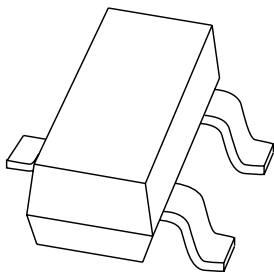


DATA SHEET



BCX71 series PNP general purpose transistors

Product data sheet
Supersedes data of 1999 Apr 20

2004 Feb 16

PNP general purpose transistors

BCX71 series

FEATURES

- Low current (max. 100 mA)
- Low voltage (max. 45 V)
- Low noise.

APPLICATIONS

- Low level, low noise, low frequency applications in hybrid circuits
- General purpose switching and amplification.

DESCRIPTION

PNP transistor in a plastic SOT23 package.
NPN complements: BCX70 series.

MARKING

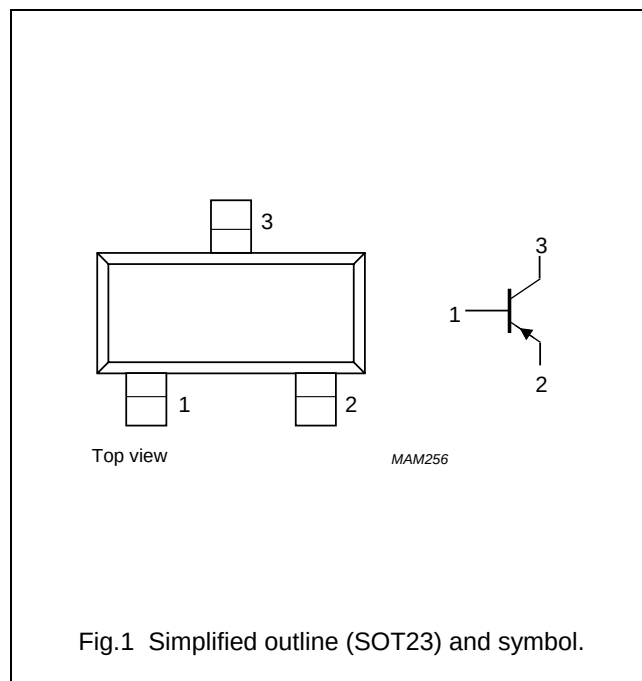
TYPE NUMBER	MARKING CODE ⁽¹⁾
BCX71H	BH*
BCX71J	BJ*
BCX71K	BK*

Note

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

PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector



ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
BCX71H	—	plastic surface mounted package; 3 leads	SOT23
BCX71J			
BCX71K			

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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	–	–45	V
V_{CEO}	collector-emitter voltage	open base	–	–45	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		–	–200	mA
P_{tot}	total power dissipation	$T_{amb} \leq 25\text{ °C}$	–	250	mW
T_{stg}	storage temperature		–65	+150	°C
T_j	junction temperature		–	150	°C
T_{amb}	operating ambient temperature		–65	+150	°C

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.

PNP general purpose transistors

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CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CBO}	collector-base cut-off current	$I_E = 0; V_{CB} = -45\text{ V}$	–	–	–20	nA
		$I_E = 0; V_{CB} = -45\text{ V}; T_{amb} = 150\text{ }^{\circ}\text{C}$	–	–	–20	μA
I_{EBO}	emitter-base cut-off current	$I_C = 0; V_{EB} = -4\text{ V}$	–	–	–20	nA
h_{FE}	DC current gain	$I_C = -10\text{ }\mu\text{A}; V_{CE} = -5\text{ V}$				
	BCX71H		30	–	–	
	BCX71J		40	–	–	
	BCX71K		100	–	–	
	DC current gain	$I_C = -2\text{ mA}; V_{CE} = -5\text{ V}$				
	BCX71H		180	–	310	
	BCX71J		250	–	460	
	BCX71K		380	–	630	
	DC current gain	$I_C = -50\text{ mA}; V_{CE} = -1\text{ V}; \text{note 1}$				
	BCX71H		80	–	–	
	BCX71J		100	–	–	
	BCX71K		110	–	–	
V_{CEsat}	collector-emitter saturation voltage	$I_C = -10\text{ mA}; I_B = -0.25\text{ mA}$	–60	–	–250	mV
		$I_C = -50\text{ mA}; I_B = -1.25\text{ mA}; \text{note 1}$	–120	–	–550	mV
V_{BEsat}	base-emitter saturation voltage	$I_C = -10\text{ mA}; I_B = -0.25\text{ mA}$	–600	–	–850	mV
		$I_C = -50\text{ mA}; I_B = -1.25\text{ mA}; \text{note 1}$	–680	–	–1050	mV
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
		$I_C = -50\text{ mA}; V_{CE} = -1\text{ V}; \text{note 1}$	–	–720	–	mV
C_c	collector capacitance	$I_E = I_C = 0; V_{CB} = -10\text{ V}; f = 1\text{ MHz}$	–	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	$I_C = -10\text{ mA}; V_{CE} = -5\text{ V}; f = 100\text{ MHz}$	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

The diagrams illustrate the SOT23 package outline. The top view shows dimensions D (width) and E (lead spacing). The side view shows dimensions A (height), H_E (lead height), A₁ (lead thickness), Q (lead width), c (lead thickness), L_p (lead length), v (lead width), and w (lead thickness). The bottom view shows dimensions e₁ (lead spacing), b_p (lead width), e (lead length), and pin numbers 1, 2, and 3. A scale bar indicates 0 to 2 mm.

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	JEITA			
SOT23		TO-236AB				04-11-04 06-03-16

PNP general purpose transistors

BCX71 series

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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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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