

# 2SA1128

## Silicon PNP epitaxial planar type

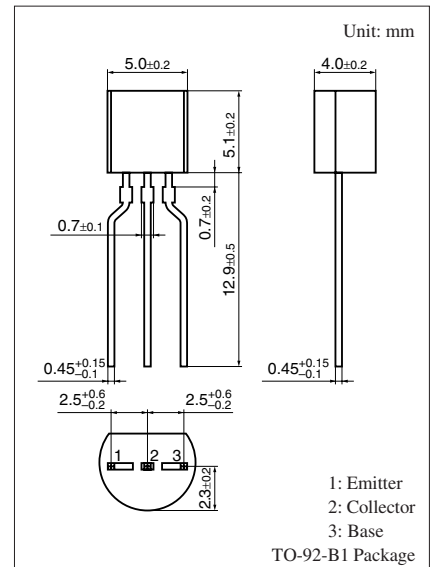
For low-frequency output amplification

### ■ Features

- Low collector-emitter saturation voltage  $V_{CE(sat)}$
- Optimum for low-voltage operation and for converter circuits.

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

Parameter	Symbol	Rating	Unit
Collector-base voltage (Emitter open)	$V_{CBO}$	-25	V
Collector-emitter voltage (Base open)	$V_{CEO}$	-20	V
Emitter-base voltage (Collector open)	$V_{EBO}$	-7	V
Collector current	$I_C$	-0.5	A
Peak collector current	$I_{CP}$	-1	A
Collector power dissipation	$P_C$	0.6	W
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$



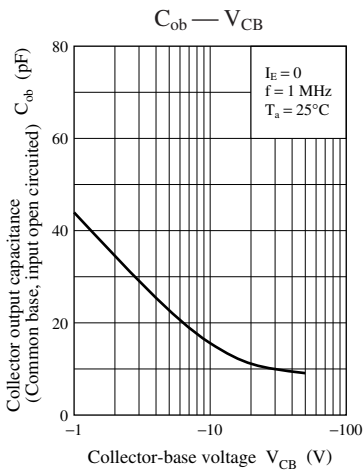
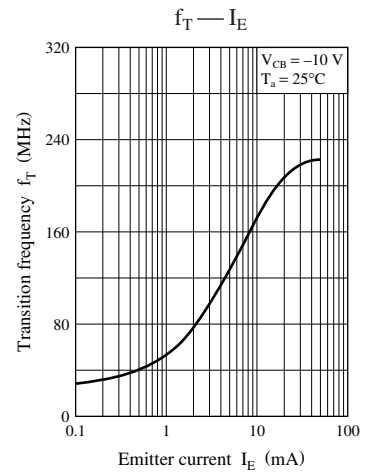
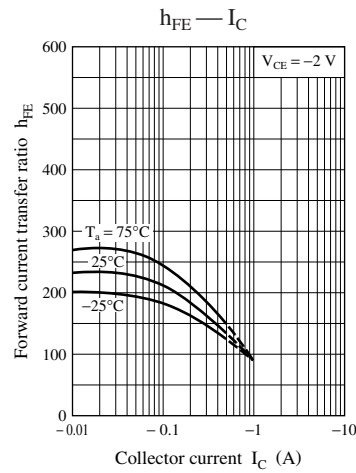
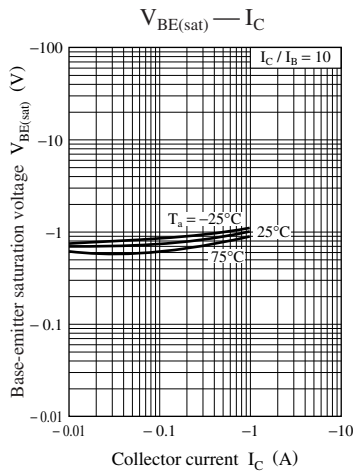
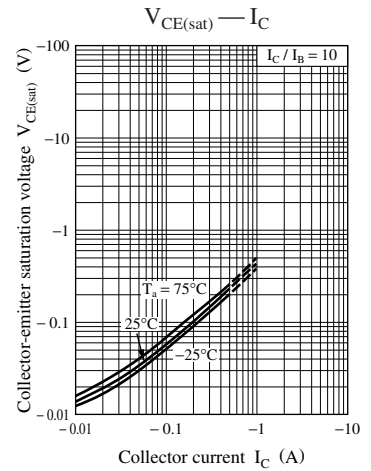
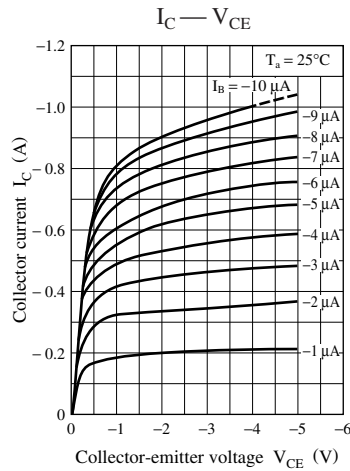
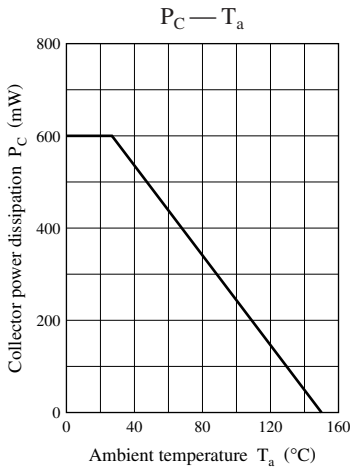
### ■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base voltage (Emitter open)	$V_{CBO}$	$I_C = -10 \mu\text{A}, I_E = 0$	-25			V
Collector-emitter voltage (Base open)	$V_{CEO}$	$I_C = -1 \text{ mA}, I_B = 0$	-20			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)	$I_{CBO}$	$V_{CB} = -25 \text{ V}, I_E = 0$			-0.1	$\mu\text{A}$
Collector-emitter cutoff current (Base open)	$I_{CEO}$	$V_{CE} = -20 \text{ V}, I_B = 0$			-1	$\mu\text{A}$
Forward current transfer ratio	$h_{FE1}^*$	$V_{CE} = -2 \text{ V}, I_C = -0.5 \text{ A}$	90		220	—
	$h_{FE2}$	$V_{CE} = -2 \text{ V}, I_C = -1 \text{ A}$	25			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -500 \text{ mA}, I_B = -50 \text{ mA}$			-0.4	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = -500 \text{ mA}, I_B = -50 \text{ mA}$			-1.2	V
Transition frequency	$f_T$	$V_{CB} = -10 \text{ V}, I_E = 50 \text{ mA}, f = 200 \text{ MHz}$		150		MHz
Collector output capacitance (Common base, input open circuited)	$C_{ob}$	$V_{CB} = -10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$		15	25	pF

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

2. \*: Rank classification

Rank	Q	R
$h_{FE1}$	90 to 155	130 to 220



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