

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

## Silicon PNP epitaxial planar type

For low-power general amplification

Complementary to 2SD0638 (2SD638) and 2SD0639 (2SD639)

### ■ 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 to base voltage	2SB0643	$V_{\text{CBO}}$	−30	V
	2SB0644		−60	
Collector to emitter voltage	2SB0643	$V_{\text{CEO}}$	−25	V
	2SB0644		−50	
Emitter to base voltage		$V_{\text{EBO}}$	−7	V
Peak collector current		$I_{\text{CP}}$	−1	A
Collector current		$I_{\text{C}}$	− 0.5	A
Collector power dissipation		$P_{\text{C}}$	600	mW
Junction temperature		$T_{\text{j}}$	150	°C
Storage temperature		$T_{\text{stg}}$	−55 to +150	°C

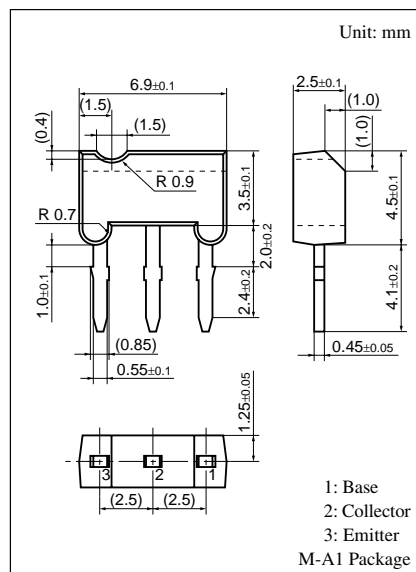
### ■ Electrical Characteristics $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector cutoff current	$I_{\text{CBO}}$	$V_{\text{CB}} = -20 \text{ V}, I_{\text{E}} = 0$			–100	nA
	$I_{\text{CEO}}$	$V_{\text{CE}} = -20 \text{ V}, I_{\text{B}} = 0$			–1	$\mu\text{A}$
Collector to base voltage	2SB0643	$V_{\text{CBO}}$	$I_{\text{C}} = -10 \mu\text{A}, I_{\text{E}} = 0$	–30		V
	2SB0644			–60		
Collector to emitter voltage	2SB0643	$V_{\text{CEO}}$	$I_{\text{C}} = -2 \text{ mA}, I_{\text{B}} = 0$	–25		V
	2SB0644			–50		
Emitter to base voltage	$V_{\text{EBO}}$	$I_{\text{E}} = -10 \mu\text{A}, I_{\text{C}} = 0$	–7			V
Forward current transfer ratio *1	$h_{\text{FE1}}$ *2	$V_{\text{CE}} = -10 \text{ V}, I_{\text{C}} = -150 \text{ mA}$	85		340	
	$h_{\text{FE2}}$	$V_{\text{CE}} = -10 \text{ V}, I_{\text{C}} = -500 \text{ mA}$	40	90		
Collector to 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	$C_{\text{ob}}$	$V_{\text{CB}} = -10 \text{ V}, I_{\text{E}} = 0, f = 1 \text{ MHz}$		6	15	pF

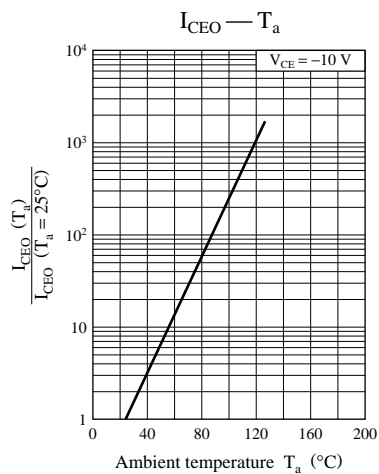
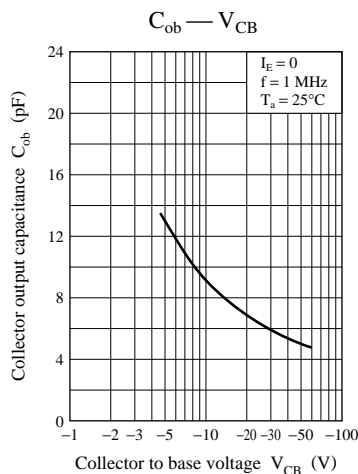
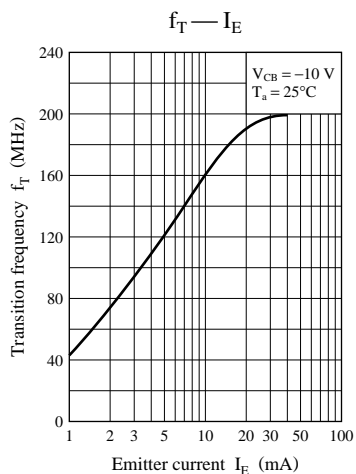
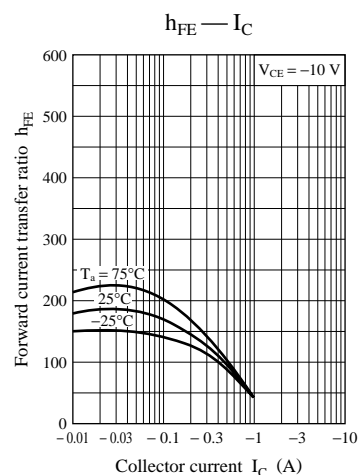
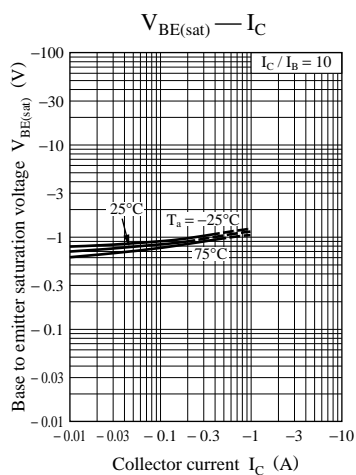
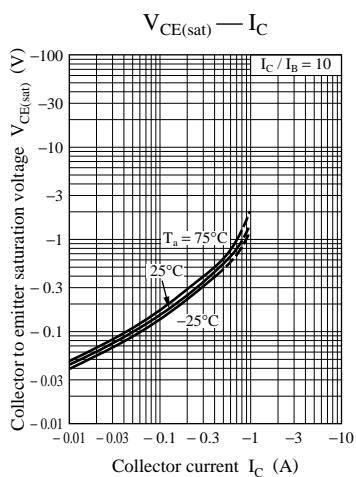
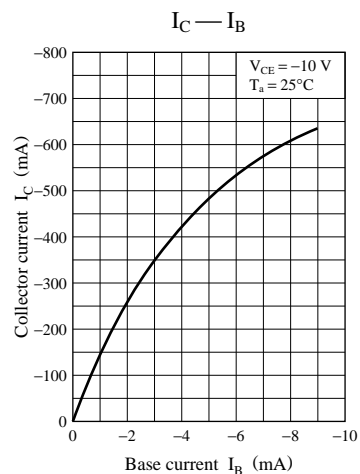
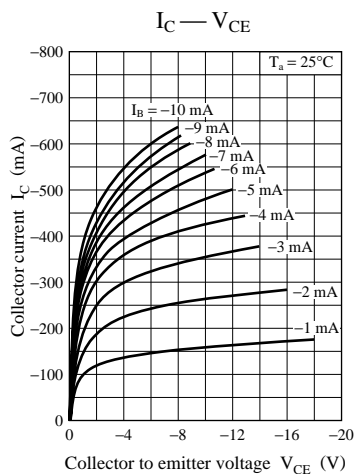
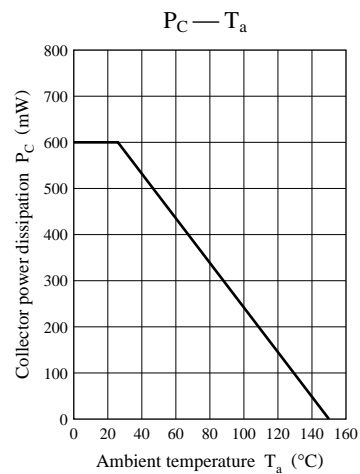
Note) \*1: Pulse measurement

\*2:  $h_{\text{FE}}$  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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