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Should be replaced with:

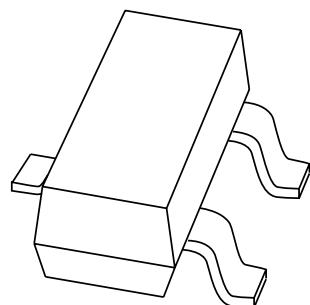
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If you have any questions related to the data sheet, please contact our nearest sales office via e-mail or telephone (details via salesaddresses@nexperia.com). Thank you for your cooperation and understanding,

Kind regards,

Team Nexperia

DATA SHEET



BCW61 series PNP general purpose transistors

Product data sheet
Supersedes data of 1997 May 28

1999 Apr 12

PNP general purpose transistors

BCW61 series

FEATURES

- Low current (max. 100 mA)
- Low voltage (max. 32 V).

APPLICATIONS

- General purpose switching and amplification.

DESCRIPTION

PNP transistor in a SOT23 plastic package.

NPN complement: BCW60.

MARKING

TYPE NUMBER	MARKING CODE ⁽¹⁾
BCW61B	BB*
BCW61C	BC*
BCW61D	BD*

Note

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

PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector

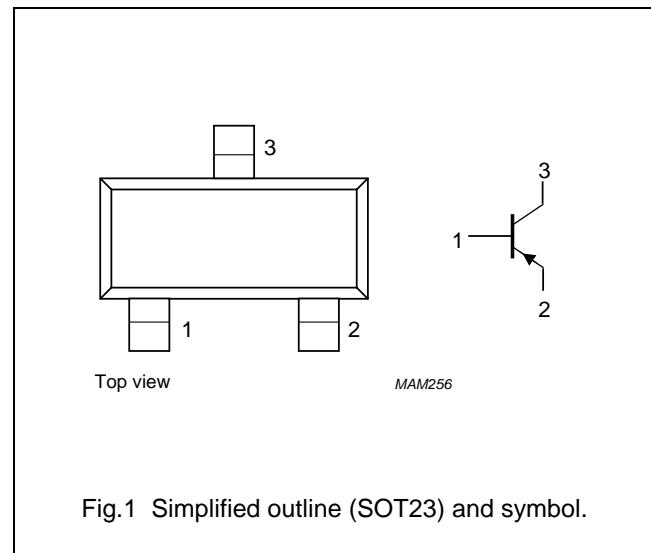


Fig.1 Simplified outline (SOT23) and symbol.

LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V_{CBO}	collector-base voltage	open emitter	–	–32	V
V_{CEO}	collector-emitter voltage	open base	–	–32	V
V_{EBO}	emitter-base voltage	open collector	–	–5	V
I_C	collector current (DC)		–	–100	mA
I_{CM}	peak collector current		–	–200	mA
I_{BM}	peak base current		–	–100	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25^\circ\text{C}$; note 1	–	250	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	operating ambient temperature		–65	+150	°C

Note

1. Transistor mounted on an FR4 printed-circuit board.

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THERMAL CHARACTERISTICS

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

Note

1. Transistor mounted on an FR4 printed-circuit board.

CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CBO}	collector cut-off current	$I_E = 0; V_{CB} = -32\text{ V}$	—	—	-20	nA
		$I_E = 0; V_{CB} = -32\text{ V}; T_{amb} = 150^\circ\text{C}$	—	—	-20	μA
I_{EBO}	emitter cut-off current	$I_C = 0; V_{EB} = -4\text{ V}$	—	—	-20	nA
h_{FE}	DC current gain BCW61B	$I_C = -10\text{ }\mu\text{A}; V_{CE} = -5\text{ V}$	30	—	—	
	BCW61C		40	—	—	
	BCW61D		100	—	—	
	DC current gain BCW61B	$I_C = -2\text{ mA}; V_{CE} = -5\text{ V}$	180	—	310	
	BCW61C		250	—	460	
	BCW61D		380	—	630	
	DC current gain BCW61B	$I_C = -50\text{ mA}; V_{CE} = -1\text{ V}$	80	—	—	
	BCW61C		100	—	—	
	BCW61D		110	—	—	
V_{CEsat}	collector-emitter saturation voltage	$I_C = -10\text{ mA}; I_B = -0.25\text{ mA}$	-60	—	-250	mV
		$I_C = -50\text{ mA}; I_B = -1.25\text{ mA}$	-120	—	-550	mV
V_{BEsat}	base-emitter saturation voltage	$I_C = -10\text{ mA}; I_B = -0.25\text{ mA}$	-600	—	-850	mV
		$I_C = -50\text{ mA}; I_B = -1.25\text{ mA}$	-0.68	—	-1.05	V
V_{BE}	base-emitter voltage	$I_C = -2\text{ mA}; V_{CE} = -5\text{ V}$	-600	-650	-750	mV
		$I_C = -10\text{ }\mu\text{A}; V_{CE} = -5\text{ V}$	—	-550	—	mV
		$I_C = -50\text{ mA}; V_{CE} = -1\text{ V}$	—	-720	—	mV
C_c	collector capacitance	$I_E = i_e = 0; V_{CB} = -10\text{ V}; f = 1\text{ MHz}$	—	4.5	—	pF
C_e	emitter capacitance	$I_C = i_e = 0; V_{EB} = -0.5\text{ V}; f = 1\text{ MHz}$	—	11	—	pF
f_T	transition frequency	$I_C = -10\text{ mA}; V_{CE} = -5\text{ V}; f = 100\text{ MHz}; \text{note 1}$	100	—	—	MHz
F	noise figure	$I_C = -200\text{ }\mu\text{A}; V_{CE} = -5\text{ V}; R_S = 2\text{ k}\Omega; f = 1\text{ kHz}; B = 200\text{ Hz}$	—	2	6	dB

Note

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

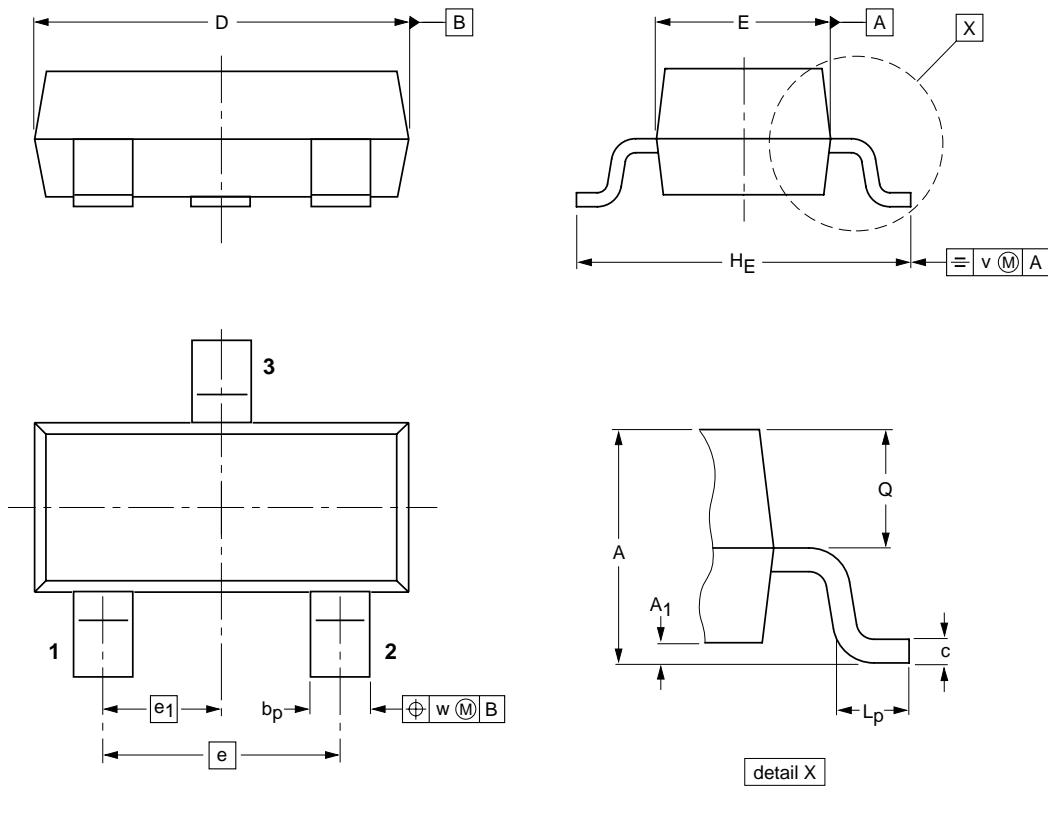
PNP general purpose transistors

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PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT23



DIMENSIONS (mm are the original dimensions)

UNIT	A	A ₁ max.	b _p	c	D	E	e	e ₁	H _E	L _p	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					97-02-28 99-09-13

PNP general purpose transistors

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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>

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