

SILICON PLANAR EPITAXIAL TRANSISTORS

N-P-N silicon transistors

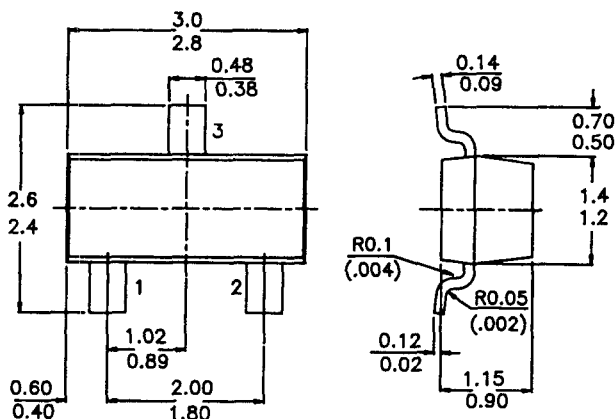
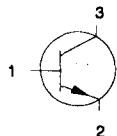
Marking

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 $T_{amb} = 25^\circ\text{C}$
Junction temperature
Transition frequency at $f = 100\text{ MHz}$
 $V_{CE} = 5\text{ V}$; $I_C = 10\text{ mA}$
Noise figure at $f: 1\text{ kHz}$
 $V_{CE} = 5\text{ V}$; $I_C: 200\text{ }\mu\text{A}$; $B = 200\text{ Hz}$

V_{CES}	max.	45 V
V_{CE0}	max.	45 V
I_C	max.	200 mA
P_{tot}	max.	250 mW
T_j	max.	150 $^\circ\text{C}$
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

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 K/W
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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
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$V_{BE} = 0$; $V_{CE} = 45\text{ V}$; $T_{amb} = 150\text{ }^{\circ}\text{C}$

I_{CES}	<	20 μA
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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
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V_{BEsat}	0,6 to 0,85	V
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at $I_C = 50\text{ mA}$; $I_B = 1,25\text{ mA}$

V_{CEsat}	0,1 to 0,55	V
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V_{BEsat}	0,7 to 1,05	V
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Transition frequency at $f = 100\text{ MHz}$ Δ

$I_C = 10\text{ mA}$; $V_{CE} = 5\text{ V}$

	>	125 MHz
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Collector capacitance at $f = 1\text{ MHz}$

$I_E = I_C = 0$; $V_{CB} = 10\text{ V}$

f_T	typ.	250 MHz
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Emitter capacitance at $f = 1\text{ MHz}$

$I_C = I_E = 0$; $V_{EB} = 0,5\text{ V}$

C_c	typ.	2,5 pF
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Noise figure at $R_S = 2\text{ k}\Omega$,

$I_C = 200\text{ }\mu\text{A}$; $V_{CE} = 5\text{ V}$; $f = 1\text{ kHz}$; $B = 200\text{ Hz}$

C_e	typ.	8 pF
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	typ.	2 dB
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F	<	6 dB
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			BCX70G	70H	70J	70K
D.C. current gain						
$V_{CE} = 5V; I_C = 10\mu A$	h_{FE}	>	—	40	30	100
$V_{CE} = 5V; I_C = 2mA$	h_{FE}	>	120	180	250	380
		<	220	310	460	630
$V_{CE} = 1V; I_C = 50mA$	h_{FE}	>	50	70	90	100
Small-signal current gain						
$V_{CE} = 5V; I_C = 2mA; f = 1kHz$	h_{fe}	>	125	175	250	350
		<	250	350	500	700
Output admittance						
$V_{CE} = 5V; I_C = 2mA; f = 1kHz$	h_{oe}	typ.	18	24	30	50 μS
Base-emitter voltage						
$V_{CE} = 5V; I_C = 2mA$	V_{BE}			0,55 to 0.75		V
		typ.		0,65		V
$V_{CE} = 5V; I_C = 10\mu A$	V_{BE}	typ.		0,52		V
$V_{CE} = 1V; I_C = 50mA$	V_{BE}	typ.		0,78		V