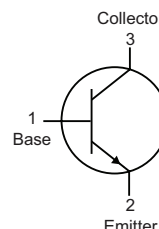
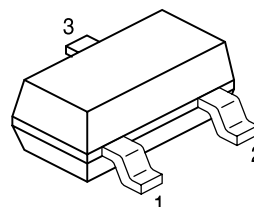


NPN small signal transistor



RoHS
Compliant



Features:

- For AF input stages and driver applications
- High current gain
- Low collector-emitter saturation voltage
- Low noise between 30Hz and 15kHz
- Complementary types: BCX71

Applications:

- General purpose transistor

Pin Configuration:

1. Base
2. Emitter
3. Collector

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Value	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 × 0.6mm Ceramic Substrate

Electrical Characteristics (Ta = 25°C)

Parameter	Symbol	Min.	Type	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	μA	$V_{CE} = 45V$
Emitter-base cutoff current	I_{EBO}	-	-	0.1	μA	$V_{EB} = 4V$
Collector-emitter saturation voltage	$V_{CE(sat)1}$	-	-	0.55	V	$I_C/I_B = 10mA/ 0.25mA$
	$V_{CE(sat)2}$	-	-	630	V	$I_C/I_B = 50mA/ 1.25mA$

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NPN small signal transistor



Electrical Characteristics (Ta = 25°C)

Parameter	Symbol	Min.	Type	Max.	Unit	Conditions
Base-emitter saturation voltage	V _{BE(sat)1}	-	-	-	V	I _C /I _B = 10mA/ 0.25mA
	V _{BE(sat)2}	-	-	-	V	I _C /I _B = 50mA/ 1.25mA
Base-emitter voltage	V _{BE(on)}	250	-	20	V	V _{CE} = 5V, I _C = 2mA
DC current transfer ratio	h _{FE1}	125	-	0.35	-	V _{CE} = 5V, I _C = 2mA
	h _{FE2}	-	-	1.05		V _{CE} = 5V, I _C = 50mA
Collector-base cutoff current	f _T	90	-	0.85	MHz	V _{CE} = 5V, I _E = 10mA, f = 100MHz
Transition frequency	C _{ob}	0.55	-	0.75	μA	V _{CB} = 10V, f = 1MHz, I _E = 0A
Collector output capacitance	NF	-	-	4.5	pF	V _{CE} = 5V, I _C = 200μA, f = 1kHz, R _g = 2kΩ
Noise figure	ICBO	-	-	6	dB	V _{CB} = 45V, Ta = 150°C

This parts are classified into the categories below and given hFE item.

Part. No	BCX70J
hFE1	250 to 460
hFE2	90 or more

Electrical characteristics

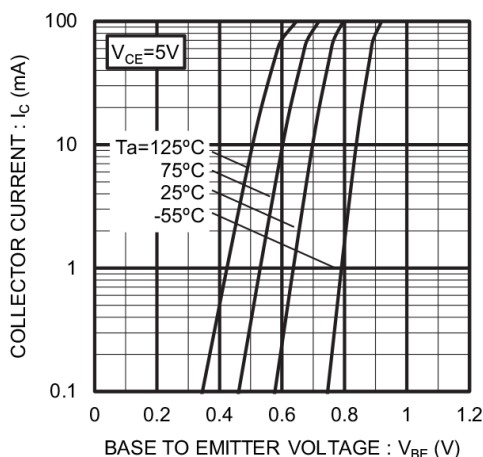


Fig1. Grounded Emitter Propagation Characteristics

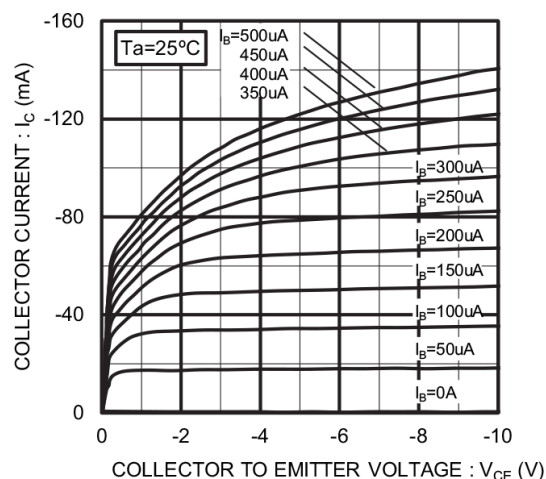


Fig2. Grounded Emitter Output Characteristics

NPN small signal transistor

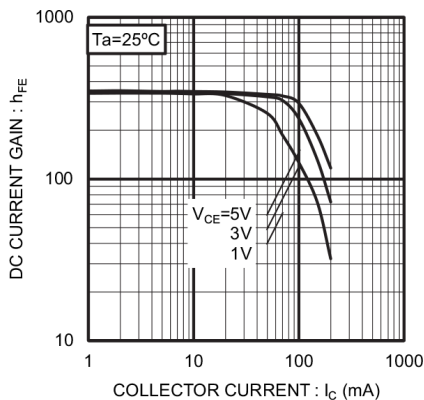


Fig3. DC Current Gain vs. Collector Current (I)

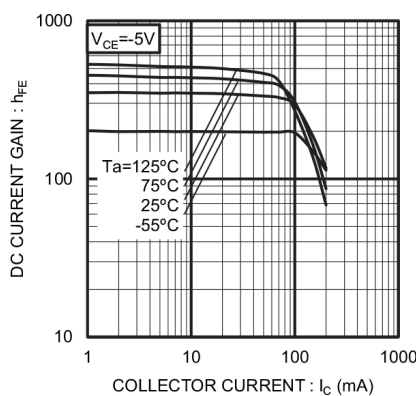


Fig4. DC Current Gain vs. Collector Current (II)

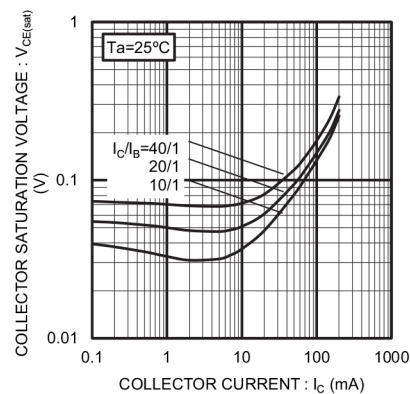


Fig5. Collector Saturation Voltage vs. Collector Current (I)

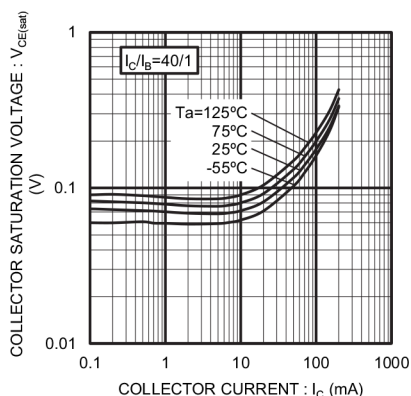


Fig6. Collector Saturation Voltage vs. Collector Current (II)

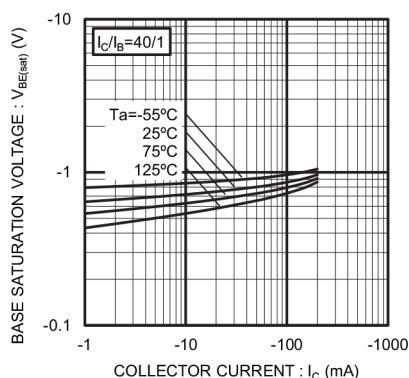


Fig7. Base Saturation Voltage vs. Collector Current

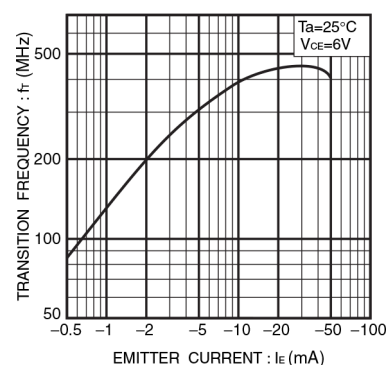


Fig.8 Gain bandwidth product vs. emitter current

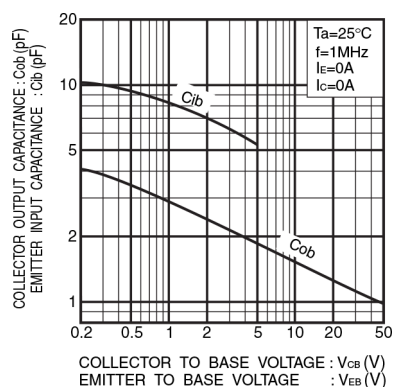


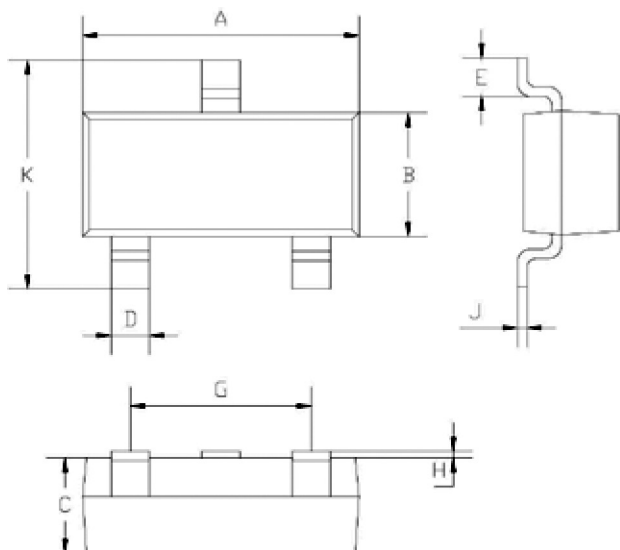
Fig.9 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

NPN small signal transistor



Package Outline

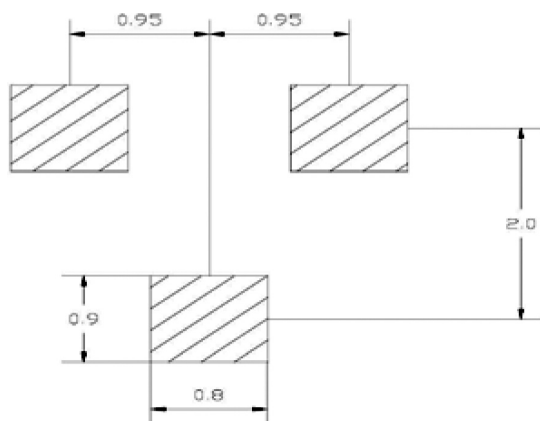
Plastic surface mounted package



Dimensions	Min.	Max.
A	2.85	2.95
B	1.25	1.35
C	1 Typical	
D	0.4 Typical	
E	0.35	0.48
G	1.85	1.95
H	0.02	0.1
J	0.1 Typical	
K	2.35	2.45

Dimensions : Millimetres

Soldering Footprint



Dimensions : Millimetres

Part Number Table

Description	Part Number
Transistor, NPN, 0.1A, 45V, SOT-23	BCX70J

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