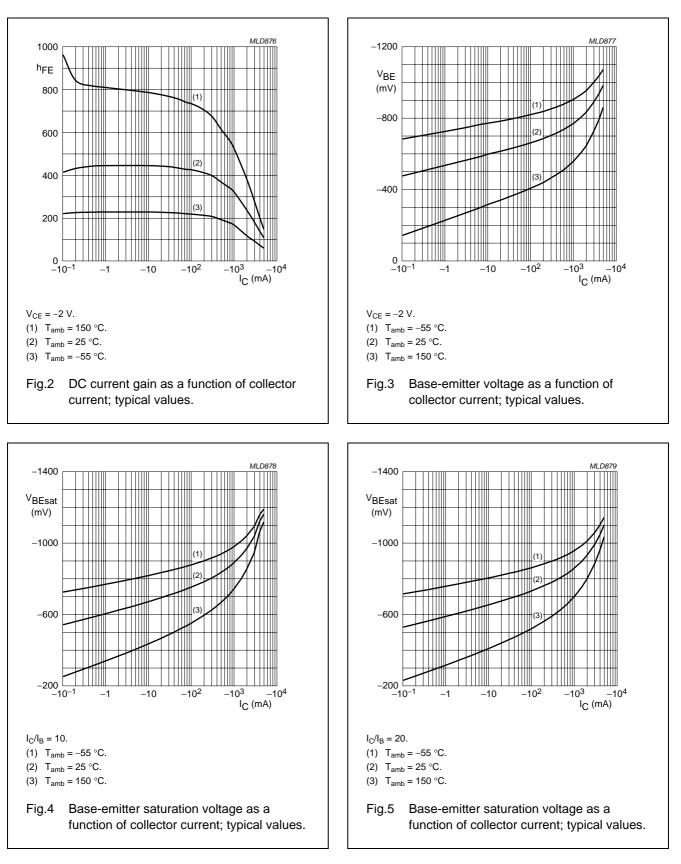
CHARACTERISTICS

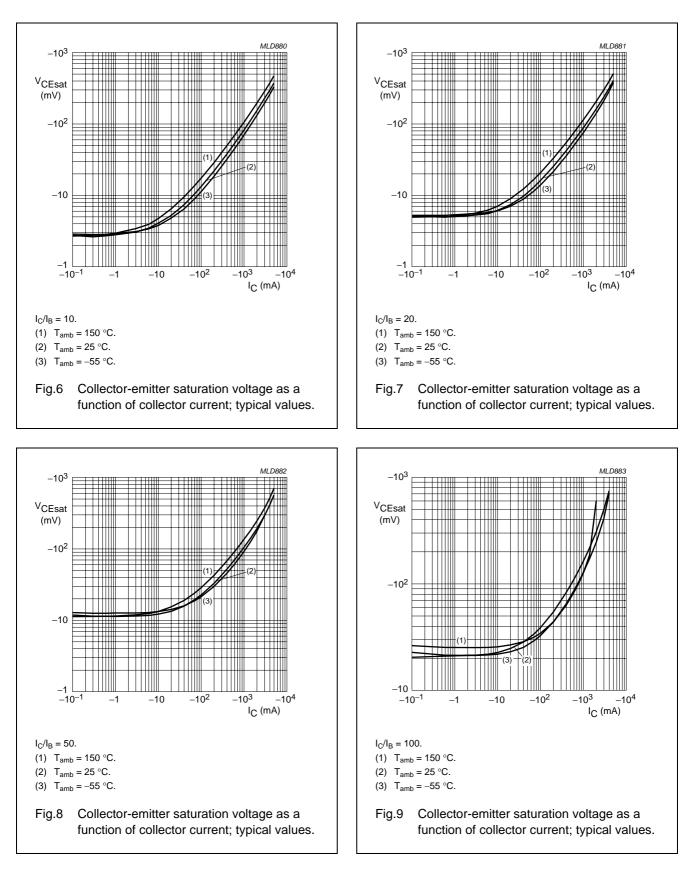
 T_{amb} = 25 $^\circ C$ unless otherwise specified.

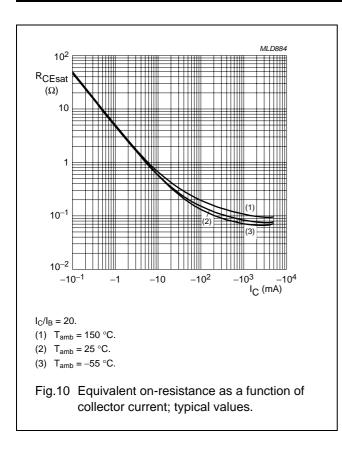
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I _{CBO}	collector-base cut-off current	$V_{CB} = -20 \text{ V}; \text{ I}_{E} = 0$	-	-	-100	nA
		$V_{CB} = -20 \text{ V}; I_E = 0; T_j = 150 ^{\circ}\text{C}$	-	-	-50	μA
I _{EBO}	emitter-base cut-off current	$V_{EB} = -5 \text{ V}; \text{ I}_{C} = 0$	-	-	-100	nA
h _{FE}	DC current gain	$V_{CE} = -2 \text{ V}; \text{ I}_{C} = -100 \text{ mA}$	220	-	-	
		$V_{CE} = -2 \text{ V}; \text{ I}_{C} = -500 \text{ mA}$	220	-	-	
		$V_{CE} = -2 \text{ V}; \text{ I}_{C} = -1 \text{ A}; \text{ note } 1$	200	-	-	
		$V_{CE} = -2 \text{ V}; \text{ I}_{C} = -2 \text{ A}; \text{ note } 1$	150	-	-	
		$V_{CE} = -2 \text{ V}; \text{ I}_{C} = -3 \text{ A}; \text{ note } 1$	100	-	-	
V _{CEsat}	collector-emitter saturation	$I_{\rm C} = -500 \text{ mA}; I_{\rm B} = -50 \text{ mA}$	-	-	-70	mV
	voltage	I _C = -1 A; I _B = -50 mA	-	-	-130	mV
		$I_{C} = -2$ A; $I_{B} = -100$ mA; note 1	-	-	-230	mV
		$I_{\rm C} = -2$ A; $I_{\rm B} = -200$ mA; note 1	-	-	-210	mV
		$I_{\rm C} = -3$ A; $I_{\rm B} = -300$ mA; note 1	-	-	-300	mV
R _{CEsat}	equivalent on-resistance	$I_{C} = -2 \text{ A}; I_{B} = -200 \text{ mA}; \text{ note } 1$	-	75	105	mΩ
V _{BEsat}	base-emitter saturation	$I_{C} = -2 \text{ A}; I_{B} = -100 \text{ mA}; \text{ note } 1$	-	-	-1.1	V
	voltage	$I_{C} = -3$ A; $I_{B} = -300$ mA; note 1	-	-	-1.2	V
V _{BE(on)}	base-emitter turn-on voltage	$V_{CE} = -2 \text{ V}; \text{ I}_{C} = -1 \text{ A}; \text{ note } 1$	-1.2	-	-	V
f _T	transition frequency	$I_{C} = -100 \text{ mA}; V_{CE} = -5 \text{ V};$ f = 100 MHz	100	-	-	MHz
C _c	collector capacitance	$V_{CB} = -10 \text{ V}; I_E = I_e = 0; f = 1 \text{ MHz}$	_	-	50	pF

Note

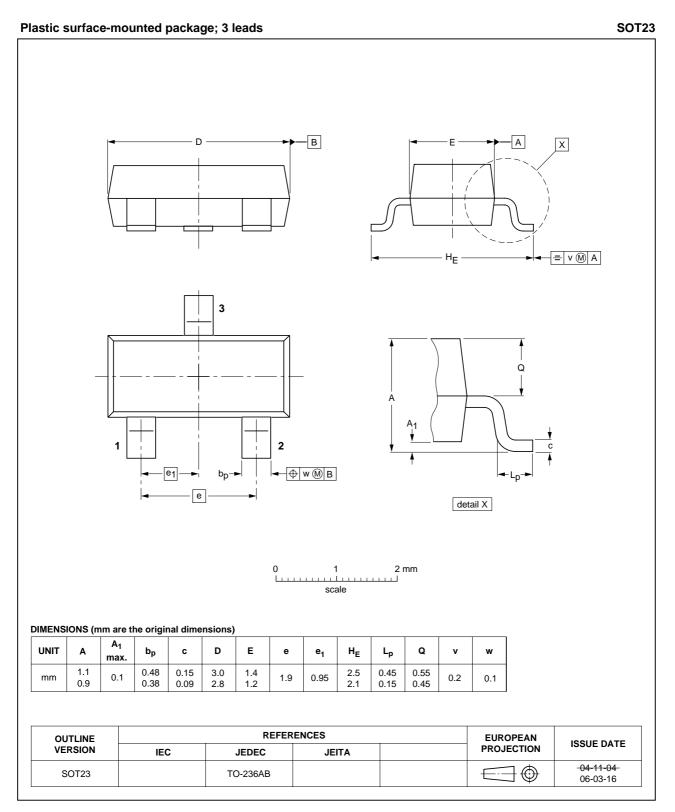
1. Pulse test: $t_p \leq 300~\mu\text{s};~\delta \leq 0.02.$







PACKAGE OUTLINE



PBSS5320T

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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NXP Semiconductors

Customer notification

This data sheet was changed to reflect the new company name NXP Semiconductors, including new legal definitions and disclaimers. No changes were made to the technical content, except for package outline drawings which were updated to the latest version.

Contact information

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

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