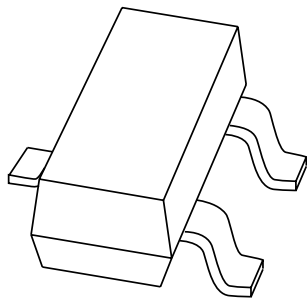


DATA SHEET



BCX71 series **PNP general purpose transistors**

Product specification
Supersedes data of 1997 Apr 18

1999 Apr 20

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⁾	TYPE NUMBER	MARKING CODE ⁽¹⁾
BCX71G	BG*	BCX71J	BJ*
BCX71H	BH*	BCX71K	BK*

Note

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

PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector

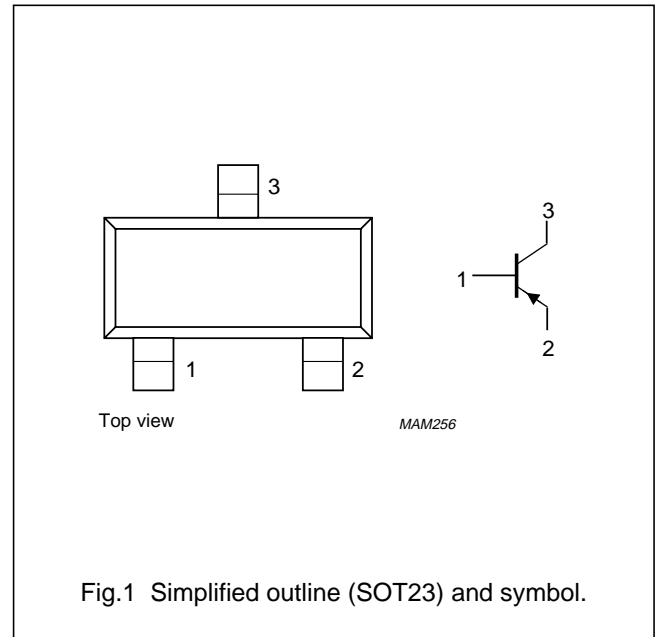


Fig.1 Simplified outline (SOT23) and symbol.

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	–	–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} ≤ 25 °C	–	250	mW
T _{stg}	storage temperature		–65	+150	°C
T _j	junction temperature		–	150	°C
T _{amb}	operating ambient temperature		–65	+150	°C

PNP general purpose transistors

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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

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

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT	
I_{CBO}	collector cut-off current	$I_E = 0; V_{CB} = -45\text{ V}$	–	–	–20	nA	
		$I_E = 0; V_{CB} = -45\text{ V}; T_{amb} = 150\text{ °C}$	–	–	–20	μA	
I_{EBO}	emitter cut-off current	$I_C = 0; V_{EB} = -4\text{ V}$	–	–	–20	nA	
h_{FE}	DC current gain	$I_C = -10\text{ }\mu\text{A}; V_{CE} = -5\text{ V}$	–	–	–		
			BCX71G	30	–	–	
			BCX71H	40	–	–	
			BCX71K	100	–	–	
	DC current gain	$I_C = -2\text{ mA}; V_{CE} = -5\text{ V}$	120	–	220		
			BCX71H	180	–	310	
			BCX71J	250	–	460	
			BCX71K	380	–	630	
	DC current gain	$I_C = -50\text{ mA}; V_{CE} = -1\text{ V}; \text{note 1}$	60	–	–		
			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	$I_E = I_e = 0; V_{CB} = -10\text{ V}; f = 1\text{ MHz}$	–	4.5	–	pF	
C_e	emitter capacitance	$I_C = I_c = 0; V_{EB} = -0.5\text{ V}; f = 1\text{ MHz}$	–	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

BCX71 series

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT23



PNP general purpose transistors

BCX71 series

DEFINITIONS

Data sheet status	
Objective specification	This data sheet contains target or goal specifications for product development.
Preliminary specification	This data sheet contains preliminary data; supplementary data may be published later.
Product specification	This data sheet contains final product specifications.
Limiting values	
Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). 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.	
Application information	
Where application information is given, it is advisory and does not form part of the specification.	

LIFE SUPPORT APPLICATIONS

These products are not designed for use in life support appliances, devices, or systems where malfunction of these products can reasonably be expected to result in personal injury. Philips customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Philips for any damages resulting from such improper use or sale.

PNP general purpose transistors

BCX71 series

NOTES

PNP general purpose transistors

BCX71 series

NOTES

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