

# 2SA1309A

## Silicon PNP epitaxial planar type

For low-frequency amplification

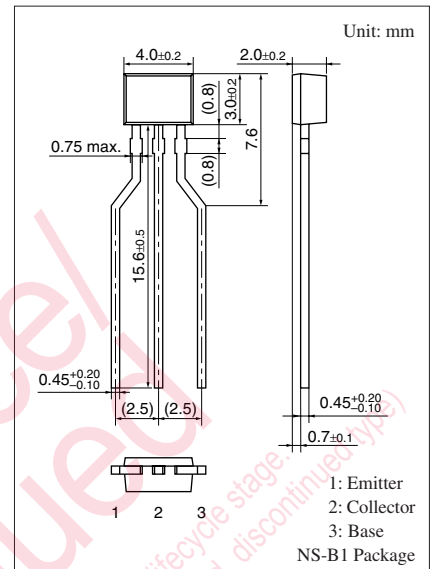
Complementary to 2SC3311A

### ■ Features

- High forward current transfer ratio  $h_{FE}$
- Allowing supply with the radial taping
- Optimum for high-density mounting

### ■ 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
Collector power dissipation	$P_C$	300	mW
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$



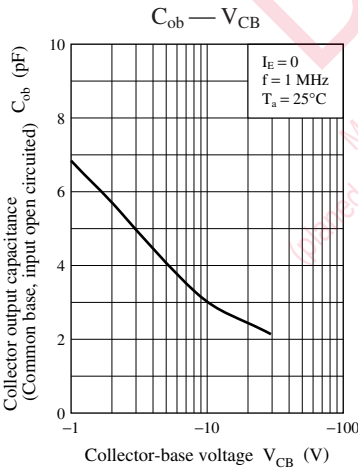
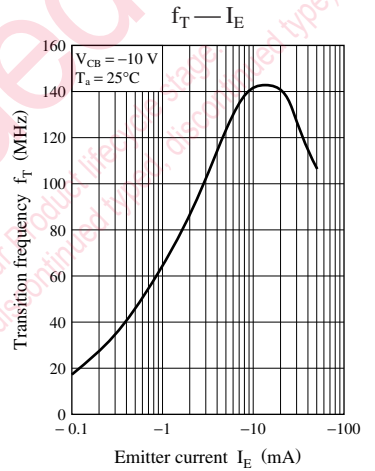
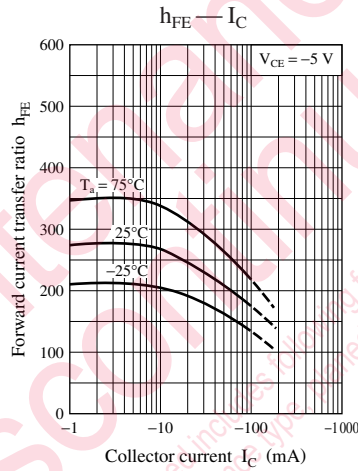
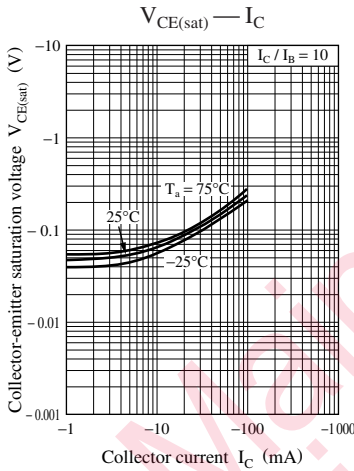
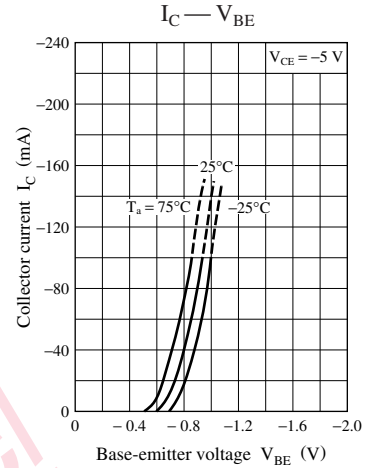
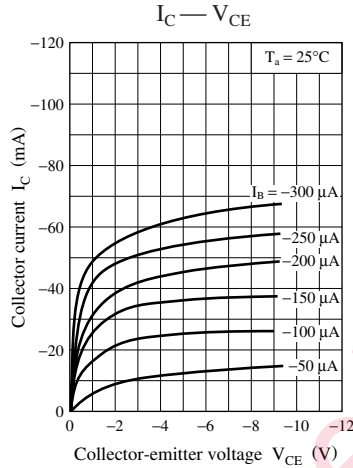
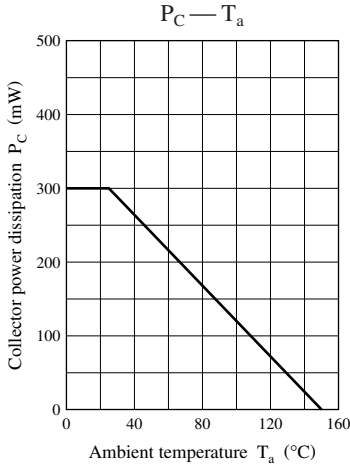
### ■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

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)	$I_{CBO}$	$V_{CB} = -10 \text{ V}$ , $I_E = 0$			-100	nA
Collector-emitter cutoff current (Base open)	$I_{CEO}$	$V_{CE} = -10 \text{ V}$ , $I_B = 0$			-1	$\mu\text{A}$
Forward current transfer ratio *	$h_{FE}$	$V_{CE} = -10 \text{ V}$ , $I_C = -2 \text{ mA}$	160		460	—
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -50 \text{ mA}$ , $I_B = -5 \text{ mA}$			-0.3	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)	$C_{ob}$	$V_{CB} = -10 \text{ V}$ , $I_E = 0$ , $f = 1 \text{ MHz}$		3.5		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



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