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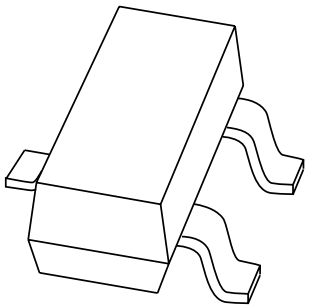
Team Nexperia

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

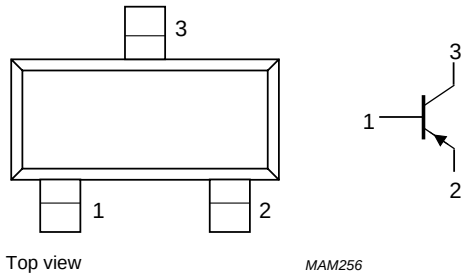


Fig.1 Simplified outline (SOT23) and symbol.

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	$T_{amb} \leq 25$ °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.

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
$R_{th\ j\text{-}a}$	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 °C unless otherwise specified.

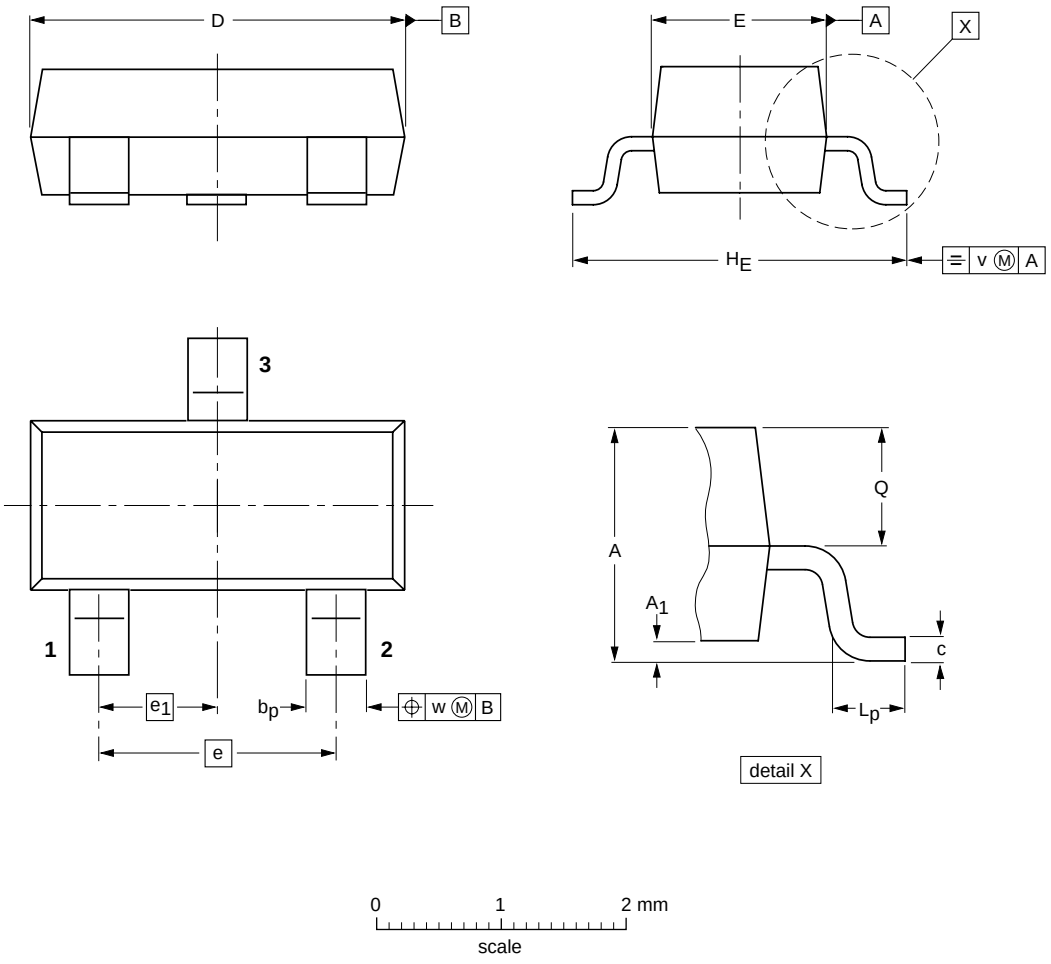
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CBO}	collector cut-off current	I_E = 0; V_{CB} = −32 V	–	–	−20	nA
		I_E = 0; V_{CB} = −32 V; T_{amb} = 150 °C	–	–	−20	μA
I_{EBO}	emitter cut-off current	I_C = 0; V_{EB} = −4 V	–	–	−20	nA
h_{FE}	DC current gain	I_C = −10 μA; V_{CE} = −5 V				
	BCW61B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

Note

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

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

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

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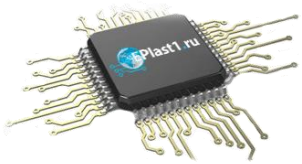

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