

## 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

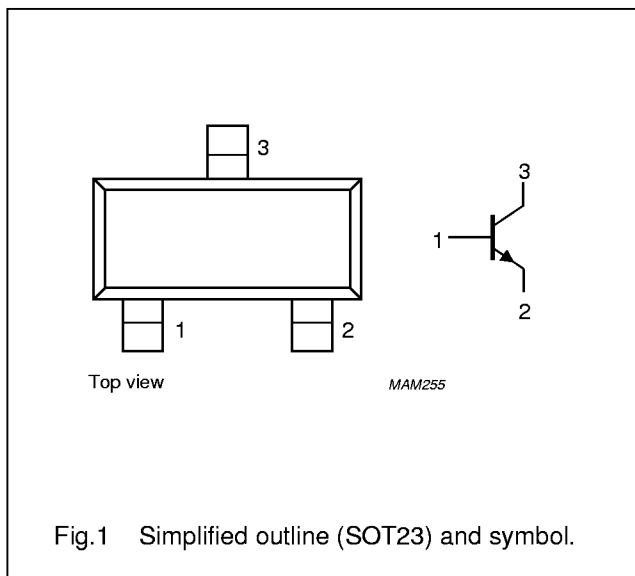
TYPE NUMBER	MARKING CODE <sup>(1)</sup>
BCX70G	AG*
BCX70H	AH*
BCX70J	AJ*
BCX70K	AK*

## Note

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

## PINNING

PIN	DESCRIPTION
1	base
2	emitter
3	collector



## 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	$T_{amb} \leq 25\text{ °C}$	–	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.

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**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	$\mu\text{A}$	
$I_{EBO}$	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	$I_E = I_e = 0; V_{CB} = 10\text{ V}; f = 1\text{ MHz}$	–	1.7	–	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	$I_C = 10\text{ mA}; V_{CE} = 5\text{ V}; f = 100\text{ MHz};$ 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:  $t_p \leq 300\text{ }\mu\text{s}; \delta \leq 0.02$ .

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PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT23

