

SILICON PLANAR EPITAXIAL TRANSISTORS

P-N-P silicon transistors

Marking

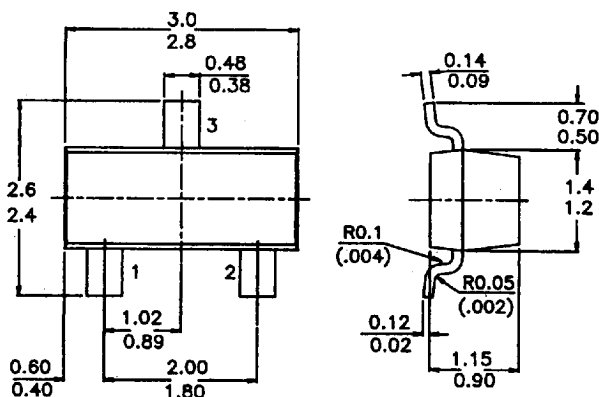
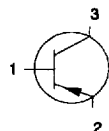
BCX71G = BG
BCX71H = BH
BCX71J = BJ
BCX71K = BK

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
Junction temperature
Transition frequency at $f = 100$ MHz
 $-V_{CE} = 5$ V; $-I_C = 10$ mA
Noise figure at $f = 1$ kHz
 $-V_{CE} = 5$ V; $-I_C = 200\mu A$

$-V_{CES}$	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.	180 MHz
F	typ.	2 dB

RATINGS (at $T_A = 25^\circ C$ 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 $T_{amb} = 25^\circ\text{C}$	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

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

$-I_C = 10\text{ mA}; -I_B = 0,25\text{ mA}$	$-V_{CEsat}$	0,06 to 0,25	V
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	$-V_{BEsat}$	0,6 to 0,85	V
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$-I_C = 50\text{ mA}; -I_B = 1,25\text{ mA}$	$-V_{CEsat}$	0,12 to 0,55	V
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	$-V_{BEsat}$	0,68 to 1,05	V
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Transition frequency at $f = 100\text{ MHz}$

$-V_{CE} = 5\text{ V}; -I_C = 10\text{ mA}$	f_T	typ.	180 MHz
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Collector capacitance at $f = 1\text{ MHz}$

$-V_{CB} = 10\text{ V}; I_E = I_c = 0$	C_c	typ.	4,5 pF
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Emitter capacitance at $f = 1\text{ MHz}$

$-V_{EB} = 0,5\text{ V}; I_C = I_c = 0$	C_e	typ.	11 pF
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Noise figure at $R_S = 2\text{ k}\Omega$

$-V_{CE} = 5\text{ V}; -I_C = 200\text{ }\mu\text{A}; B = 200\text{ Hz}$	F	typ.	2 dB
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		<	6 dB
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D.C. current gain

$-V_{CE} = 5\text{ V}; -I_C = 10\text{ }\mu\text{A}$	h_{FE}	>	-	30	40	100
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$-V_{CE} = 5\text{ V}; -I_C = 2\text{ mA}$	h_{FE}	>	120	180	250	380
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		<	220	310	460	630
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$-V_{CE} = 1\text{ V}; -I_C = 50\text{ mA}$	h_{FE}	>	60	80	100	110
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Small-signal current gain

$-V_{CE} = 5\text{ V}; -I_C = 2\text{ mA}; f = 1\text{ kHz}$	h_{fe}	>	125	175	250	350
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		<	250	350	500	700
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Output admittance

$-V_{CE} = 5\text{ V}; -I_C = 2\text{ mA}; f = 1\text{ kHz}$	h_{oe}	typ.	18	24	30	50 μS
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Base-emitter voltage

$-V_{CE} = 5\text{ V}; -I_C = 2\text{ mA}$	V_{BE}			0,6 to 0,75	V
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		typ.		0,65	V
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$-V_{CE} = 5\text{ V}; -I_C = 10\text{ }\mu\text{A}$	V_{BE}	typ.		0,55	V
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$-V_{CE} = 1\text{ V}; -I_C = 50\text{ mA}$	V_{BE}	typ.		0,72	V
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