

# NPN small signal transistor

## BCX70J, K

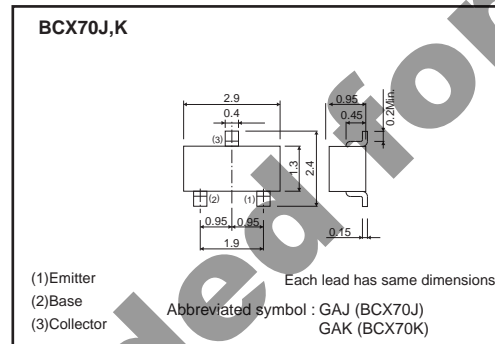
### ●Features

- 1) Ideal for switching and AF amplifier applications.
- 2) Complements the BCX71.

### ●Packaging specifications

Type	Package	Taping
	Code	T116
	Basic ordering unit (pieces)	3000
BCX70J, K		○

### ●Dimensions (Unit : mm)



### ●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-base voltage	$V_{CBO}$	45	V
Collector-emitter voltage	$V_{CEO}$	45	V
Emitter-base voltage	$V_{EBO}$	5	V
Collector current	$I_C$	0.2	A
Collector power dissipation	$P_C$	0.2	W
		0.35	W *
Junction temperature	$T_J$	150	°C
Storage temperature	$T_{stg}$	-55 to 150	°C

\* Mounted on a 7×5×0.6 mm CERAMIC SUBSTRATE

### ●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-emitter breakdown voltage	$BV_{CEO}$	45	-	-	V	$I_C = 2mA$
Emitter-base breakdown voltage	$BV_{EBO}$	5	-	-	V	$I_C = 10\mu A$
Collector-emitter cutoff current	$I_{CES}$	-	-	0.1	$\mu A$	$V_{CE} = 45V$
Emitter-base cutoff current	$I_{EBO}$	-	-	0.1	$\mu A$	$V_{EB} = 4V$
Collector-emitter saturation voltage	$V_{CE(sat)1}$	-	-	0.35	V	$I_C/I_B = 10mA / 0.25mA$
	$V_{CE(sat)2}$	-	-	0.55	V	$I_C/I_B = 50mA / 1.25mA$
Base-emitter saturation voltage	$V_{BE(sat)1}$	-	-	0.85	V	$I_C/I_B = 10mA / 0.25mA$
	$V_{BE(sat)2}$	-	-	1.05	V	$I_C/I_B = 50mA / 1.25mA$
Base-emitter voltage	$V_{BE(on)}$	0.55	-	0.75	V	$V_{CE} = 5V, I_C = 2mA$
DC current transfer ratio	$h_{FE1}$	250	-	630	-	$V_{CE} = 5V, I_C = 2mA$
	$h_{FE2}$	90	-	-	-	$V_{CE} = 5V, I_C = 50mA$
Transition frequency	$f_T$	125	-	-	MHz	$V_{CE} = 5V, I_E = 10mA, f = 100MHz$
Collector output capacitance	$C_{ob}$	-	-	4.5	pF	$V_{CB} = 10V, f = 1MHz, I_E = 0A$
Noise figure	NF	-	-	6	dB	$V_{CE} = 5V, I_C = 200\mu A, f = 1kHz, R_g = 2k\Omega$
Collector-base cutoff current	$I_{CBO}$	-	-	20	$\mu A$	$V_{CB} = 45V, T_a = 150^\circ C$

This parts are classified into the categories below and given  $h_{FE}$  item.

Part. No	BCX70J	BCX70K
$h_{FE1}$	250 to 460	380 to 630
$h_{FE2}$	90 or more	125 or more

●Electrical characteristics

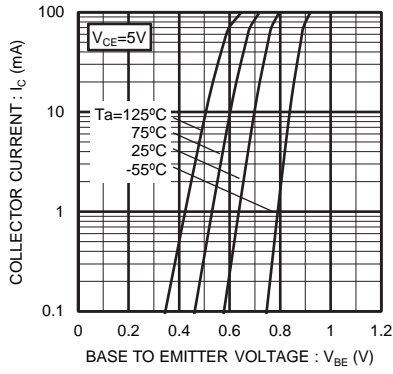


Fig1. Grounded Emitter Propagation Characteristics

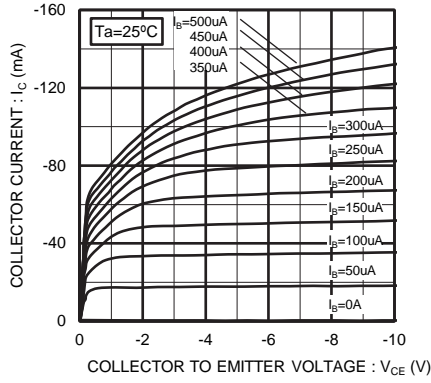


Fig2. Grounded Emitter Output Characteristics

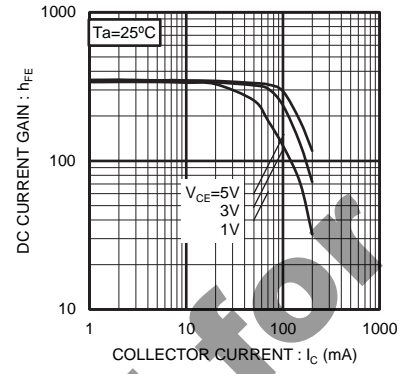


Fig3. DC Current Gain vs. Collector Current (I)

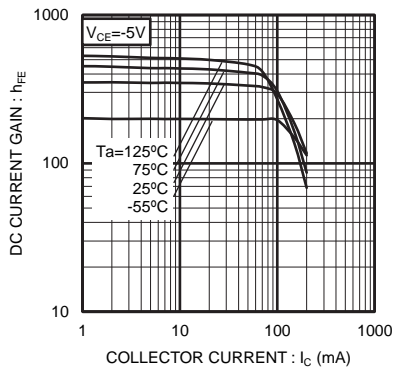


Fig4. DC Current Gain vs. Collector Current (II)

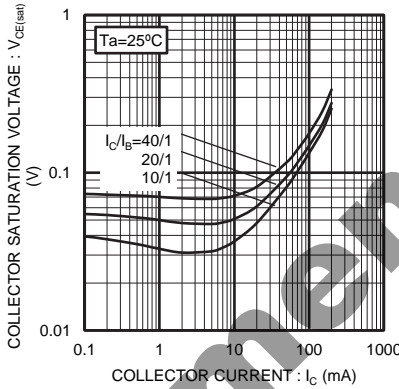


Fig5. Collector Saturation Voltage vs. Collector Current (I)

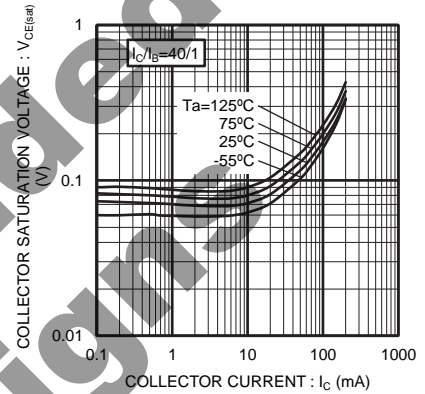


Fig6. Collector Saturation Voltage vs. Collector Current (II)

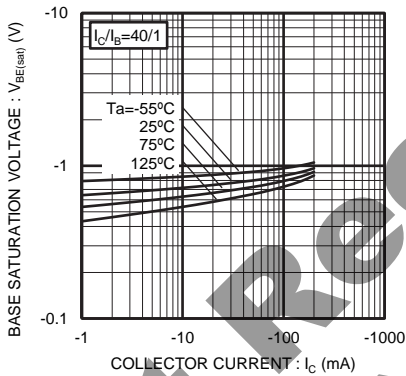


Fig7. Base Saturation Voltage vs. Collector Current

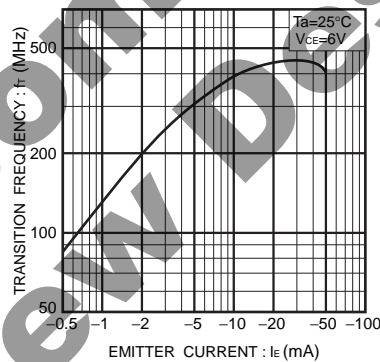


Fig8. Gain bandwidth product vs. emitter current

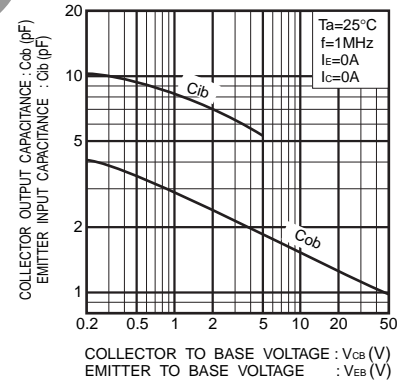


Fig9. Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage

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