

NPN small signal transistor

BCX70J, K

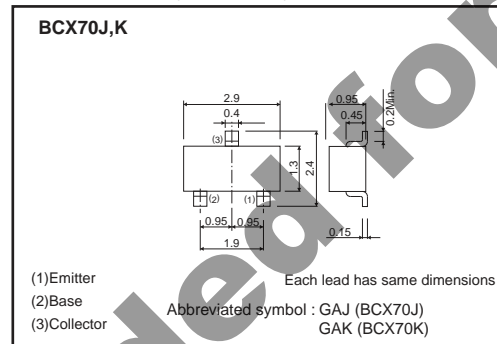
●Features

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

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

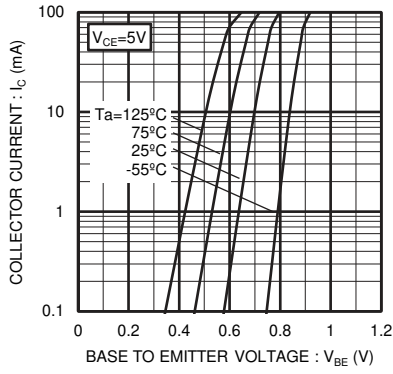


Fig1. Grounded Emitter Propagation Characteristics

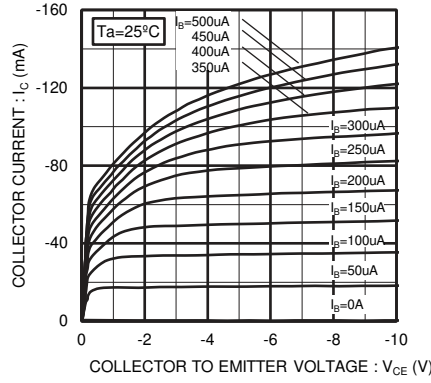


Fig2. Grounded Emitter Output Characteristics

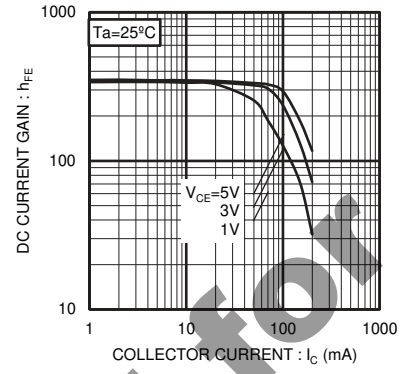


Fig3. DC Current Gain vs. Collector Current (I)

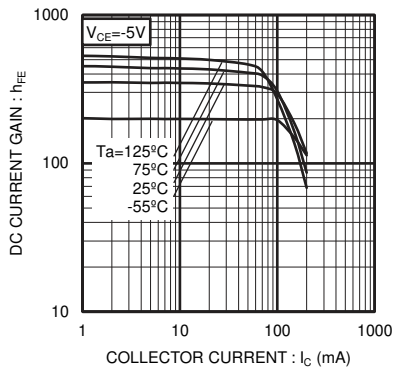


Fig4. DC Current Gain vs. Collector Current (II)

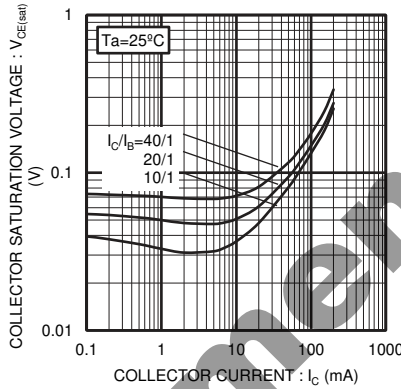


Fig5. Collector Saturation Voltage vs. Collector Current (I)

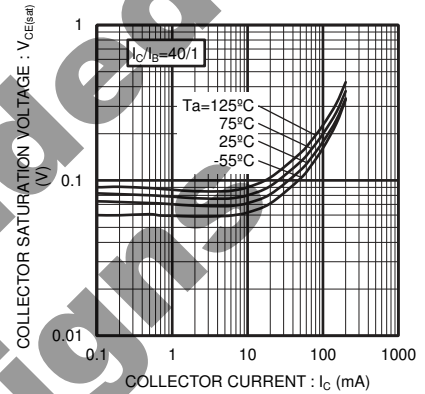


Fig6. Collector Saturation Voltage vs. Collector Current (II)

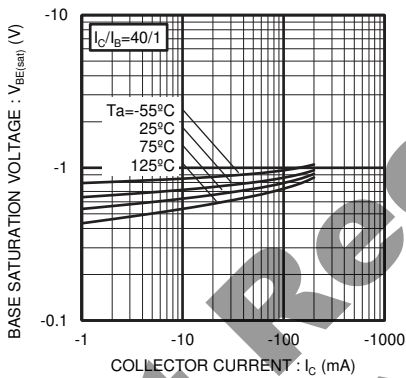


Fig7. Base Saturation Voltage vs. Collector Current

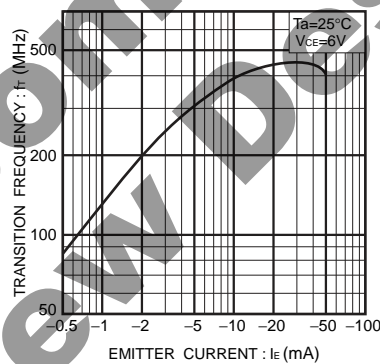


Fig8. Gain bandwidth product vs. emitter current

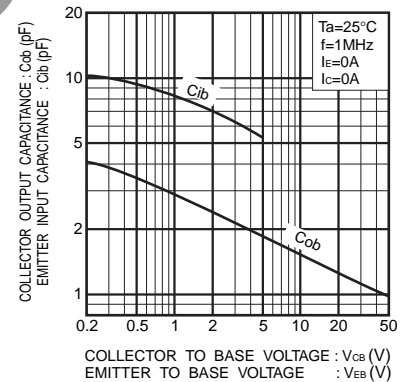


Fig9. Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

Notes

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