

# 2SD1149

## Silicon NPN epitaxial planar type

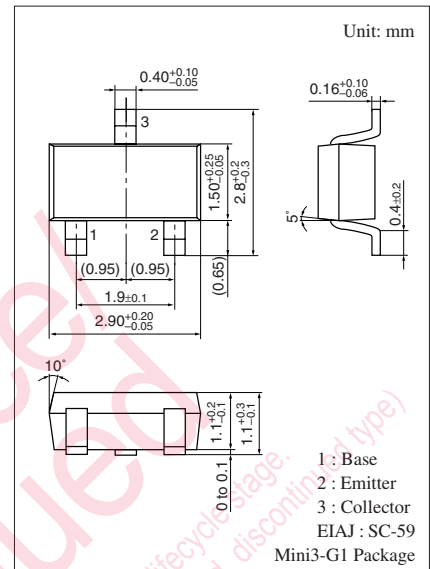
For low-frequency amplification

### ■ Features

- High forward current transfer ratio  $h_{FE}$
- Low collector-emitter saturation voltage  $V_{CE(sat)}$
- High emitter-base voltage (Collector open)  $V_{EBO}$
- 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)	$V_{CBO}$	100	V
Collector-emitter voltage (Base open)	$V_{CEO}$	100	V
Emitter-base voltage (Collector open)	$V_{EBO}$	15	V
Collector current	$I_C$	20	mA
Peak collector current	$I_{CP}$	50	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: 1V

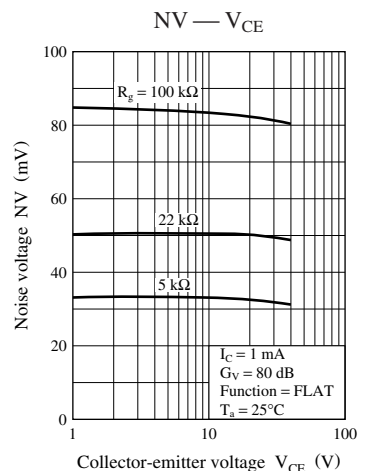
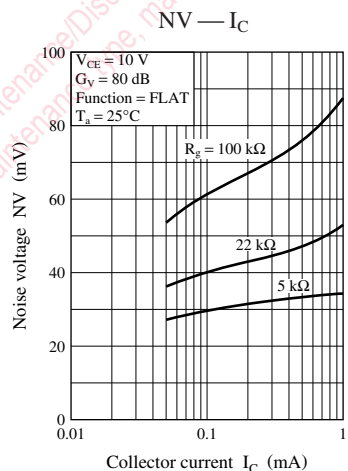
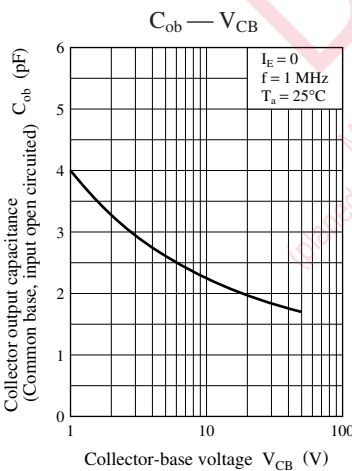
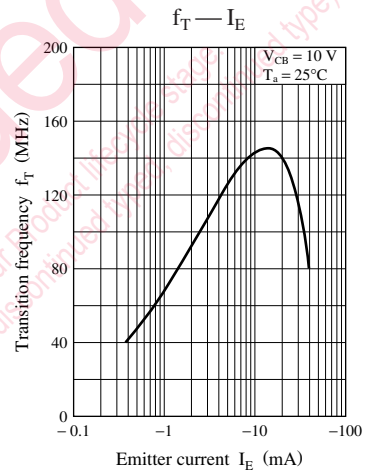
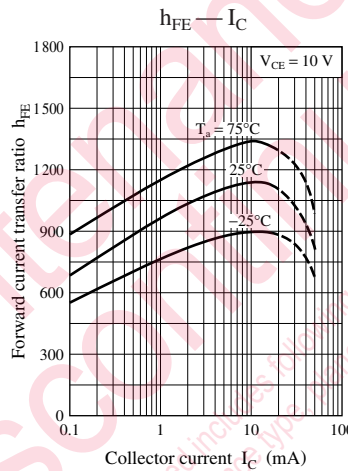
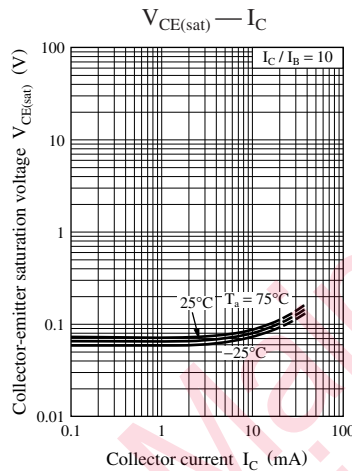
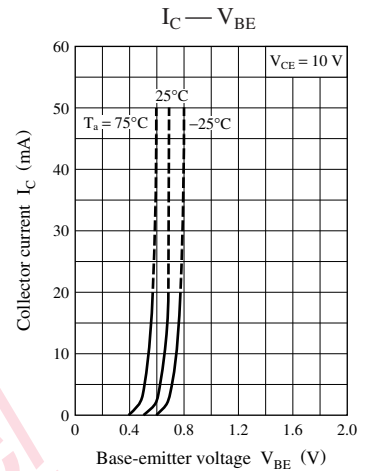
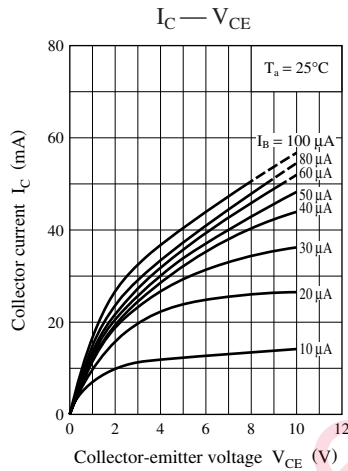
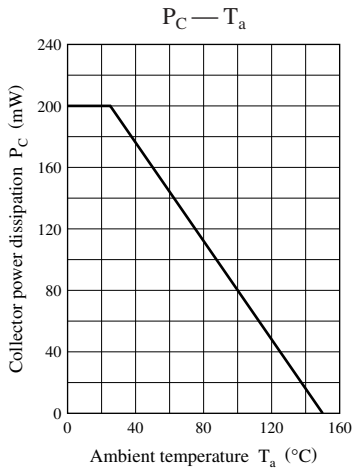
### ■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	$V_{CBO}$	$I_C = 10 \mu\text{A}, I_E = 0$	100			V
Collector-emitter voltage (Base open)	$V_{CEO}$	$I_C = 1 \text{ mA}, I_B = 0$	100			V
Emitter-base voltage (Collector open)	$V_{EBO}$	$I_E = 10 \mu\text{A}, I_C = 0$	15			V
Collector-base cutoff current (Emitter open)	$I_{CBO}$	$V_{CB} = 60 \text{ V}, I_E = 0$			0.1	$\mu\text{A}$
Collector-emitter cutoff current (Base open)	$I_{CEO}$	$V_{CE} = 60 \text{ V}, I_B = 0$			1.0	$\mu\text{A}$
Forward current transfer ratio *	$h_{FE}$	$V_{CE} = 10 \text{ V}, I_C = 2 \text{ mA}$	400		1200	—
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = 10 \text{ mA}, I_B = 1 \text{ mA}$		0.05	0.20	V
Transition frequency	$f_T$	$V_{CB} = 10 \text{ V}, I_E = -2 \text{ mA}, f = 200 \text{ MHz}$		100		MHz

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

2. \*: Rank classification

Rank	R	S
$h_{FE}$	400 to 800	600 to 1200



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