

# XN02401 (XN2401)

## Silicon PNP epitaxial planar type

For general amplification

### ■ Features

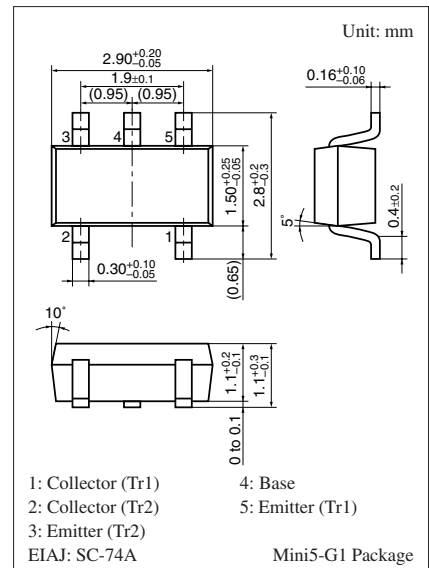
- Two elements incorporated into one package  
(Base-coupled transistors)
- Reduction of the mounting area and assembly cost by one half

### ■ Basic Part Number

- 2SB0709A (2SB709A) × 2

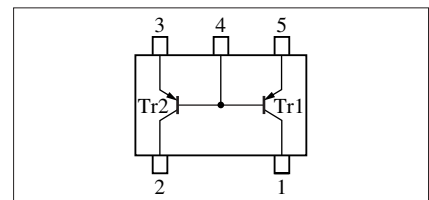
### ■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	$V_{CBO}$	-60	V
Collector-emitter voltage (Base open)	$V_{CEO}$	-50	V
Emitter-base voltage (Collector open)	$V_{EBO}$	-7	V
Collector current	$I_C$	-100	mA
Peak collector current	$I_{CP}$	-200	mA
Total power dissipation	$P_T$	300	mW
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$



Marking Symbol: 7R

Internal Connection

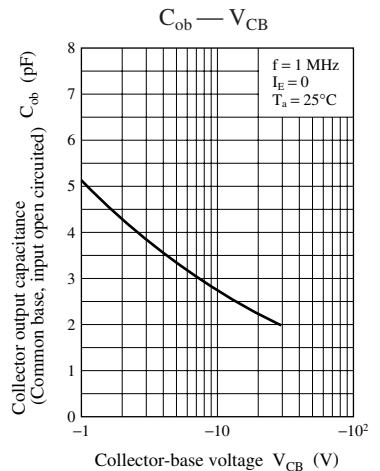
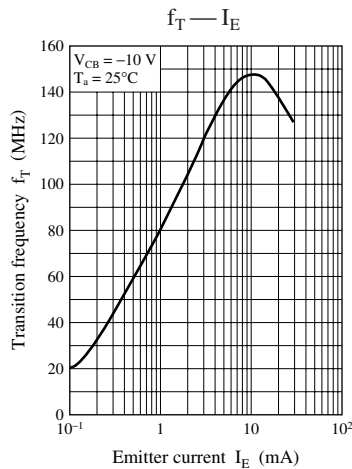
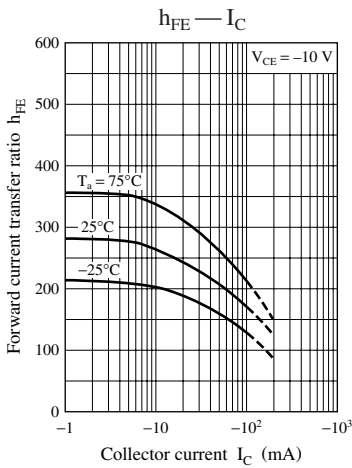
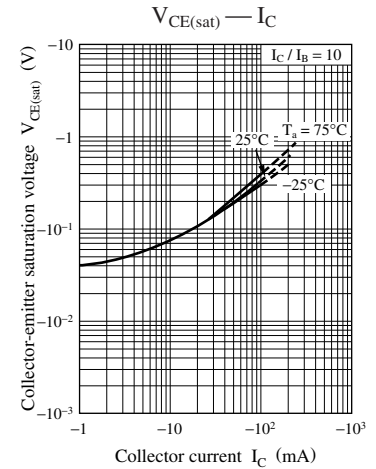
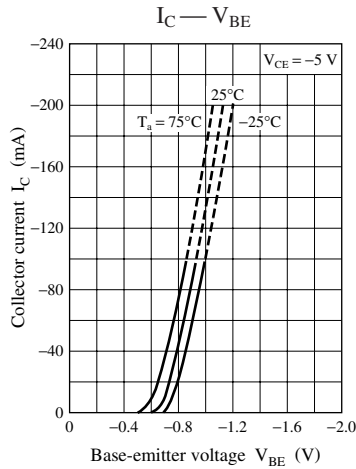
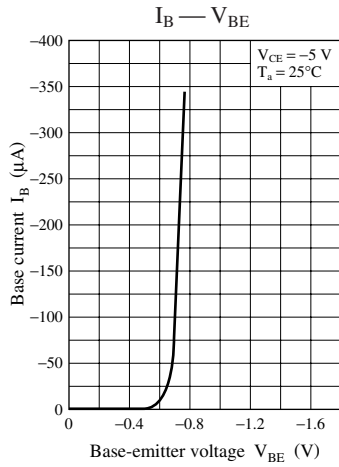
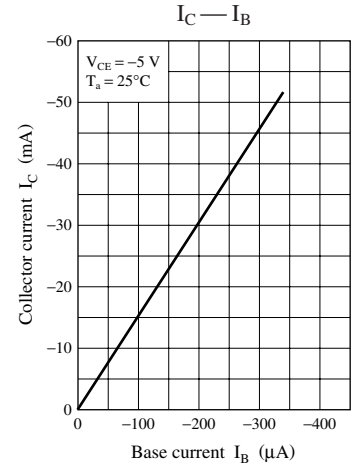
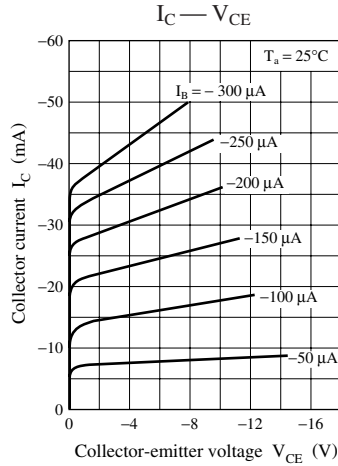
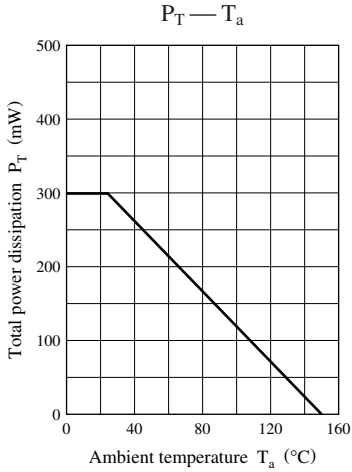


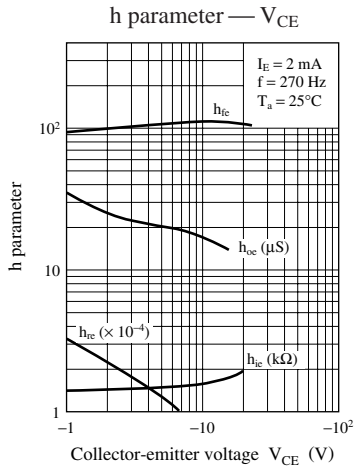
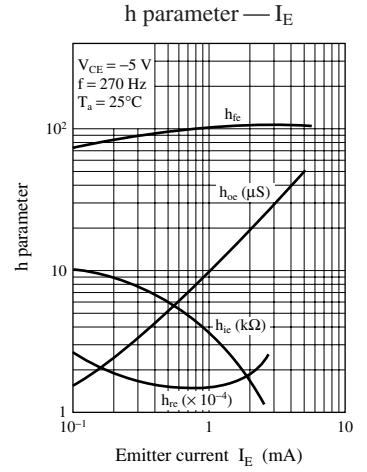
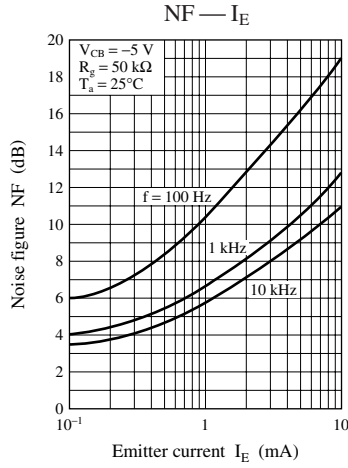
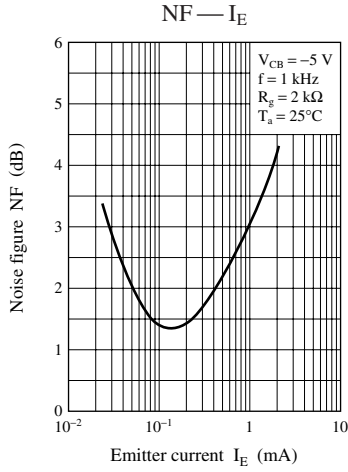
### ■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	$V_{CBO}$	$I_C = -10 \mu\text{A}$ , $I_E = 0$	-60			V
Collector-emitter voltage (Base open)	$V_{CEO}$	$I_C = -2 \text{ mA}$ , $I_B = 0$	-50			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	—
$h_{FE}$ ratio *	$h_{FE(\text{Small/Large})}$	$V_{CE} = -10 \text{ V}$ , $I_C = -2 \text{ mA}$	0.50	0.99		—
Collector-emitter saturation voltage	$V_{CE(\text{sat})}$	$I_C = -100 \text{ mA}$ , $I_B = -10 \text{ mA}$		-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. \*: Ratio between 2 elements

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





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