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# 2SB0970 (2SB970)

## Silicon PNP epitaxial planar type

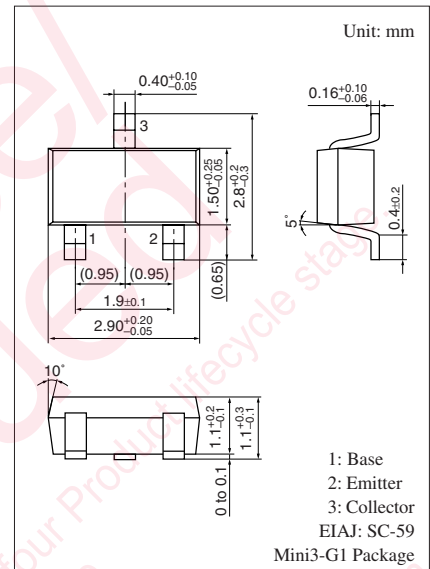
For low-voltage output amplification

### ■ Features

- Low collector-emitter saturation voltage  $V_{CE(sat)}$
- 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)	$V_{CBO}$	-15	V
Collector-emitter voltage (Base open)	$V_{CEO}$	-10	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	$P_C$	200	mW
Junction temperature	$T_j$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$



Marking Symbol: 1R

### ■ 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)	$V_{CBO}$	$I_C = -10 \mu\text{A}$ , $I_E = 0$	-15			V
Collector-emitter voltage (Base open)	$V_{CEO}$	$I_C = -1 \text{ mA}$ , $I_B = 0$	-10			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
Forward current transfer ratio *1	$h_{FE1}$ *2	$V_{CE} = -2 \text{ V}$ , $I_C = -0.5 \text{ A}$	130		350	—
	$h_{FE2}$	$V_{CE} = -2 \text{ V}$ , $I_C = -1 \text{ A}$	60			—
Collector-emitter saturation voltage *1	$V_{CE(sat)}$	$I_C = -0.4 \text{ A}$ , $I_B = -8 \text{ mA}$		-0.16	-0.30	V
Base-emitter saturation voltage *1	$V_{BE(sat)}$	$I_C = -0.4 \text{ A}$ , $I_B = -8 \text{ mA}$		-0.8	-1.2	V
Transition frequency	$f_T$	$V_{CB} = -10 \text{ V}$ , $I_E = 50 \text{ mA}$ , $f = 200 \text{ MHz}$		130		MHz
Collector output capacitance (Common base, input open circuited)	$C_{ob}$	$V_{CB} = -10 \text{ V}$ , $I_E = 0$ , $f = 1 \text{ MHz}$		22		pF

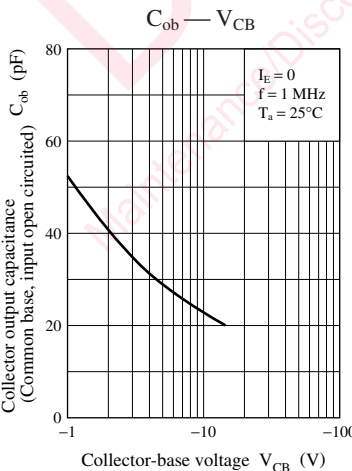
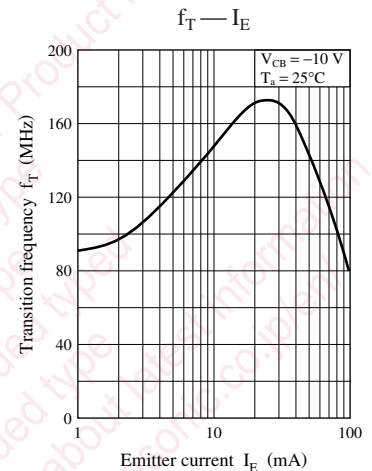
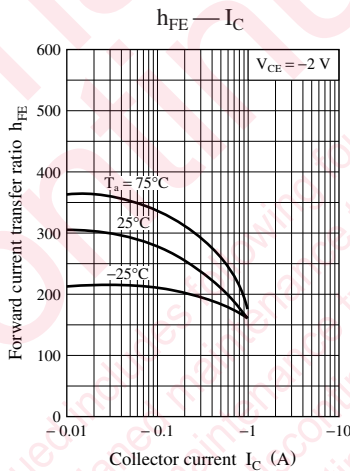
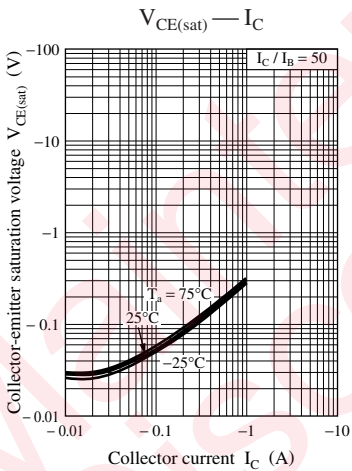
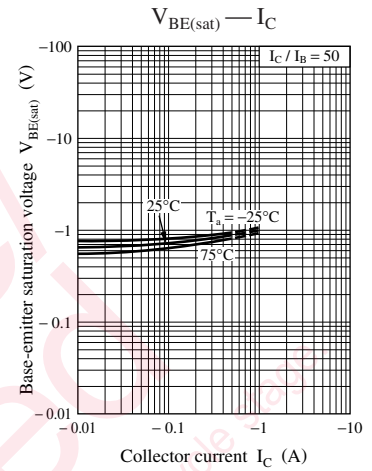
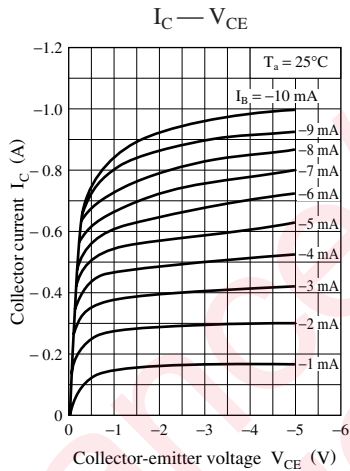
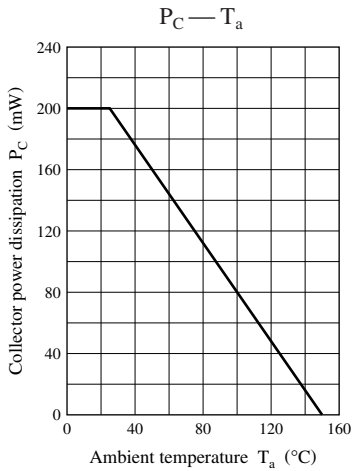
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. \*1: Pulse measurement

\*2: Rank classification

Rank	R	S
$h_{FE1}$	130 to 220	180 to 350

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



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