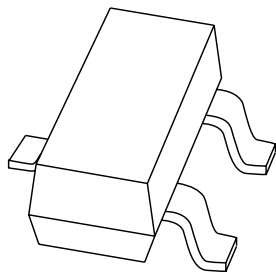


DATA SHEET



BCX70 series NPN general purpose transistors

Product data sheet
Supersedes data of 1999 Apr 15

2004 Jan 16

NPN general purpose transistors

BCX70 series

FEATURES

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

APPLICATIONS

- General purpose switching and amplification.

DESCRIPTION

NPN transistor in a SOT23 plastic package.
PNP complements: BCX71 series.

MARKING

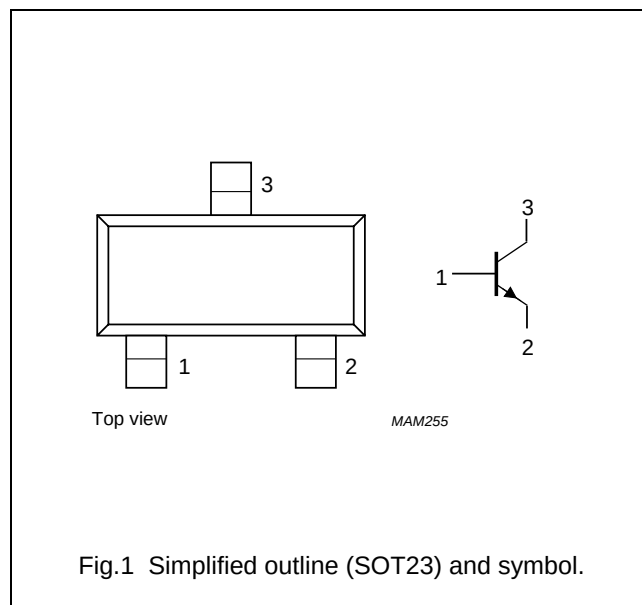
TYPE NUMBER	MARKING CODE ⁽¹⁾
BCX70G	AG*
BCX70H	AH*
BCX70J	AJ*
BCX70K	AK*

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
BCX70G	—	plastic surface mounted package; 3 leads	SOT23
BCX70H			
BCX70J			
BCX70K			

NPN general purpose transistors

BCX70 series

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.

NPN general purpose transistors

BCX70 series

CHARACTERISTICS

$T_{amb} = 25\text{ }^{\circ}\text{C}$ 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
		$I_E = 0; V_{CB} = 45\text{ V}; T_{amb} = 150\text{ }^{\circ}\text{C}$	—	—	20	μA
I_{EBO}	emitter cut-off current	$I_C = 0; V_{EB} = 4\text{ V}$	—	—	20	nA
h_{FE}	DC current gain	$I_C = 10\text{ }\mu\text{A}; V_{CE} = 5\text{ V}$				
	BCX70G		—	—	—	
	BCX70H		40	—	—	
	BCX70J		30	—	—	
	BCX70K		100	—	—	
	DC current gain	$I_C = 2\text{ mA}; V_{CE} = 5\text{ V}$				
	BCX70G		120	—	220	
	BCX70H		180	—	310	
	BCX70J		250	—	460	
	BCX70K		380	—	630	
	DC current gain	$I_C = 50\text{ mA}; V_{CE} = 1\text{ V}$				
	BCX70G		50	—	—	
	BCX70H		70	—	—	
	BCX70J		90	—	—	
	BCX70K		100	—	—	
V_{CEsat}	collector-emitter saturation voltage	$I_C = 10\text{ mA}; I_B = 0.25\text{ mA}$	50	—	350	mV
		$I_C = 50\text{ mA}; I_B = 1.25\text{ mA}$	100	—	550	mV
V_{BEsat}	base-emitter saturation voltage	$I_C = 10\text{ mA}; I_B = 0.25\text{ mA}$	600	—	850	mV
		$I_C = 50\text{ mA}; I_B = 1.25\text{ mA}$	700	—	1050	mV
V_{BE}	base-emitter voltage	$I_C = 10\text{ }\mu\text{A}; V_{CE} = 5\text{ V}$	—	520	—	mV
		$I_C = 2\text{ mA}; V_{CE} = 5\text{ V}$	550	650	750	mV
		$I_C = 50\text{ mA}; V_{CE} = 1\text{ V}$	—	780	—	mV
C_c	collector capacitance	$I_E = I_C = 0; V_{CB} = 10\text{ V}; f = 1\text{ MHz}$	—	1.7	—	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	$I_C = 10\text{ mA}; V_{CE} = 5\text{ V}; f = 100\text{ MHz};$ note 1	100	250	—	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: $t_p \leq 300\text{ }\mu\text{s}; \delta \leq 0.02$.

NPN general purpose transistors

BCX70 series

PACKAGE OUTLINE

Plastic surface-mounted package; 3 leads

SOT23

0 1 2 mm
scale

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