

# PBSS5250T,215 Datasheet



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DiGi Electronics Part Number	PBSS5250T,215-DG
Manufacturer	<a href="#">Nexperia USA Inc.</a>
Manufacturer Product Number	PBSS5250T,215
Description	TRANS PNP 50V 2A TO236AB
Detailed Description	Bipolar (BJT) Transistor PNP 50 V 2 A 100MHz 480 mW Surface Mount TO-236AB



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## Purchase and inquiry

Manufacturer Product Number:

PBSS5250T,215

Series:

-

Transistor Type:

PNP

Voltage - Collector Emitter Breakdown (Max):

50 V

Current - Collector Cutoff (Max):

100nA (ICBO)

Power - Max:

480 mW

Operating Temperature:

150°C (TJ)

Qualification:

AEC-Q100

Package / Case:

TO-236-3, SC-59, SOT-23-3

Base Product Number:

PBSS5250

Manufacturer:

Nexperia USA Inc.

Product Status:

Active

Current - Collector (Ic) (Max):

2 A

Vce Saturation (Max) @ Ib, Ic:

300mV @ 100mA, 2A

DC Current Gain (hFE) (Min) @ Ic, Vce:

200 @ 1A, 2V

Frequency - Transition:

100MHz

Grade:

Automotive

Mounting Type:

Surface Mount

Supplier Device Package:

TO-236AB

## Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8541.21.0075

Moisture Sensitivity Level (MSL):

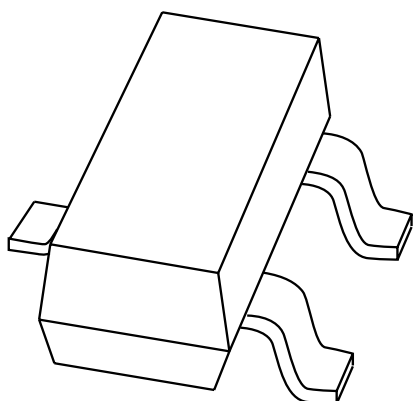
1 (Unlimited)

ECCN:

EAR99

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# DATA SHEET



**PBSS5250T**

50 V, 2 A

PNP low  $V_{CEsat}$  (BISS) transistor

Product data sheet

2003 Oct 09

## 50 V, 2 A PNP low $V_{CEsat}$ (BISS) transistor

PBSS5250T

### FEATURES

- Low collector-emitter saturation voltage  $V_{CEsat}$
- High collector current capability:  $I_C$  and  $I_{CM}$
- Higher efficiency leading to less heat generation
- Reduced printed-circuit board requirements
- Cost effective alternative to MOSFETs in specific applications.

### APPLICATIONS

- Power management
  - DC/DC converters
  - Supply line switching
  - Battery charger
  - LCD backlighting
- Peripheral drivers
  - Driver in low supply voltage applications (e.g. lamps and LEDs)
  - Inductive load driver (e.g. relays, buzzers and motors).

### DESCRIPTION

PNP BISS transistor in a SOT23 plastic package offering ultra low  $V_{CEsat}$  and  $R_{CEsat}$  parameters.

### MARKING

TYPE NUMBER	MARKING CODE <sup>(1)</sup>
PBSS5250T	3H*

### Note

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

### ORDERING INFORMATION

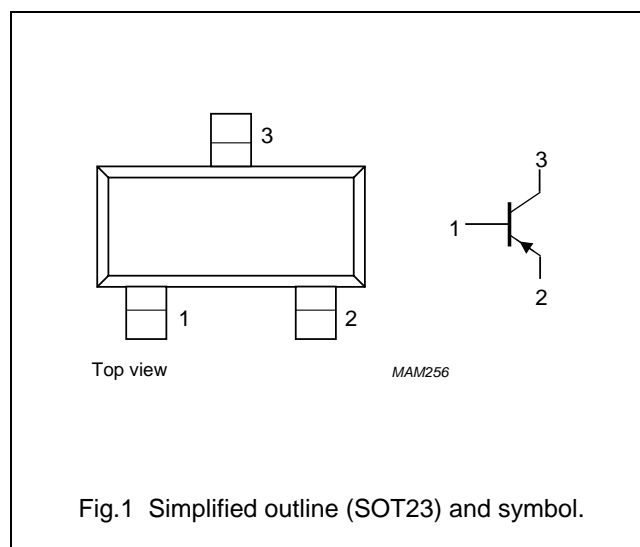
TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
PBSS5250T	–	plastic surface mounted package; 3 leads	SOT23

### QUICK REFERENCE DATA

SYMBOL	PARAMETER	MAX.	UNIT
$V_{CEO}$	collector-emitter voltage	–50	V
$I_C$	collector current (DC)	–2	A
$I_{CM}$	peak collector current	–3	A
$R_{CEsat}$	equivalent on-resistance	150	m $\Omega$

### PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector



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PBSS5250T

**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	–	–50	V
$V_{CEO}$	collector-emitter voltage	open base	–	–50	V
$V_{EBO}$	emitter-base voltage	open collector	–	–5	V
$I_C$	collector current (DC)		–	–2	A
$I_{CM}$	peak collector current	single peak	–	–3	A
$I_B$	base current (DC)		–	–300	mA
$P_{tot}$	total power dissipation	$T_{amb} \leq 25\text{ °C}$ ; note 1		300	mW
		$T_{amb} \leq 25\text{ °C}$ ; note 2	–	480	mW
$T_j$	junction temperature		–	150	°C
$T_{amb}$	operating ambient temperature		–65	+150	°C
$T_{stg}$	storage temperature		–65	+150	°C

**Notes**

1. Device mounted on a FR4 printed-circuit board; single-sided copper; tinplated; standard footprint.
2. Device mounted on a FR4 printed-circuit board; single-sided copper; tinplated; mounting pad for collector 1 cm<sup>2</sup>.

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j-a}$	thermal resistance from junction to ambient	in free air; note 1	417	K/W
		in free air; note 2	260	K/W

**Notes**

1. Device mounted on a FR4 printed-circuit board; single-sided copper; tinplated; standard footprint.
2. Device mounted on a FR4 printed-circuit board; single-sided copper; tinplated; mounting pad for collector 1 cm<sup>2</sup>.

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**CHARACTERISTICS** $T_j = 25\text{ °C}$ ; unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$I_{CBO}$	collector cut-off current	$V_{CB} = -50\text{ V}; I_E = 0$	–	–	–100	nA
		$V_{CB} = -50\text{ V}; I_E = 0; T_j = 150\text{ °C}$	–	–	–50	$\mu\text{A}$
$I_{EBO}$	emitter cut-off current	$V_{EB} = -5\text{ V}; I_C = 0$	–	–	–100	nA
$h_{FE}$	DC current gain	$V_{CE} = -2\text{ V}; I_C = 0.5\text{ A}$	200	–	–	
		$V_{CE} = -2\text{ V}; I_C = 1\text{ A}; \text{note 1}$	200	–	–	
		$V_{CE} = -2\text{ V}; I_C = 2\text{ A}; \text{note 1}$	130	–	–	
$V_{CEsat}$	collector-emitter saturation voltage	$I_C = -0.5\text{ A}; I_B = -50\text{ mA}$	–	–	–90	mV
		$I_C = -1\text{ A}; I_B = -50\text{ mA}$	–	–	–180	mV
		$I_C = -2\text{ A}; I_B = -100\text{ mA}$	–	–	–300	mV
$R_{CEsat}$	equivalent on-resistance	$I_C = -2\text{ A}; I_B = -200\text{ mA}; \text{note 1}$	–	–	150	$\text{m}\Omega$
$V_{BEsat}$	base-emitter saturation voltage	$I_C = -2\text{ A}; I_B = -100\text{ mA}; \text{note 1}$	–	–	–1.1	V
$V_{BEon}$	base-emitter turn-on voltage	$V_{CE} = -2\text{ V}; I_C = -1\text{ A}; \text{note 1}$	–1.2	–	–	V
$f_T$	transition frequency	$I_C = -100\text{ mA}; V_{CE} = -5\text{ V}; f = 100\text{ MHz}$	100	–	–	MHz
$C_c$	collector capacitance	$V_{CB} = -10\text{ V}; I_E = I_e = 0; f = 1\text{ MHz}$	–	–	35	pF

**Note**

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

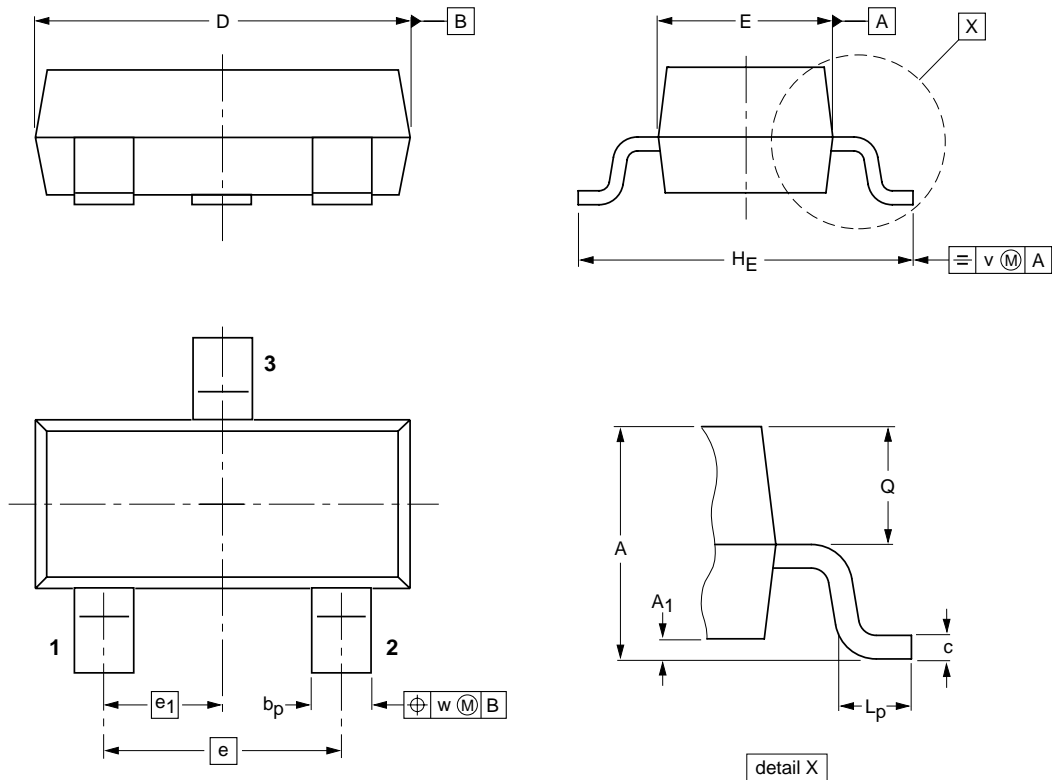
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PBSS5250T

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT23



DIMENSIONS (mm are the original dimensions)

UNIT	A	A <sub>1</sub> max.	b <sub>p</sub>	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L <sub>p</sub>	Q	v	w
mm	1.1 0.9	0.1	0.48 0.38	0.15 0.09	3.0 2.8	1.4 1.2	1.9	0.95	2.5 2.1	0.45 0.15	0.55 0.45	0.2	0.1

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	EIAJ			
SOT23		TO-236AB				<del>97-02-28</del> 99-09-13

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**DATA SHEET STATUS**

DOCUMENT STATUS <sup>(1)</sup>	PRODUCT STATUS <sup>(2)</sup>	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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For additional information please visit: <http://www.nxp.com>

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