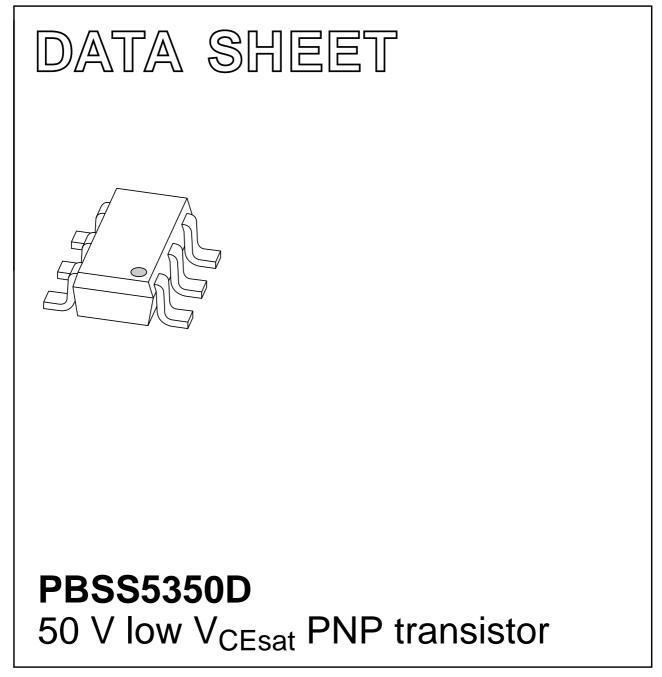
## DISCRETE SEMICONDUCTORS



Product specification Supersedes data of 2001 Jul 13 2001 Nov 13



#### FEATURES

- Low collector-emitter saturation voltage
- High current capability
- Improved device reliability due to reduced heat generation
- Replacement for SOT89/SOT223 standard packaged transistors due to enhanced performance.

## APPLICATIONS

- Supply line switching circuits
- Battery management applications
- DC/DC convertor applications
- · Strobe flash units
- Heavy duty battery powered equipment (motor and lamp drivers).

## DESCRIPTION

 $\mathsf{PNP}$  low  $\mathsf{V}_{\mathsf{CEsat}}$  transistor in a SC-74 (SOT457) plastic package.

NPN complement: PBSS4350D.

#### MARKING

TYPE NUMBER	MARKING CODE	
PBSS5350D	53	

#### QUICK REFERENCE DATA

SYMBOL	PARAMETER	MAX.	UNIT	
V <sub>CEO</sub>	collector-emitter voltage -50			
I <sub>C</sub>	collector current (DC) -3		A	
I <sub>CM</sub>	peak collector current -5		А	
R <sub>CEsat</sub>	equivalent on-resistance	ance <150 m $\Omega$		

### PINNING

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

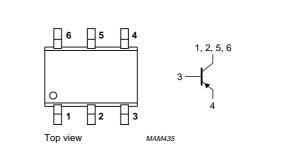


Fig.1 Simplified outline (SC-74; SOT457) and symbol.

## PBSS5350D

## 50 V low $V_{CEsat}$ PNP transistor

## PBSS5350D

#### LIMITING VALUES

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V <sub>CBO</sub>	collector-base voltage	open emitter	-	-60	V
V <sub>CEO</sub>	collector-emitter voltage	open base	-	-50	V
V <sub>EBO</sub>	emitter-base voltage	open collector	-	-6	V
I <sub>C</sub>	collector current (DC)		-	-3	A
I <sub>CM</sub>	peak collector current		-	-5	A
I <sub>BM</sub>	peak base current		-	-1	А
P <sub>tot</sub>	total power dissipation	$T_{amb} \le 25 \ ^{\circ}C$ ; note 1	-	600	mW
		$T_{amb} \le 25 \ ^{\circ}C$ ; note 2	-	750	mW
T <sub>stg</sub>	storage temperature		-65	+150	°C
Tj	junction temperature		-	150	°C
T <sub>amb</sub>	operating ambient temperature		-65	+150	°C

#### Notes

- 1. Device mounted on a printed-circuit board, single sided copper, tinplated and mounting pad for collector 1 cm<sup>2</sup>.
- 2. Device mounted on a printed-circuit board, single sided copper, tinplated and mounting pad for collector 6 cm<sup>2</sup>.

#### THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
R <sub>th j-a</sub>	thermal resistance from junction to	in free air; note 1	208	K/W
	ambient	in free air; note 2	160	K/W

#### Notes

- 1. Device mounted on a printed-circuit board, single sided copper, tinplated and mounting pad for collector 1 cm<sup>2</sup>.
- 2. Device mounted on a printed-circuit board, single sided copper, tinplated and mounting pad for collector 6 cm<sup>2</sup>.

## PBSS5350D

## CHARACTERISTICS

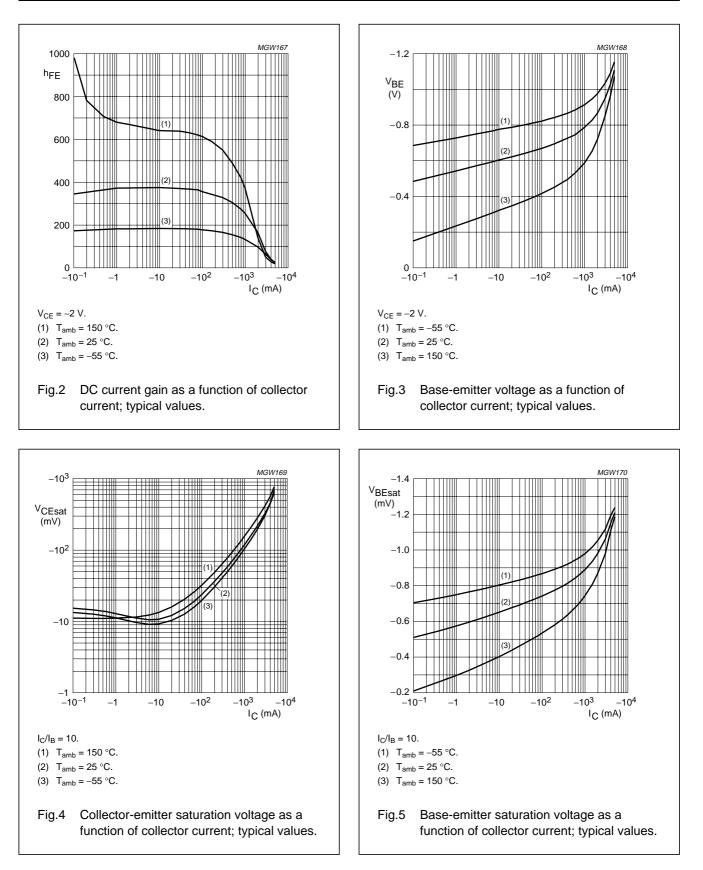
 $T_{amb}$  = 25 °C unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I <sub>CBO</sub>	collector-base cut-off current	$V_{CB} = -50 \text{ V}; I_E = 0$	-	-	-100	nA
		$V_{CB} = -50 \text{ V}; I_E = 0; T_j = 150 ^{\circ}\text{C}$	-	-	-50	μA
I <sub>EBO</sub>	emitter-base cut-off current	$V_{EB} = -5 \text{ V}; \text{ I}_{C} = 0$	_	-	-100	nA
h <sub>FE</sub>	DC current gain	$V_{CE} = -2 \text{ V}; \text{ I}_{C} = -500 \text{ mA}$	200	-	-	
		$V_{CE} = -2 \text{ V}; I_{C} = -1 \text{ A}; \text{ note } 1$	200	-	-	
		$V_{CE} = -2 \text{ V}; I_{C} = -2 \text{ A}; \text{ note } 1$	100	-	-	
V <sub>CEsat</sub>	collector-emitter saturation	I <sub>C</sub> = -500 mA; I <sub>B</sub> = -50 mA	-	-	-100	mV
	voltage	$I_{\rm C} = -1$ A; $I_{\rm B} = -50$ mA	-	-	-180	mV
		$I_{C} = -2 \text{ A}; I_{B} = -200 \text{ mA}; \text{ note } 1$	_	-	-300	mV
R <sub>CEsat</sub>	equivalent on-resistance	$I_{C} = -2 \text{ A}; I_{B} = -200 \text{ mA}; \text{ note } 1$	-	120	<150	mΩ
V <sub>BEsat</sub>	base-emitter saturation voltage	$I_{C} = -2 \text{ A}; I_{B} = -200 \text{ mA}; \text{ note } 1$	-	-	-1.2	V
V <sub>BE</sub>	base-emitter turn-on voltage	$V_{CE} = -2 \text{ V}; I_{C} = -1 \text{ A}; \text{ note } 1$	-	-	-1.1	V
f <sub>T</sub>	transition frequency	$I_{C} = -100 \text{ mA}; V_{CE} = -5 \text{ V}; \text{ f} = 100 \text{ MHz}$	100	-	_	MHz
C <sub>c</sub>	collector capacitance	$V_{CB} = -10 \text{ V}; I_E = I_e = 0; f = 1 \text{ MHz}$	-	-	40	pF

#### Note

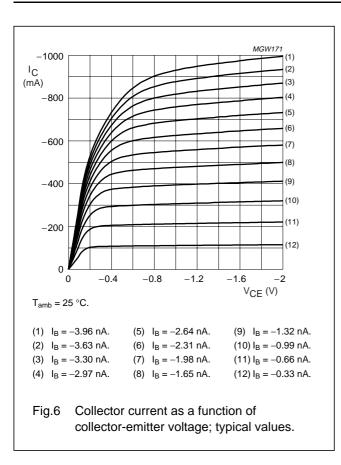
1. Pulse test:  $t_p \leq 300 \ \mu s; \ \delta \leq 0.02.$ 

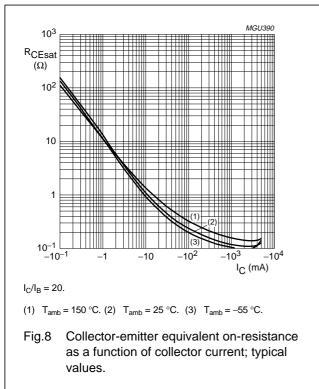
## PBSS5350D

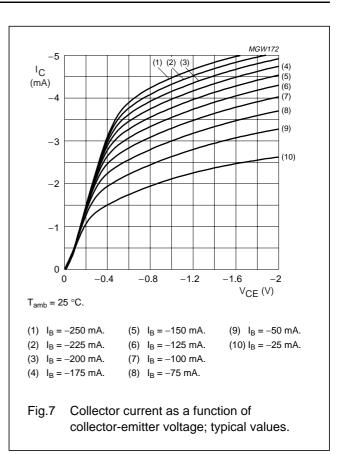


## 50 V low $V_{CEsat}$ PNP transistor

## PBSS5350D





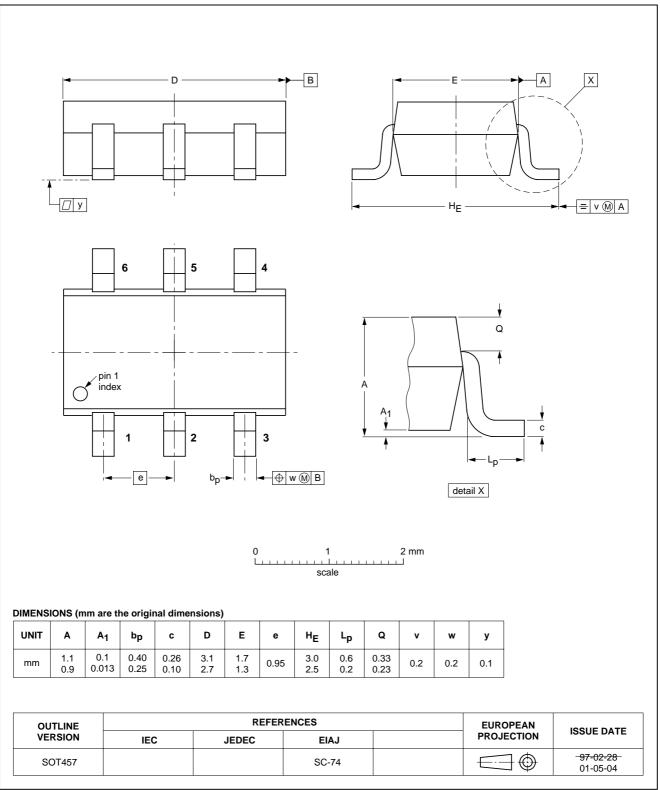


PBSS5350D

## 50 V low $V_{CEsat}$ PNP transistor

## PACKAGE OUTLINE

#### Plastic surface mounted package; 6 leads



SOT457

## 50 V low $V_{CEsat}$ PNP transistor

PBSS5350D

#### DATA SHEET STATUS

DATA SHEET STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)</sup>	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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Limiting values definition — Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 60134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability.

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