

# 2SB0643, 2SB0644 (2SB643, 2SB644)

## Silicon PNP epitaxial planar type

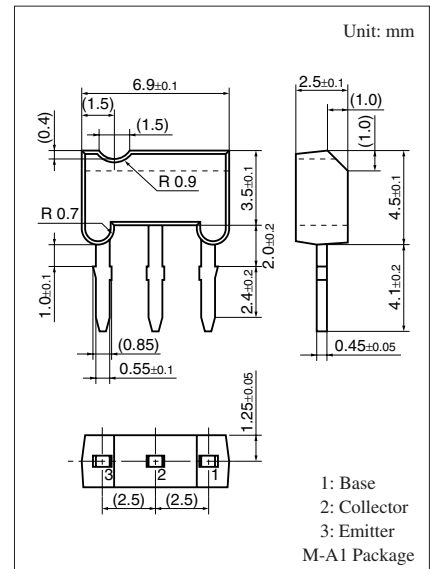
For low-frequency general amplification

### ■ Features

- M type package allowing easy automatic and manual insertion as well as stand-alone fixing to the printed circuit board.

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

Parameter		Symbol	Rating	Unit
Collector-base voltage (Emitter open)	2SB0643	$V_{\text{CBO}}$	-30	V
	2SB0644		-60	
Collector-emitter voltage (Base open)	2SB0643	$V_{\text{CEO}}$	-25	V
	2SB0644		-50	
Emitter-base voltage (Collector open)		$V_{\text{EBO}}$	-7	V
Collector current		$I_{\text{C}}$	-0.5	A
Peak collector current		$I_{\text{CP}}$	-1	A
Collector power dissipation		$P_{\text{C}}$	600	mW
Junction temperature		$T_{\text{j}}$	150	$^\circ\text{C}$
Storage temperature		$T_{\text{stg}}$	-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)	2SB0643	$V_{\text{CBO}}$	$I_{\text{C}} = -10 \mu\text{A}, I_{\text{E}} = 0$	-30			V
	2SB0644			-60			
Collector-emitter voltage (Base open)	2SB0643	$V_{\text{CEO}}$	$I_{\text{C}} = -2 \text{mA}, I_{\text{B}} = 0$	-25			V
	2SB0644			-50			
Emitter-base voltage (Collector open)		$V_{\text{EBO}}$	$I_{\text{E}} = -10 \mu\text{A}, I_{\text{C}} = 0$	-7			V
Collector-base cutoff current (Emitter open)		$I_{\text{CBO}}$	$V_{\text{CB}} = -20 \text{V}, I_{\text{E}} = 0$			-0.1	$\mu\text{A}$
Collector-Emitter cutoff current (Base open)		$I_{\text{CEO}}$	$V_{\text{CE}} = -20 \text{V}, I_{\text{B}} = 0$			-1	$\mu\text{A}$
Forward current transfer ratio *1		$h_{\text{FE1}}$ *2	$V_{\text{CE}} = -10 \text{V}, I_{\text{C}} = -10 \text{mA}$	85		340	—
		$h_{\text{FE2}}$	$V_{\text{CE}} = -10 \text{V}, I_{\text{C}} = -500 \text{mA}$	40	90		—
Collector-emitter saturation voltage *1		$V_{\text{CE(sat)}}$	$I_{\text{C}} = -300 \text{mA}, I_{\text{B}} = -30 \text{mA}$		-0.35	-0.6	V
Transition frequency		$f_{\text{T}}$	$V_{\text{CB}} = -10 \text{V}, I_{\text{E}} = 10 \text{mA}, f = 200 \text{MHz}$		200		MHz
Collector output capacitance (Common base, input open circuited)		$C_{\text{ob}}$	$V_{\text{CB}} = -10 \text{V}, I_{\text{E}} = 0, f = 1 \text{MHz}$		6	15	pF

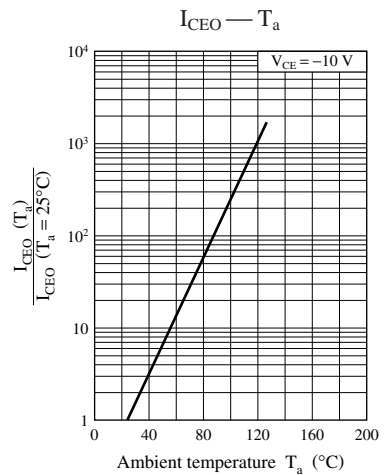
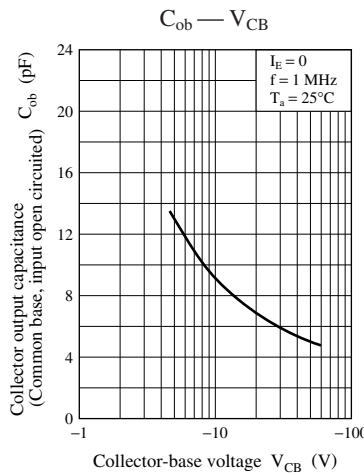
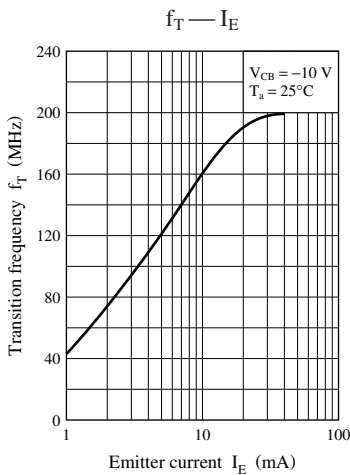
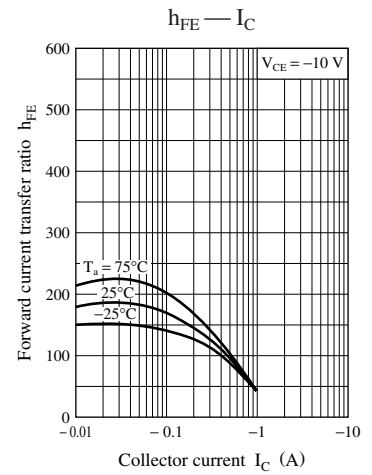
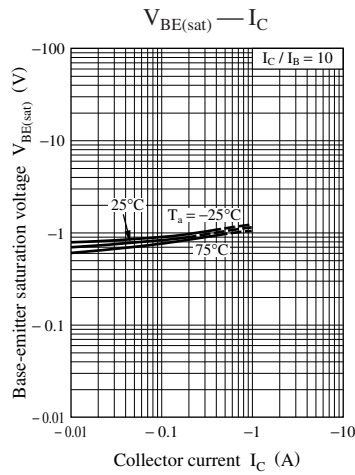
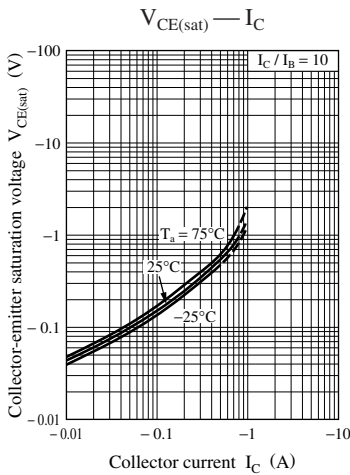
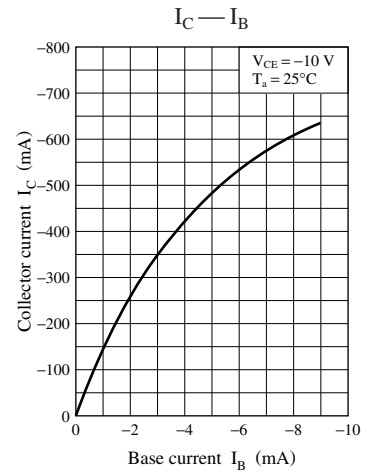
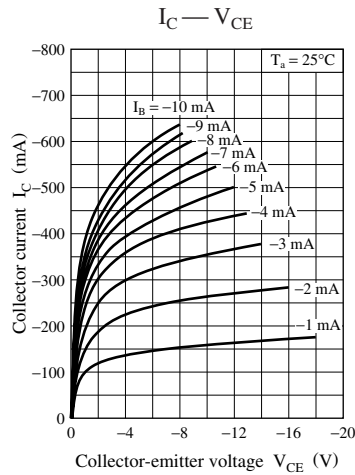
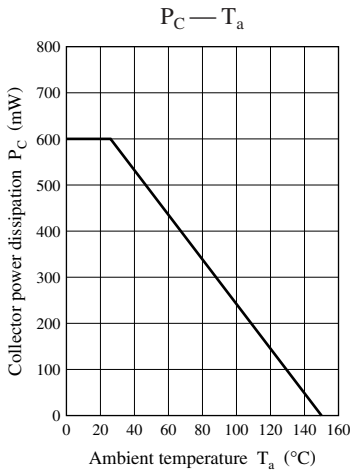
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

2. \*1: Pulse measurement

\*2: Rank classification

Rank	Q	R	S
$h_{\text{FE1}}$	85 to 170	120 to 240	170 to 340

Note) The part numbers in the parenthesis show conventional part number.



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