

SOT-23 Formed SMD Package

**BCX70G BCX70H
BCX70J BCX70K**

SILICON PLANAR EPITAXIAL TRANSISTORS

N-P-N silicon transistors

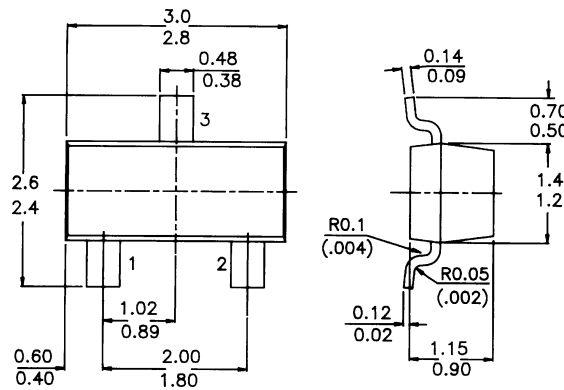
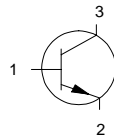
Marking

BCX70G = AG
BCX70H = AH
BCX70J = AJ
BCX70K = AK

**PACKAGE OUTLINE DETAILS
ALL DIMENSIONS IN mm**

Pin configuration

1 = BASE
2 = EMITTER
3 = COLLECTOR



ABSOLUTE MAXIMUM RATINGS

Collector-emitter voltage ($V_{BE} = 0$)
Collector-emitter voltage (open base)
Collector current (d.c.)
Total power dissipation at $T_{amb} = 25\text{ }^\circ\text{C}$
Junction temperature
Transition frequency at $f = 100\text{ MHz}$
 $V_{CE} = 5\text{ V}; I_C = 10\text{ mA}$
Noise figure at $f: 1\text{ kHz}$
 $V_{CE} = 5\text{ V}; I_C: 200\text{ mA}; B = 200\text{ Hz}$

V_{CES} max. 45 V
 V_{CE0} max. 45 V
 I_C max. 200 mA
 P_{tot} max. 250 mW
 T_j max. 150 °C
 f_T typ. 250 MHz
 F typ. 2 dB

RATINGS (at $T_A = 25^\circ\text{C}$ unless otherwise specified)

Limiting values
Collector-emitter voltage ($V_{BE} = 0$)
Collector-emitter voltage (open base)
Emitter-base voltage (open collector)

V_{CES} max. 45 V
 V_{CE0} max. 45 V
 V_{EB0} max. 5 V

**BCX70G BCX70H
BCX70J BCX70K**

Collector current (d.c.)	I_C	max.	200 mA
Base current	I_B	max.	50 mA
Total power dissipation up to $T_{amb} = 25\text{ }^\circ\text{C}$	P_{tot}	max.	250 mW
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$
Junction temperature	T_j	max.	150 $^\circ\text{C}$

THERMAL RESISTANCE

From junction to ambient	$R_{th\ j-a}$	=	500 kW
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CHARACTERISTICS

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

Collector-emitter cut-off current

$V_{BE} = 0$; $V_{CE} = 45\text{ V}$	I_{CES}	<	20 nA
$V_{BE} = 0$; $V_{CE} = 45\text{ V}$; $T_{amb} = 150\text{ }^\circ\text{C}$	I_{CES}	<	20 mA

Emitter-base cut-off current

$I_C = 0$; $V_{EB} = 4\text{ V}$	I_{EB0}	<	20 nA
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Saturation voltages

at $I_C = 10\text{ mA}$; $I_B = 0,25\text{ mA}$	V_{CEsat}	0,05 to 0,35 V
	V_{BEsat}	0,6 to 0,85 V
at $I_C = 50\text{ mA}$; $I_B = 1,25\text{ mA}$	V_{CEsat}	0,1 to 0,55 V
	V_{BEsat}	0,7 to 1,05 V

Transition frequency at $f = 100\text{ MHz}$ D

$I_C = 10\text{ mA}$; $V_{CE} = 5\text{ V}$	f_T	typ.	250 MHz
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Collector capacitance at $f = 1\text{ MHz}$

$I_E = I_e = 0$; $V_{CB} = 10\text{ V}$	C_c	typ.	2,5 pF
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Emitter capacitance at $f = 1\text{ MHz}$

$I_C = I_c = 0$; $V_{EB} = 0,5\text{ V}$	C_e	typ.	8 pF
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Noise figure at $R_S = 2\text{ kW}$,

$I_C = 200\text{ mA}$; $V_{CE} = 5\text{ V}$; $f = 1\text{ kHz}$; $B = 200\text{ Hz}$	F	<	6 dB
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		BCX70G	70H	70J	70K	
D.C. current gain						
$V_{CE} = 5\text{ V}$; $I_C = 10\text{ mA}$	h_{FE}	>	—	40	30	100
$V_{CE} = 5\text{ V}$; $I_C = 2\text{ mA}$	h_{FE}	>	120	180	250	380
		<	220	310	460	630
$V_{CE} = 1\text{ V}$; $I_C = 50\text{ mA}$	h_{FE}	>	50	70	90	100
Small-signal current gain						
$V_{CE} = 5\text{ V}$; $I_C = 2\text{ mA}$; $f = 1\text{ kHz}$	h_{fe}	>	125	175	250	350
		<	250	350	500	700
Output admittance						
$V_{CE} = 5\text{ V}$; $I_C = 2\text{ mA}$; $f = 1\text{ kHz}$	h_{oe}	typ.	18	24	30	50 mS
Base-emitter voltage						
$V_{CE} = 5\text{ V}$; $I_C = 2\text{ mA}$	V_{BE}		0,55 to 0,75		V	
		typ.	0,65		V	
$V_{CE} = 5\text{ V}$; $I_C = 10\text{ mA}$	V_{BE}	typ.	0,52		V	
$V_{CE} = 1\text{ V}$; $I_C = 50\text{ mA}$	V_{BE}	typ.	0,78		V	

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