

# 2SB0709A (2SB709A)

## Silicon PNP epitaxial planar type

For general amplification

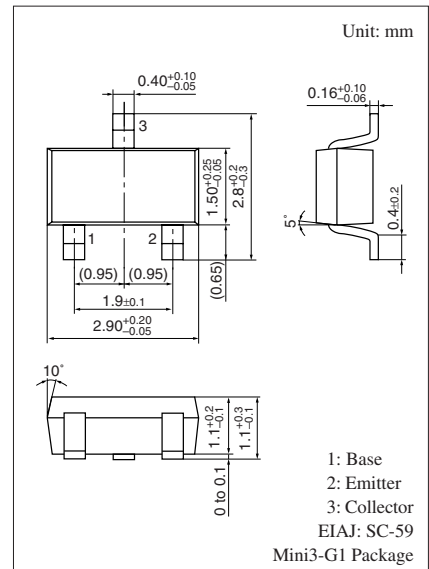
Complementary to 2SD0601A (2SD601A)

### ■ Features

- High forward current transfer ratio  $h_{FE}$
- Mini type package, allowing downsizing of the equipment and automatic insertion through the tape packing and the magazine packing.

### ■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	$V_{CBO}$	-45	V
Collector-emitter voltage (Base open)	$V_{CEO}$	-45	V
Emitter-base voltage (Collector open)	$V_{EBO}$	-7	V
Collector current	$I_C$	-100	mA
Peak collector current	$I_{CP}$	-200	mA
Collector power dissipation	$P_C$	200	mW
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$



Marking Symbol: B

### ■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	$V_{CBO}$	$I_C = -10 \mu\text{A}$ , $I_E = 0$	-45			V
Collector-emitter voltage (Base open)	$V_{CEO}$	$I_C = -2 \text{ mA}$ , $I_B = 0$	-45			V
Emitter-base voltage (Collector open)	$V_{EBO}$	$I_E = -10 \mu\text{A}$ , $I_C = 0$	-7			V
Collector-base cutoff current (Emitter open)	$I_{CBO}$	$V_{CB} = -20 \text{ V}$ , $I_E = 0$			-0.1	$\mu\text{A}$
Collector-emitter cutoff current (Base open)	$I_{CEO}$	$V_{CE} = -10 \text{ V}$ , $I_B = 0$			-100	$\mu\text{A}$
Forward current transfer ratio *	$h_{FE}$	$V_{CE} = -10 \text{ V}$ , $I_C = -2 \text{ mA}$	160		460	—
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -100 \text{ mA}$ , $I_B = -10 \text{ mA}$		-0.3	-0.5	V
Transition frequency	$f_T$	$V_{CB} = -10 \text{ V}$ , $I_E = 1 \text{ mA}$ , $f = 200 \text{ MHz}$		80		MHz
Collector output capacitance (Common base, input open circuited)	$C_{ob}$	$V_{CB} = -10 \text{ V}$ , $I_E = 0$ , $f = 1 \text{ MHz}$		2.7		pF

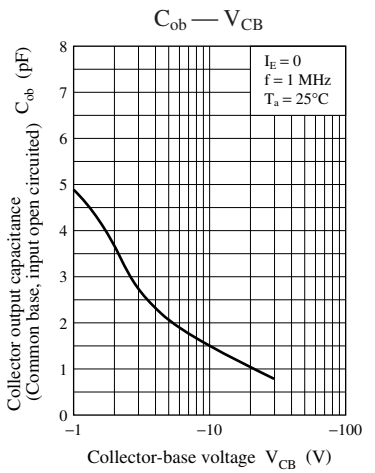
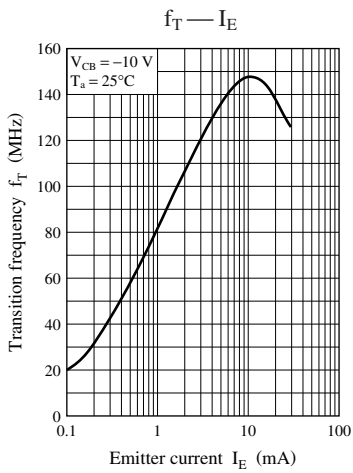
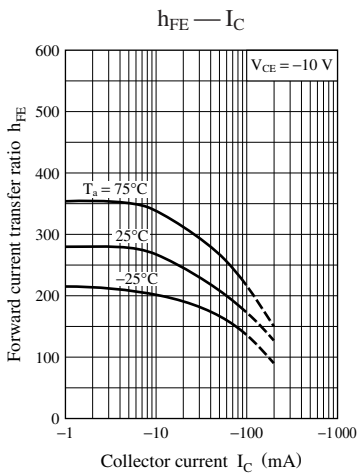
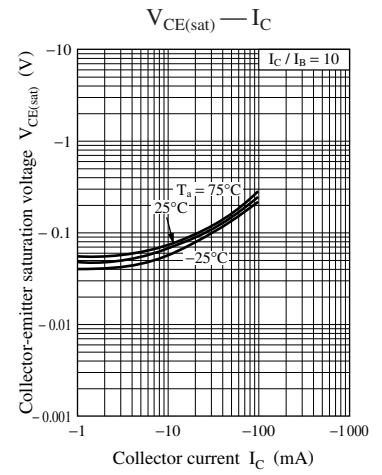
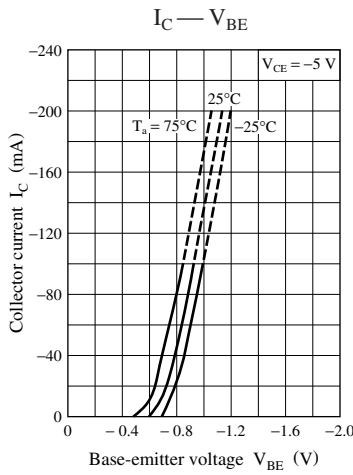
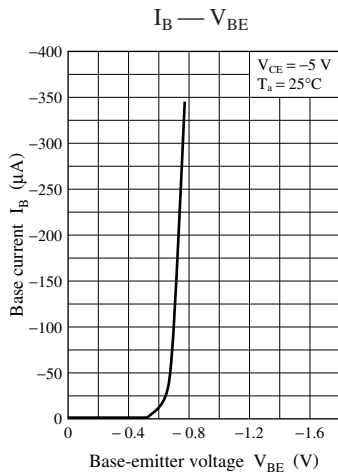
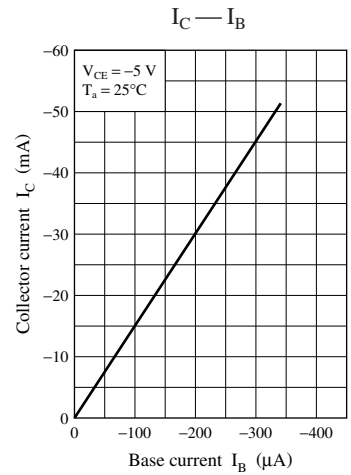
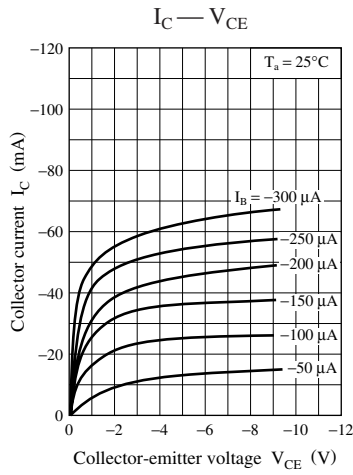
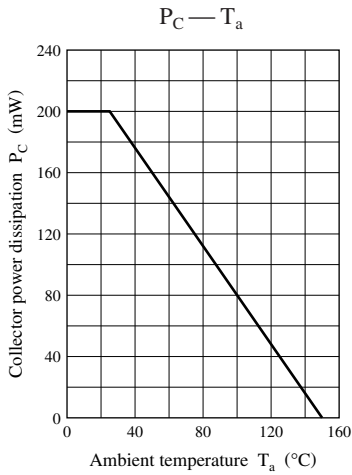
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. \*: Rank classification

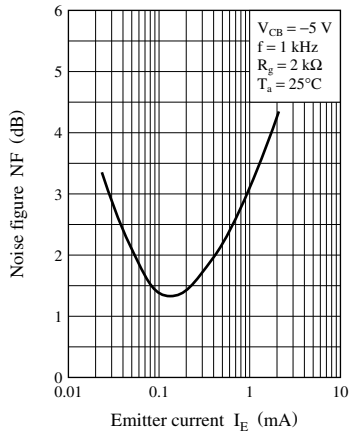
Rank	Q	R	S	No-rank
$h_{FE}$	160 to 260	210 to 340	290 to 460	160 to 460
Marking symbol	BQ	BR	BS	B

Product of no-rank is not classified and have no marking symbol for rank.

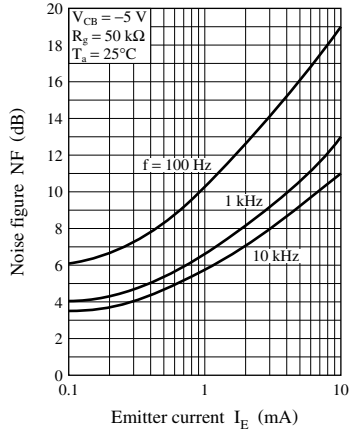
Note) The part number in the parenthesis shows conventional part number.



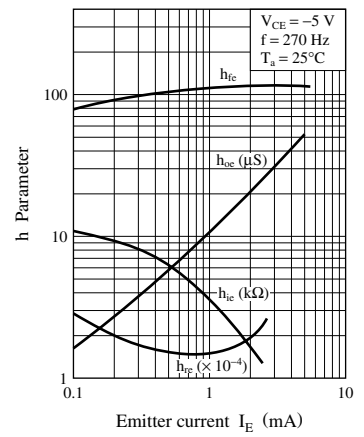
NF —  $I_E$



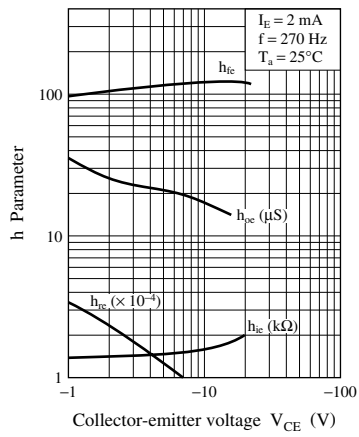
NF —  $I_E$



h Parameter —  $I_E$



h Parameter —  $V_{CE}$



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