# 2SC3311A

### Silicon NPN epitaxial planar type

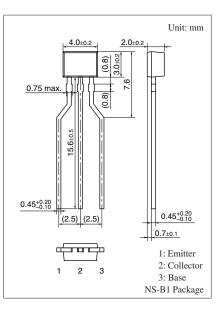
For low-frequency amplification Complementary to 2SA1309A

#### Features

- Optimum for high-density mounting
- Allowing supply with the radial taping

Parameter	Symbol	Rating	Unit				
Collector-base voltage (Emitter open)	V <sub>CBO</sub>	60	V				
Collector-emitter voltage (Base open)	V <sub>CEO</sub>	50	V				
Emitter-base voltage (Collector open)	V <sub>EBO</sub>	7	V				
Collector current	I <sub>C</sub>	100	mA				
Peak collector current	I <sub>CP</sub>	200	mA				
Collector power dissipation	P <sub>C</sub>	300	mW				
Junction temperature	Tj	150	°C				
Storage temperature	T <sub>stg</sub>	-55 to +150	°C				





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

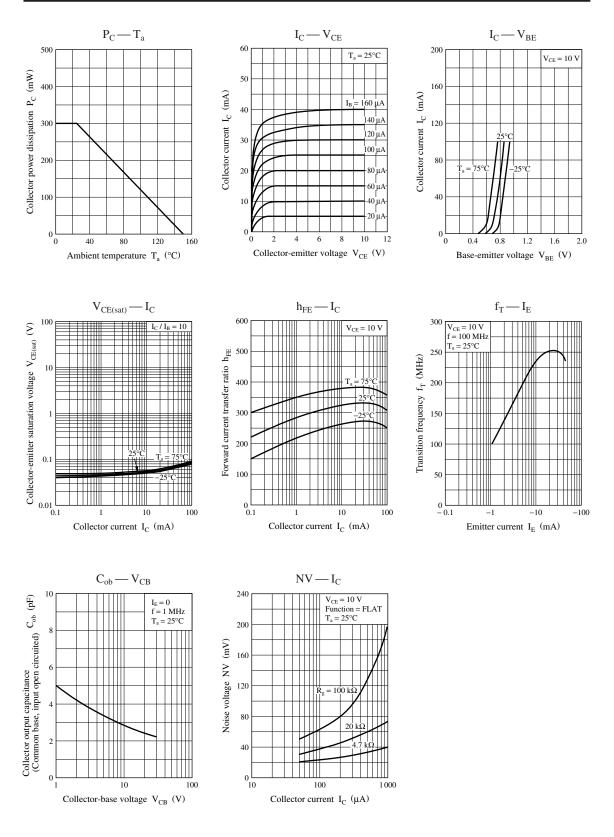
Parameter	Symbol	Conditions Min		Тур	Мах	Unit
Collector-base voltage (Emitter open)	V <sub>CBO</sub>	$I_{\rm C} = 10 \ \mu A, \ I_{\rm E} = 0$	60			V
Collector-emitter voltage (Base open)	V <sub>CEO</sub>	$I_{\rm C} = 2  {\rm mA},  I_{\rm B} = 0$	50			V
Emitter-base voltage (Collector open)	V <sub>EBO</sub>	$I_{\rm E} = 10 \ \mu A, \ I_{\rm C} = 0$	7			V
Collector-base cutoff current (Emitter open)	I <sub>CBO</sub>	$V_{CB} = 10 \text{ V}, I_E = 0$			0.1	μΑ
Collector-emitter cutoff current (Base open)	I <sub>CEO</sub>	$V_{CE} = 10 \text{ V}, I_B = 0$			1	μΑ
Forward current transfer ratio *	h <sub>FE</sub>	$V_{CE} = 10 \text{ V}, \text{ I}_{C} = 2 \text{ mA}$	160		460	
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	$I_{\rm C} = 100 \text{ mA}, I_{\rm B} = 10 \text{ mA}$		0.1	0.3	V
Transition frequency	f <sub>T</sub>	$V_{CB} = 10 \text{ V}, I_E = -2 \text{ mA}, f = 200 \text{ MHz}$		150		MHz
Collector output capacitance	C <sub>ob</sub>	$V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$		3.5		pF
(Common base, input open circuited)						

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 <sub>FE</sub>	160 to 260	210 to 340	290 to 460	160 to 460

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

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